
Natural Community Conservation Plan & Habitat Conservation Plan

County of Orange

Central & Coastal Subregion

Part III: Joint Programmatic EIR/EIS



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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

Acronyms - Continued

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
PCH	Pacific Coast Highway
RMP	Resource Management Plan
RMPs	County HBP Resource Management Plans
RSAs	Regional Statistica 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
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- 8 USFWS Biological Opinions for the Toll Roads
 - San Joaquin Hills Transportation Corridor
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EXECUTIVE SUMMARY

I. NEED FOR THE PROPOSED PROJECT

The County of Orange Environmental Management Agency (EMA) has prepared a Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) for the Orange County Central and Coastal Subregion of the Southern California NCCP Coastal Sage Scrub (CSS) program. The County EMA and U.S. Fish and Wildlife Service (USFWS) are the lead agencies for this joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) prepared to facilitate environmental review of the proposed Central/Coastal NCCP/HCP.

The need for the proposed subregional CSS NCCP/HCP has been established over recent years by a combination of cumulative impacts on habitat resources and the legislative and regulatory responses to those impacts. The listing of the California gnatcatcher as "threatened," and the proposed listing of several other species that rely upon the coastal sage scrub habitat have signaled the need to shift the conservation planning focus from single species, project by project efforts to conservation planning at the natural community level. The Southern California NCCP CSS Program was developed to address this need, facilitating regional protection of a range of species inhabiting a designated natural community - in this case CSS and its associated mosaic of habitat types - while allowing compatible land uses and appropriate growth and economic development.

The "take" (*i.e.*, killing, harm, harassment, including significant habitat loss) of threatened and endangered species is prohibited under Section 9 of FESA and its implementation regulations. The USFWS, however, may issue permits to incidentally take listed species in connection with otherwise lawful activities. In a manner similar to Section 10(a)(1)(B) of FESA, the NCCP Act contains statutory provisions authorizing the take of species that would be prohibited or limited by CESA.

II. PUBLIC REVIEW PROCESS AND PROGRAMMATIC REVISIONS IN RESPONSE TO PUBLIC COMMENTS AND FURTHER AGENCY REVIEW

A. Documents Distributed/Available for Public Review

The NCCP/HCP, EIR/EIS and NCCP/HCP Implementation Agreement were prepared in cooperation with the California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS). These two resource agencies are responsible for implementing the California Endangered Species Act (CESA) and Federal Endangered Species Act (FESA). The Orange County EMA is the lead agency responsible for the preparation of the NCCP/HCP and the EIR while the USFWS is the lead agency responsible for managing preparation of the EIS.

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 seven parts:

- an Introduction to the NCCP that provides planning and regulatory background information and the NCCP/HCP that contains the substance of the proposed subregional conservation strategy;
- the Joint EIR/EIS that evaluates environmental consequences and alternatives;
- the Implementation Agreement that outlines the specific enforceable measures and mechanisms that will be required to effectively implement the NCCP/HCP;
- maps and other figures (termed "figures") referred to by the NCCP/HCP, the EIR/EIS and the Implementation Agreement (collected in one volume for ease of reference and economy of color reproductions); and
- appendices containing materials cited in or used in the preparation of the NCCP/HCP, EIR/EIS and Implementation Agreement.

B. Public Comments, Responses to Comments and Revisions Reflecting Responses

As part of the public review process pursuant to CEQA, NEPA, the NCCP Act and FESA, extensive public comments were received. The written public comments have been reproduced in the accompanying document title "County of Orange Central & Coastal Subregion Part III; Joint Programmatic EIR/EIS - Comment Letters." Public testimony was also presented in oral form at public hearings before the County of Orange Planning Commission and the County of Orange Board of Supervisors.

Extensive written comments were prepared and are set forth in the accompanying document titled "County of Orange Central and Coastal Subregion Part III: Joint Programmatic EIR/EIS - Response to Comments." In broad terms, the responses are grouped under two categories: (1) "General Responses" presenting issues raised in a number of comments and/or which appeared to be of general interest and (2) "Specific Responses" which comprise responses to specific issues raised by only one party or a few parties.

In addition to providing substantive responses to specific comments, the Response to Comments document also indicates whether changes were to be made to the NCCP/HCP, the Implementation Agreement and/or the EIR/EIS in response to the comment and further lead agency assessment by the County of Orange, CDFG and USFWS. In addition to clarifications and corrections of specific matters in the documents, the responses included revisions that may be categorized as follows:

- ***Species-Related Considerations***

- Three species (the golden eagle, the prairie falcon and the foothill mariposa lilly) were shifted to the category of "conditionally covered species" due to the particular needs of those species.
- Three species which are particularly associated with grasslands (the white-tailed kite, the loggerhead shrike and the California horned lark) were deleted from the list of Identified Species until such time as the NCCP Non-Profit is able to proceed with grasslands management programs, NCCP surveys and other information gathering.

- The Implementation Agreement provisions relating to species dependent upon or associated with CSS and covered habitats were modified to provide for species-specific assessments at the time of any future listing of such species and to deal with regulatory contingencies involving assurances to *participating landowners* and requirements for the future issuance of section 10(a)(1)(B) permits.
- Revisions were made to the provisions for the purchase of the Pacific pocket mouse site on Dana Point Headlands and construction-related minimization measures were incorporated into the EIR/EIS Mitigation measures and the Implementation Agreement.
- The Implementation Agreement has been modified to provide that an assessment will be made, within one year of the hiring of the NCCP Non-Profit Executive Director, as to whether special management measures should be undertaken for the cactus wren.

- ***Future Public Involvement Considerations***

- Membership of the Board of the Directors of the NCCP Non-Profit was modified to specifically provide for three “public” members.
- A provision was made in the Implementation Agreement for the appointment of a Technical Advisory Committee to provide scientific input into policy matters considered by the NCCP Non-Profit.
- Although likely required by existing law, the Implementation Agreement was modified to specifically commit the NCCP Non-Profit to open public meetings.

- ***Reserve System Configuration and Commitments***

- Some revisions were made to the Reserve System boundaries - most revisions generally involved shifting areas proposed for inclusion in the Reserve System into the “Existing Use” category of lands subject to ongoing USFWS listed species jurisdiction (including the prohibitions against take in Section 9 of FESA).

- The Implementation Agreement was modified to provide for commitments of signatory jurisdictions to manage Reserve System lands in a manner consistent with the purposes of the NCCP/HCP after the expiration of the 75-year term of the Implementation Agreement/permits. Special Linkage provisions for signatory public agencies were also made subject to this commitment (private lands in Special Linkage areas were already subject to conservation easement requirements).

Other revisions involved the addition of some other lands to the "Existing Use" category, revisions to the MCAS El Toro re-use provisions and revisions to Implementation Agreement provisions relating to future CDFG actions in conjunction with state CESA listings.

Where applicable, the text of this EIR/EIS has been modified to reflect revisions, clarifications and corrections made in the Response to Comments including corresponding revisions to the NCCP/HCP, the Implementation Agreement and the NCCP/HCP Map Book.

III. PROJECT OVERVIEW

A. Regulatory Framework

Approval of the EIR/EIS and implementation of the NCCP/HCP would allow the conservation of large, diverse areas of natural habitat, including coastal sage scrub (CSS), the habitat of the federally threatened coastal California gnatcatcher. These actions, in turn, would provide the mitigation basis for allowing impacts to some CSS habitat and certain other habitat types designated as "covered habitats" caused by the construction of various private and public projects that conform to the NCCP/HCP.

The regulatory framework within which the NCCP/HCP and EIR/EIS were prepared is described in detail in both documents, and includes:

- *The California Natural Community Conservation Planning Act of 1991: The purpose of this act 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 is intended to shift the focus of conservation efforts from single species to a range of species that inhabit a designated natural community, such as CSS. Subsequent to the passage of the NCCP Act, Process and Conservation Guidelines were*

prepared and adopted for the Southern California NCCP Coastal Sage Scrub program to assist in the preparation of NCCPs at the subregional level.

- *The listing (March 30, 1993) of the coastal California gnatcatcher as a “threatened” species under the provisions of the Federal Endangered Species Act.*
- *The Special 4(d) Rule: This regulation was enacted by the Department of the Interior to encourage the preparation of NCCPs by establishing the NCCP Act as the substantive program for addressing the federal listing of the gnatcatcher.*
- *The “Region 1 Guidelines for Determining Covered Species Lists and Assurances Relative to Habitat Conservation Planning” (USFWS August 1, 1995)*

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 and associated habitats at a subregional level.

Under the NCCP approach, the focus changes from protecting individual species to *conserving* natural communities 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 multiple species within a mosaic of natural communities is intended to enhance 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. Accordingly, the NCCP/HCP focuses 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 residents and businesses of the subregion.

B. Study Area

The Central and Coastal Subregion includes the central portion of Orange County from the coast inland to the Riverside Freeway (SR-91) (See Figure 1). Along the coast, the subregion extends from the mouth of the Santa Ana River in the City of Costa Mesa to the mouth of San Juan Creek, in the City of Dana Point. The Central and Coastal Subregion covers approximately 208,000 acres. Approximately 104,000 acres are natural habitat. A total of 34,500 acres of CSS exists in the study area, embedded within a mosaic of non-CSS vegetation communities. CSS is a naturally fragmented and dispersed vegetation type. As a result, conservation planning efforts for CSS generally include significant non-CSS areas, such as chaparral and grasslands and their resident species.

C. Alternatives Reviewed

Four alternatives (see NCCP/HCP Alternatives Matrix at p. xx) have been selected for initial review and screening for further consideration in this EIR/EIS:

- the *Proposed Project* Alternative;
- the *No Project* Alternative (the "*No Action Alternative*" for NEPA purposes);
- the *No Take* Alternative; and
- a *Programmatic* Alternative.

The Section 10(a) FESA regulations require that permit 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 the EIR/EIS, 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 defines a reserve system and management program at one point in time. 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 of take included in Section 9 of the FESA to protect the gnatcatcher. Neither the No Project nor the No Take Alternatives would necessarily 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 potential for addressing unlisted species).

A fourth alternative, the Programmatic Alternative, would formulate a subregional Reserve System program, 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 specific reserve boundaries and allows for a longer time period for accumulating scientific understanding regarding reserve design than is the case with the Proposed Project. The EIR/EIS addresses the primary substantive considerations of the Programmatic Alternative in the context of the review of alternative reserve design considerations in Chapter 5.

IV. PROPOSED PROJECT

A. Proposed Actions

The state and local government actions to be analyzed under CEQA are: (a) County approval of the NCCP/HCP as the CEQA lead agency, (b) CDFG approval as a CEQA responsible agency, including the approval of the NCCP/HCP and Implementation Agreement pursuant to NCCP Section 2810, 2820, 2825, 2830 and 2835 of the NCCP Act - the Implementation Agreement would serve as the management authorization for the immediate issuance of Section 2081 permits, and other appropriate take authorization pursuant to the NCCP Act, for all species treated as "identified species" in the NCCP and the Headlands plant species and future Section 2081 permits for species subject to the "covered habitat" provisions of the NCCP/HCP, and (c) Local government approval as signatories to the Implementation Agreement.

The federal actions analyzed under NEPA in this EIR/EIS are: (1) approval of the NCCP/HCP; (2) issuance of incidental take permits pursuant to Section 10(a)(1)(B) of FESA and amendment of the USFWS's FESA Section 10(a)(1)(A) permit for scientific study and

recovery of the Pacific pocket mouse; and (3) execution of an Implementation Agreement (to be signed by USFWS, CDFG, participating local governments and *participating landowners* in conjunction with final state and federal approval of the NCCP/HCP) which provides for specific measures and assurances required to carry out the NCCP/HCP.

B. Results of the Proposed Actions

One result of the proposed actions would be the establishment of a subregional Reserve System that would include more than 37,000 acres of land consisting of two reserves - the "Coastal" reserve and the "Central" reserve (see Figure 12). Other areas, called Special Linkage Areas that enhance biological connectivity within the Reserve System and subregion and protect remnant populations of "identified species" and/or important habitat are also designated for specific habitat protection measures but not included in the NCCP Reserve System. Finally, certain areas are defined as "Existing Use Areas" where current endangered species regulation would remain the same as it presently exists (*i.e.*, anyone wishing to undertake an activity resulting in take of a state or federally listed species would have to obtain permits under CESA and FESA).

The proposed Reserve System is intended to provide the mitigation basis for allowing proposed CSS habitat conversion and impacts on "covered habitats" by meeting two fundamental requirements:

- assuring "the maintenance of net habitat value on a long-term basis" through the creation of a subregional Reserve System and Adaptive Management Program (addressing the provisions of the NCCP Act as applied through the NCCP Conservation Guidelines); and
- assuring that permitted activities will not "not appreciably reduce the likelihood of survival and recovery of the species in the wild" and will satisfy the other permit issuance requirements of Section 10(a)(1)(B) of the FESA.

The key elements of the NCCP/HCP conservation strategy are:

- *Reserve System* - creation of a publicly-owned habitat Reserve System that includes CSS and other habitat types representative of all but one of the major habitat types currently existing within the subregion(see Figure 4);

- *Special Linkages* - designation of “Special Linkages” to enhance biological connectivity within the subregion;
- *Existing Use Areas* - designation of areas containing significant populations of Target Species where existing uses are compatible with habitat protection and that would remain subject to currently existing CESA and FESA regulation;
- *Adaptive Management* - the creation of an institutional basis and funding program for undertaking management actions necessary to sustain populations over the long term, and in so doing, to adapt management actions to new information and changing habitat needs.
- *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 the “Adaptive Management Program,” additions to the Reserve System, and other mitigation measures; and
- *Mitigation Fee Option for “Non-Participating Landowners”* - provisions for an optional approach for mitigation of CSS impacts proposed to be authorized on lands located within the subregion but outside the Reserve System and owned by landowners who have not participated in the assemblage and management of the Reserve System through the contribution of reserve lands or planning/implementation funding.

Each of these elements is described in detail in the NCCP/HCP and reviewed in the EIR/EIS. Summary descriptions of each are included below:

1. NCCP/HCP Reserve System

The Reserve System encompasses more than 37,000 acres of land (see Figure 12). While NCCP/HCP reserve planning efforts focused on protecting significant coastal sage scrub habitat land, other habitat areas were also considered to be very important. Such areas were included in the reserve to assure that animal movement and genetic exchange continue to occur and to provide for bio-diversity within the Reserve System. The proposed Reserve System is comprised of two geographic “subareas” - The *Coastal Subarea Reserve* and the *Central Subarea Reserve*.

-- Description of the Coastal Subarea Reserve

The Coastal Subarea Reserve is proposed to contain 17,201 acres (more than 27 square miles) located primarily in and surrounding the San Joaquin Hills (Figure 16). The proposed reserve extends from the shoreline in Crystal Cove State Park inland almost 7.5 miles to a point close to the I-405 Freeway. Starting from the Upper Newport Bay reserve, the reserve extends southeast approximately 16 miles to the confluence of Oso Creek and Trabuco Creek, adjacent to the Southern NCCP subregion. Most of the proposed reserve 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. Smaller portions of the reserve also are located within the cities of Costa Mesa and Newport Beach. The dominant physiographic features within the proposed 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).

-- Description of the Central Subarea Reserve

The Central Subarea Reserve is proposed to comprise a 20,177-acre system (more than 31 square miles) located south and west of the Cleveland National Forest in the foothills and frontal slopes of the Santa Ana Mountains (Figure 15). 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. On the west, the subarea Reserve System extends from Santiago Oaks Regional Park, in the City of Orange, about 14 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.

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 and determine the feasibility of alternative population conservation/enhancement techniques.

-- Ownership of Reserve Lands and Coordination of Management

When fully assembled, the entire reserve would be owned and managed by public agencies, with management coordination provided by a non-profit corporation that would be created and would consist of representatives of individual public agency reserve owners, the CDFG and USFWS. This non-profit corporation would 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.

The following local governments own lands, are responsible for dedication programs or are designated as potential recipients of future dedication of lands proposed to be included in the NCCP Reserve System:

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

The NCCP/HCP proposes that local government jurisdictions, along with other local governments within the subregion that would rely on the NCCP/HCP for mitigation for development activities affecting occupied CSS habitat, will be asked to become signatories of the Central and Coastal Subregion NCCP/HCP Implementation Agreement and participate in the implementation of the NCCP/HCP. The NCCP/HCP and the Implementation Agreement explain what participation in the NCCP/HCP would mean for local government signatories to the Implementation Agreement (a summary outline of local government roles and commitments is set forth in Section 2.3 of this EIR/EIS).

-- Protected Plant and Animal Species - "Identified Species"

Under the NCCP Conservation Guidelines, the subregional reserve design process focuses on protecting the habitat of three designated "*target species*:" the coastal California gnatcatcher, the coastal cactus wren and the orange-throated whiptail lizard. As envisioned by the NCCP Conservation Guidelines, the Reserve System designed for the three "target species" is intended to provide 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 proposes that it would be appropriate to provide regulatory coverage for a total of 39 species, the three target species and 36 additional species, most of which are not presently "listed" under state or federal endangered species laws. The term "regulatory coverage" means that the species are treated "as if listed" under the NCCP Act and the state and Federal Endangered Species Acts, thereby allowing specified conversion of CSS habitat in return for mitigation measures assured through the NCCP/HCP Implementation Agreement. The species proposed to receive "coverage" under the NCCP/HCP are termed "Identified Species" and include:

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 (PE)
- ** Santa Monica Mts Dudleya (PT)
- Nuttall's scrub oak
- small-flowered mountain mahogany
- heart-leaved pitcher sage
- Coulter's matilija poppy
- Tecate cypress

Conditionally Covered Species (10)

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

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

** *Species that are proposed for federal listing as threatened or endangered species*

For some of the above species, the NCCP/HCP proposes certain conditions that must be met in order for the species to be covered.

-- “Covered Habitats”

In addition to the regulatory coverage for incidental take of CSS habitat and the thirty-nine “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 proposed 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):

	ACRES OF “COVERED HABITATS” OUTSIDE THE RESERVE SYSTEM	ACRES OF “COVERED HABITATS” INSIDE THE RESERVE SYSTEM
• oak woodlands;	205	940
• Tecate cypress forest;	3	191
• cliff and rock; and,	28	74
• within the Coastal Subarea only, chaparral.	<u>260</u>	<u>3,337</u>
TOTALS	496	4,542

For these habitats, CDFG and USFWS will assume the responsibility for assuring, to the extent allowed by law and consistent with the provisions of Section 8.3.4(d) of the Implementation Agreement, 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 of any currently unlisted covered species.

-- Headlands Plant Species

The NCCP/HCP proposes regulatory coverage for five plant species on the site of the Headlands Property only.

2. Adaptive Management

Adaptive management is a central theme of the NCCP Conservation Guidelines and 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, and adjusted, in light of monitoring results and other new information. The purpose of adaptive management within the framework of the NCCP/HCP Reserve System is to help maintain long-term, net habitat value within the subregion. The NCCP Conservation Guidelines recognize the need for such management to counter the effects of "benign neglect" under pre-NCCP conditions and to offset impacts on habitat lands proposed for conversion.

The Adaptive Management Program is described in detail in the NCCP/HCP. Key elements of this program are:

- monitoring and associated adaptive management of the biological resources located within the Reserve System;
- restoration and enhancement actions such as eradication of invasive, non-native plant species, predator control and grazing management plans;
- consideration of species enhancement, propagation and re-introduction within the reserve.
- 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 related to uses within the Reserve System that existed prior to approval of the Subregional NCCP/HCP;
- assurance that future permitted infrastructure uses and other public facilities within the Reserve System proceed in a manner provided for in the NCCP/HCP in order to minimize impacts of allowed uses;
- 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 (see discussion in Subsection "3" below);

- restoration and enhancement through the acquisition of existing CSS habitat or 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* (i.e., landowners who have not contributed significant lands or lands to the NCCP Reserve System - see discussion in Section "4" below); and
- restoration and enhancement of non-CSS "covered habitat" types.

3. Interim Management Program

Approximately 15,000 acres of the proposed Reserve System are currently publicly owned and would 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 proposed reserve are currently privately owned, and because most of the private ownership is subject to phased dedication commitments that preceded the NCCP/HCP, it would take many years to complete these open space dedication programs. To address the need for managing these lands prior to dedication, "*participating landowners*" would be required to allow the non-profit management entity to implement "interim" habitat management measures during the time following approval of the NCCP/HCP and the actual future transfer of lands from private to public ownership. The purpose of this interim management is to maintain and improve habitat values on lands designated for inclusion within the reserve.

4. Funding

The NCCP/HCP identifies three different sources of funding:

- An endowment to fund the Adaptive Management Program within the reserve lands over the life of the Reserve System, contributed by 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. At this time, the NCCP/HCP projects the ultimate endowment fund to total more than \$10.6 million.
- State/federal contributions to fund research, management, focused species inventories and future acquisitions of designated lands for the proposed Reserve System.

- A mitigation fee mechanism that gives landowners who are not contributing directly to creation/management of the reserve (*i.e., non-participating landowners*) a choice of how to meet current statutory requirements by mitigating proposed conversions of CSS habitat occupied by state or federally listed species located outside the Reserve System; mitigation funds provided by such landowners would be used to support restoration/enhancement activities within the Reserve System or to acquire lands to be added to the Reserves or Special Linkages. This mitigation option would involve payment of a fee in return for incidental take of CSS and gnatcatchers outside the Reserve System. Landowners who choose not to pay such a fee continue to have the option of separate Section 7 and 10(a) permits under applicable law (see discussion in Section "C.4" below).

C. Potential Impacts and Proposed Mitigation under the NCCP/HCP

1. Habitat Proposed to be Protected

The NCCP/HCP would establish a Reserve System that would protect more than 35,000 acres of wildlands, including more than 18,500 acres of CSS (the Reserve also contains about 2,200 acres of disturbed, agricultural and developed lands). In addition, almost 3,900 acres of non-reserve public open space is located within the subregion, and more than 5,700 acres are included within the "supplemental" non-reserve habitat areas (*i.e., the Special Linkage Areas and Existing Use Areas*). In all, almost 47,000 acres of natural habitat would be included within the proposed Reserve System, other permanent public open space and the "supplemental" non-reserve habitat areas. These areas contain 487 of the surveyed gnatcatcher sites (81 percent), and 774 of the surveyed cactus wren sites (78 percent) identified during the NCCP field surveys.

2. Potential Impacts on Lands Located Inside the Habitat Reserve System or Supplemental Non- Reserve Habitat Areas

The NCCP/HCP would also authorize the incidental take of 512 acres of CSS supporting nine surveyed gnatcatcher sites located within the proposed Reserve System and the Special Linkage Areas (four surveyed sites, 106 acres of CSS). All of this incidental take is related to future activities proposed (primarily recreational facilities, arterial roads, water reservoirs and other water supply facilities and other utility facilities) by "*participating landowners*" (see subsection "4" below).

3. Potential Impacts on Lands Located Outside the Habitat Reserve System

Impacts on occupied habitat of "target/identified" species would be permitted outside the Reserve System subject to the terms of the NCCP/HCP, Implementation Agreement and applicable local, state and federal laws (e.g., general plans, zoning, the federal Clean Water Act). These non-reserve areas contain approximately 7,000 acres of CSS habitat, of which approximately 1,100 acres are occupied by 108 surveyed gnatcatcher sites and 206 surveyed cactus wren sites. The NCCP/HCP proposes to authorize incidental take (i.e., conversion of CSS habitat) 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 would be impacted, 97 sites are located on lands owned by "participating landowners," and 11 sites are on lands owned by "non-participating landowners" (see discussion in the following section).

When all of the potential impacts are considered, the total authorized incidental take proposed by the NCCP/HCP would include an estimated 1,217 acres of CSS habitat occupied by the federally-listed gnatcatcher containing 121 current gnatcatcher sites. Total "conversion" of CSS proposed to be permitted under the NCCP/HCP, would be 7,444 acres. The 7,444 acres amounts to 24 percent of the total remaining CSS habitat within the subregion.

4. Mitigation Options for Landowners in the Subregion

Two categories of landowners are identified by the NCCP/HCP: *participating landowners* and *non-participating landowners*. Each of these landowner categories would be offered different endangered species habitat mitigation options (see discussion below and attached NCCP/HCP Mitigation Measures Summary).

-- "Participating Landowners"

Participating landowners are those 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;
- The Irvine Company;

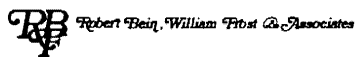
Table ES 1
Central & Coastal Subregion NCCP
Vegetation, Target Species, and Proposed Habitat Reserve

Vegetation	Special Reserve	Linkage	Existing Use	Non Reserve Open Space	Policy Plan Area	National Forest OS	National Forest Private	Other Non Reserve	Total
Dunes						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				42	53
Marsh	343		29	234				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				2	563	43	5	804
Cliff and Rock	74	7	1	1	14	29	12	35	173
Marine & Coastal	362		15	0				1,553	1,930
Lakes, Reservoirs, Basins	99	10	1	790			0	456	1,357
Water Courses	182	1	22	8	0		9	563	784
Agriculture	577	90	5	83			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			108	600
Cactus Wren Total Sightings	671	39	64		14			206	994
Total Sightings	1041	59	151	10	19			314	1594
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

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

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.



- University of California-Irvine;
- County of Orange; and
- Chandis-Sherman.

For these landowners, development activities and uses that are addressed by the NCCP/HCP would 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 designated in the NCCP/HCP and for impacts to species dependent upon or associated with the "covered habitats." The "incidental take" proposed to be authorized by the NCCP/HCP is framed in terms of CSS acreage, not in terms of specific occupied habitat because the population levels and locations of occupied habitat vary considerably over time. Satisfactory implementation of the NCCP/HCP and terms of the Implementation Agreement would mean that no additional mitigation will be required of *participating landowners*.

-- "Non-Participating Landowners"

For purposes of the NCCP/HCP, other landowners within the subregion that are not contributing either significant land to the Reserve System or funding for the Adaptive Management Program are termed "*non-participating landowners*." The NCCP/HCP provides for a different mitigation approach for these "*non-participating landowners*" to assure that impacts to occupied listed species habitat resulting from activities on their lands maintain "net habitat value" within the subregion consistent with the NCCP Act, CESA and FESA (see Chapters 7 and 8). "*Non-participating landowners*" may satisfy the requirements of FESA and CESA with respect to listed species in any of the following ways: (1) avoidance of conversion of habitat resulting in "Take" under CESA or FESA through project site design or other actions; (2) satisfaction of applicable FESA and CESA provisions under the consultation and permit provisions of these statutes independently of the NCCP/HCP; or (3) payment of a mitigation fee, for mitigation of impacts to CSS Identified Species, to the non-profit management corporation as provided for in the NCCP/HCP and Implementation Agreement. Thus, if a "*non-participating landowner*" could not avoid impacting CSS habitat occupied by a state or federal listed CSS species designated as an NCCP "Identified Species," the landowner could decide either to work with the regulatory agencies to mitigate impacts on-site or off-site (pursuant to the federal Endangered Species Act Section 7 or Section 10 processes and the state Endangered Species Act 2081 and 2084 processes) or to choose the option of payment of a mitigation fee to the NCCP program.

Finally, some *non-participating landowners* are located in "Existing Use Areas," lands containing populations of CSS Target species for which the NCCP/HCP proposes maintaining the regulatory status quo (*i.e.*, no take of CSS habitat occupied by CSS Identified Species is proposed to be authorized, thereby maintaining USFWS and/or CDFG direct authority over habitat protected by applicable law).

NCCP/HCP IMPACTS/MITIGATION MEASURES PROGRAMMATIC SUMMARY

Project Impacts	Mitigation Measures	Unavoidable Impacts
Biology Section 5.2.1.3		
Approximately 4,700 acres of CSS, 97 gnatcatcher sites will be impacted outside the Reserve System by <i>participating landowners</i> .	Prior to the occurrence of incidental take, each <i>participating landowner</i> shall dedicate land/provide funds for adaptive management as agreed to in the Implementation Agreement.	The loss of CSS habitat, and other biological resources is unavoidable. Impacts are mitigated to a level below significant.
Approximately 512 acres of CSS, 13 gnatcatcher sites will be impacted within the Reserve System and Special Linkages by <i>participating landowners</i> .	Mitigation for <i>participating landowners</i> consists of the measures already undertaken or agreed to in funding the planning and creation of the Reserve System, including land contributions as provided for in the Implementation Agreement. Further minimization are specified in the Adaptive Management Program.	The loss of target species and CSS habitat is unavoidable. Impacts are mitigated to a level below significant.
Approximately 2,100 acres of CSS, and 11 gnatcatcher sites will be impacted outside of the Reserve System, Special Linkages, Existing Use Areas, non-reserve open space and North Ranch area by <i>non-participating landowners</i> .	Mitigation for impacts to habitat occupied by CESA or FESA listed species will be provided either through standard CESA 2081 and/or FESA Section 7/10 processes or through payment of the optional NCCP/HCP habitat mitigation fee.	The loss of CSS habitat occupied by listed species is required by FESA and CESA to be mitigated to a level of less than cumulatively significant. "Net habitat value" is maintained under the optional NCCP mitigation fee and thus impacts are mitigated to a level below significant.
Incidental take beyond that authorized may be permitted at the discretion of USFWS.	Mitigation for such take would be through the Section 7 or 10 process of through payment of the optional mitigation fee.	USFWS has the authority to reduce impacts to a level below significant.

Land Use
Section 5.2.3

No significant impacts to existing General Plan land use designations are anticipated.

None required.

-

No significant impacts to housing resources are anticipated.

None required.

-

Transportation/Air Quality
Section 5.2.4

Several roads have been deleted from County and city Circulation Elements, including Sand Canyon Avenue, Lake Forest Extension, Bonita Canyon Road Extension and San Joaquin Hills Road Extension. Deletion of these roads results in significantly reduced grading impacts and potential adverse traffic impacts to Newport Coast Drive

Reconfiguration of proposed land uses have assured that these roads are not necessary. Specific mitigation requirements for Newport Coast Drive were adopted by the County of Orange as part of the MPAH Amendment.

Potential air quality impacts of redistributed traffic are addressed through specific mitigation measures pursuant to local government CEQA review for the General Plan/MPAH Amendments for these arterial roads. These mitigation measures reduce potential transportation and air quality impacts to below a level of significance.

NCCP/HCP ALTERNATIVES MATRIX

	PROPOSED PROJECT	NO TAKE	NO PROJECT	PROGRAMMATIC
HABITAT PROTECTION				
Large Scale Reserves	Yes	No	Smaller than NCCP	Depends on Funding
Certainty of Reserves	Yes	No	Uncertain	Uncertain
Occupied CSS	75%	100%	75%	Unknown
Timing of Reserve System Delineation	Certain	None	Uncertain	Uncertain
Non-gnatcatcher CSS	Substantial	No	Less than NCCP	Potentially Substantial
Other Habitat Types	Substantial	No	Less than NCCP	Unknown
CONNECTIVITY				
Within CSS	Substantial	CSS Patches Only	Substantial	Unknown
Between CSS Areas	Substantial	Limited	Moderate	Potentially High
Non-CSS Open Space	Substantial	None	Moderate	Unknown
RESERVE MANAGEMENT				
Comprehensive	Yes	No	Unknown	Unknown
Interim Management	Yes	No	No	No
Invasive Species	Yes	No	Probable	Probable
Fire	Extensive	No	Limited by Reserve Timing	Limited by Reserve Timing
Recreation	Yes	No	Limited	Limited
Monitoring	Extensive	No	Limited by Reserve Timing	Limited by Reserve Timing
Adaptive Management	Yes	No	Limited by Reserve Timing	Limited by Reserve Timing
Funding	Yes	No	Unknown	Unknown
Pacific Pocket Mouse Population Expansion	Possible	Unlikely	Unlikely	Unknown
least vireo	Probable	Unlikely	Unlikely	Potentially Substantial
Southwestern willow flycatcher	Probable	Unlikely	Unlikely	Potentially Substantial
Southwestern arroyo toad	Probable	Unlikely	Unlikely	Potentially Substantial
Quino checkerspot butterfly	Unknown	Unknown	Unknown	Unknown
Riverside fairy shrimp	Unknown	Unknown	Unknown	Unknown
San Diego fairy shrimp	Unknown	Unknown	Unknown	Unknown

CHAPTER 1 PURPOSE AND NEED FOR THE PROPOSED ACTIONS

SECTION 1.1 INTRODUCTION AND OVERVIEW

1.1.1 Introduction - Natural Communities Conservation Planning

The statutory framework for the Natural Community Conservation Planning (NCCP) Program was established by the California Legislature when it enacted the NCCP Act of 1991 (NCCP Act, California Fish and Game Code Section 2800 et. seq.). The purpose of the NCCP Program is to provide long-term, large scale 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 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 and subregional protection of a range of species that inhabit a designated natural community or communities.

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 State of California 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 Endangered Species Act (FESA) 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.

1.1.2 Relationship of the Southern California Coastal Sage Scrub NCCP Program to the Requirements of the Federal Endangered Species Act (FESA)

The Southern California Coastal Sage Scrub NCCP Program is the pilot program under the state's NCCP Act. It is being jointly undertaken by the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) pursuant to a December 4, 1991 Memorandum of Understanding (MOU). Under the 1991 MOU, CDFG is responsible for developing the NCCP process and for preparing planning guidelines. The USFWS role was to review and approve 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)(1)(B) of the FESA, with Sections 2800-2840 of the NCCP Act and with Sections 2081, 2084 and 2090 of the California Endangered Species Act (CESA) in the California Fish and Game Code.

Subsequent to the execution of the Memorandum of Understanding summarized above, the USFWS finalized, on March 30, 1993, a federal 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 federal rule under the provisions of Section 4(d) of FESA, that allows the FESA to fashion special provisions for addressing threatened species. This "Special Rule" signaled the USFWS's intent to designate the state's Coastal Sage Scrub (CSS) NCCP Program as the 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 FESA.

On December 10, 1993, the USFWS finalized 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 Natural Community Conservation Planning Act of 1991 (NCCP), and in accordance with a NCCP Plan for the protection of coastal sage scrub habitat, prepared consistent with the state's NCCP Conservation and Processing 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 Service shall issue its concurrence pursuant to the provisions of the Memorandum of Understanding dated December 3, 1991, between the California Department of Fish and Game and the Service regarding coastal sage scrub natural community conservation planning in southern California. (Federal Register. Vol. 58, No. 236, December 10, 1996. emphasis added)*

The above excerpts from the 4(d) Special Rule clearly indicate that: (a) the NCCP planning process can serve as a means of comprehensively addressing CSS habitat conservation concerns; (b) the standard of review of such plans by the USFWS will be consistency with the NCCP Conservation Guidelines and compliance with the requirements of Section 10(a)(1)(B) of FESA (the Habitat Conservation Plan provisions of FESA); and (c) 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)(1)(B) of FESA.

1.1.3 Relationship of Orange County's Coastal Sage Scrub Natural Community Conservation/Habitat Conservation Plan (NCCP/HCP) to NCCP and Other Planning Efforts

Two subregional habitat planning efforts are/currently underway in Orange County in the Central/Coastal (the "Central/Coastal NCCP/HCP") and Southern (the "Southern NCCP") subregions. These two subregional plans, when implemented, would create a habitat preserve system that provides coordinated reserves for the vast majority of CSS habitat extant in Orange County. The County of Orange, CDFG, USFWS and *participating landowners* (see Executive Summary discussion of "*participating*" and "*non-participating*" landowners) have all focused their efforts to assure the coordination of these programs in all key scientific, public policy, and finance/acquisition strategy aspects. Additional effort has also been applied towards achieving coordination between the Central/Coastal NCCP/HCP and other habitat conservation and open space plans in northern Orange County (e.g., the Shell/MWD HCP).

The Central/Coastal NCCP/HCP has been prepared as a Habitat Conservation Plan (HCP) as required for the issuance of incidental take permits pursuant to Section 10(a)(1)(B) of the federal ESA. This plan has also been accepted as a subregional plan of the NCCP Program. As noted previously, California law (Section 2800 et. seq. of the California Fish and Game Code) establishes the NCCP program "to provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development and growth." CDFG and the California Resources Agency have prepared the *Southern California Coastal Sage Scrub NCCP Process Guidelines* (November 5, 1993). The status of the Central/Coastal subregional process as an NCCP subregional planning program was confirmed by the signing of an Ongoing Multi-Species Planning Agreement on May 7, 1993. This agreement, among the California Resources Agency, CDFG, USFWS, and the County programs, states that the programs are *Ongoing Multiple Species Plans* (OMSP) as defined in the *NCCP Process Guidelines*. The agreement describes the planning efforts and details of the coordination with the NCCP.

SECTION 1.2 PURPOSE AND NEED FOR THE FEDERAL ACTIONS

1.2.1 Purpose and Need - U.S. Fish and Wildlife Service (USFWS)

The USFWS is proposing to issue individual Section 10(a)(1)(B) incidental take permits and sign an Implementation Agreement with the County of Orange, The Irvine Company,

Chandis/Sherman, Transportation Corridor Agencies, Irvine Ranch Water District, Metropolitan Water District of Southern California, the Southern California Edison Company, the Santiago County Water District and the Regents of the University of California (applicants). The purpose of the USFWS' proposal to issue "incidental take" permits is to authorize incidental "take" of the coastal California gnatcatcher (*Poliophtila californica californica*), additional "Identified Species," including habitat modification and certain plant species on the Headlands site only over a 75-year time frame. Such authorization is necessary because the applicants' proposed activities will result in take of listed species despite the extensive mitigation program sponsored by the applicants. The USFWS also intends to amend the existing USFWS, Carlsbad Field Office, Section 10(a)(1)(A) permit for programmatic research and recovery efforts for the small population of Pacific pocket mice on the Dana Point Headlands site. With regard to *non-participating landowners*, the USFWS intends to issue incidental take permits to local government jurisdictions which become signatory to the NCCP/HCP Implementation Agreement for incidental take proposed to be authorized under the NCCP/HCP for CSS Identified Species. Finally, the NCCP/HCP and the Implementation Agreement contain provisions regarding the issuance of future Section 10(a)(1)(B) permits for species dependent upon or associated with CSS and "covered habitats" as identified in the NCCP/HCP and in the manner provided for in the Implementation Agreement. Certain long-term assurances would also be provided in accordance with the terms and conditions of the Implementation Agreement both by USFWS and by participating landowners with regard to the foregoing Section 10(a)(1)(B) permit actions.

The purpose of the proposed Implementation Agreement is to identify responsibilities of present and future participants and legally bind all parties to their obligations. The Implementation Agreement would include an unlisted species and CSS/"covered habitats" agreement. The purpose of the unlisted species and CSS/"covered habitats" provisions of the Implementation Agreement is to conserve species, thereby potentially obviating the need for listing in the future some or all of the species addressed by the NCCP/HCP and reducing uncertainty associated with development and future species listings. The unlisted species and CSS/"covered habitats" provisions of the Implementation Agreement would provide assurances to the applicants that no additional land restrictions or financial compensation (except as specified in Section 8.3.4(d) of the Implementation Agreement) would be required from them for species adequately covered by a properly functioning habitat conservation plan in light of unforeseen or extraordinary circumstances. The USFWS, California Department of Fish and Game and the Section 10(a)(1)(B) permit applicants consider the implementation of a habitat conservation plan and unlisted species agreement to be the most effective means

to reconcile the applicants' proposed activities with the prohibitions against take and other conservation mandates of the Federal and California Endangered Species Acts (FESA and CESA, respectively).

The needs and goals of the USFWS are 1) to conserve listed species, their habitat and associated species in a manner consistent with the provisions of the special 4 (d) Rule for the California gnatcatcher and 2) to ensure compliance with the FESA, National Environmental Policy Act (NEPA), and other applicable Federal laws and regulations.

According to the Draft Environmental Assessment (EA) for the special 4(d) Rule, the inability to complete and implement NCCP CSS subregional plans would have potentially severe environmental consequences, thus underscoring the need for the Proposed Project. The 4(d) Rule EA reviewed the need for the Proposed Project in the following excerpts from its analysis:

Coastal Sage Scrub

. . . The No Action Alternative would result in further loss and fragmentation of habitat as projects continue to develop habitat in southern California. There would be less incentive for projects to participate in the NCCP Program, since they would still be required to obtain a Section 10(a) permit (or conduct a Section 7 consultation, as appropriate) for any action that might affect gnatcatchers.

As development continues to occur in the Southern California area, coastal sage scrub would continue to be fragmented and lost. Coastal sage scrub impacts would continue to be addressed on a project by project basis. Research on coastal sage scrub management and restoration would probably not be initiated, since no one project could justify such an expense. Biodiversity within the CSS ecosystem would incur substantial losses (CDFG et al, 1992). With no coordinated regional NCCP planning process to preserve CSS, the survival of the gnatcatcher could be further jeopardized and may require consideration by the service for listing as an endangered species.

Other Natural Habitats

Other habitat types would continue to diminish due to piecemeal losses from individual projects. The requirements of CEQA would continue to apply. The NCCP program would proceed but without being done in conjunction with other important environmental requirements (i.e., ESA take prohibitions). The indirect protection provided to some other habitats that the NCCP effort offers would likely be less effective. Comprehensive, regional planning would receive less effort, diluting efforts that may conserve some other habitat types known to be associated with CSS.

Coastal California Gnatcatchers

The No Action Alternative would mean that the Service takes no action; the special rule would not be finalized. Take of coastal sage scrub and the coastal California gnatcatcher would be prohibited by Section 9 of the ESA. Projects that needed to proceed with development plans that impacted CSS would be required to address the criteria included in Section 10(a)(1)(B) or, if appropriate, initiate a Section 7 consultation with the Service. . . .As required under the 1991 MOU with CDFG, the Service would continue to support the NCCP Program, but not through the Act.

Conservation programs would be disjointed, resulting in a diminished regional effort. A major concern to the long-term conservation of the gnatcatcher, regional habitat conservation planning, would be effected (sic - affected) by this action. Less incentive would be available for regional efforts when each project would require separate take authority.

Other Species of Plants and Wildlife

Similar to the effects to other habitat types, other species of plants and wildlife would continue to be subject to piecemeal losses. With less incentive for regional conservation efforts, other species of plants

and wildlife will continue to decline. Conservation of these species would be subject to CEQA requirements and any attending mitigation. (Final Environmental Assessment of the Proposed Section 4(d) Rule, November 1993, USFWS, pp. 43-44)

1.2.2 Decisions to Be Made - USFWS

The decisions to be made by USFWS are whether to approve the NCCP/HCP pursuant to the 4(d) Rule for the coastal California gnatcatcher and whether to issue or deny the incidental take permits, amend the Section 10(a)(1)(A) permit for the Pacific pocket mouse and sign the proposed Implementation Agreement.

Federal approval of this HCP is required as part of the special 4(d) Rule for the coastal California gnatcatcher. Incidental take of the gnatcatcher is allowed under section 4(d) of the FESA if take results from activities conducted pursuant to the California Natural Community Conservation Planning (NCCP) Act, the NCCP Process Guidelines and the NCCP Southern California Coastal Sage Scrub Conservation Guidelines.

The USFWS may issue an incidental take permit pursuant to section 10(a)(1)(B) of the FESA conditioned on implementation of a habitat conservation plan: (1) as submitted by the applicant or (2) as submitted by the applicant together with other measures specified by the USFWS. In reaching its decision, the USFWS must consider five factors, specifically:

1. Is the proposed take incidental to an otherwise lawful activity?
2. Are the impacts of the proposed taking minimized and mitigated to the maximum extent practicable?
3. Has the applicant ensured that adequate funding will be provided to implement the measures proposed in the habitat conservation plan?
4. Is the proposed take such that it will not appreciably reduce the likelihood of survival and recovery of the species in the wild?
5. Are there other measures that should be required as a condition of the permit?

SECTION 1.3

PURPOSE AND NEED FOR THE STATE ACTIONS

1.3.1 Purpose and Need

The need for the proposed subregional CSS NCCP/HCP has been 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 habitat and species. According to the findings of the NCCP Conservation Guidelines:

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.

The CSS community is inherently dynamic and should be managed to retain its capacity to support the broad range of CSS species over the long term. Under an 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, pp. 2-3)

In order to provide a planning framework to address the above-summarized habitat protection and long-term management needs, the State of California, through the provisions of the NCCP Act, designated a five-County regional planning area that comprises the Southern California Coastal Sage Scrub NCCP study area. The regional planning area covers approximately 6,000 square miles and includes the County of Orange and portions of the counties of San Diego, Riverside, San Bernardino and Los Angeles (see Figure 2). The Coastal Sage Scrub 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, the complexity and range of biological conditions and land planning considerations, the NCCP Coastal Sage Scrub program is intended to be carried out and has been conducted on a subregional scale. The Orange County Central/Coastal subregion has been designated as one of twelve NCCP planning subregions and is one of the first two subregional plans to commence NEPA/CEQA review.

In terms of agency purpose, CDFG's review of the proposed Central/Coastal NCCP/HCP is guided by the findings of the California Legislature at the time of enactment of the NCCP statute. 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.*

Thus, as determined by the California Legislature, "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 purpose statements in the NCCP statute are mirrored in a recent statement by the Department of the Interior: "A special 4(d) rule developed for the coastal California gnatcatcher defers ESA requirements to a State planning process because this process will conserve the gnatcatcher and all other species that depend on the same habitat while allowing residential development to continue" ("Protecting America's Living Heritage," March 6, 1995, at p.2).

In carrying out its statutory mandate, as defined in the NCCP Act, CDFG's basic purpose is to review the proposed Central/Coastal NCCP/HCP to determine its conformance with

the planning and legislative purpose provisions of the NCCP Act. This will be carried out by assessing the Proposed Project's conformance with the NCCP Conservation Guidelines intended to apply these statutory provisions to the particular circumstances of the Southern California coastal sage scrub habitat system.

1.3.2 Decisions to be Made - CDFG

If, upon completion of its review of all relevant information, CDFG determines that the NCCP/HCP in its final form meets the foregoing requirements, CDFG will: (a) sign the Implementation Agreement; (b) provide for NCCP Act Section 2825(c), 2830 and 2835 approvals; and (c) provide, in reliance on the management authorization provided by the Implementation Agreement, for the present authorization of take pursuant to Section 2835 for the Fish & Game Code for all "identified species" under the NCCP/HCP (*i.e.*, all federally listed species and all unlisted species treated "as if listed") and for species dependent upon or associated with CSS and "covered habitats" pursuant to Fish & Game Code 2825(c). The management authorization provided by the Implementation Agreement also provides Section 2835 coverage for certain identified plants on the Headlands site only.

SECTION 1.4 THE PERMIT APPLICANTS: "PARTICIPATING LANDOWNERS"

1.4.1 Purposes and Need

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 (NCCP/HCP, Appendix 5). The Planning Agreement established the requirements and standards for preparation of the Central and Coastal Subregion NCCP/HCP.

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 County of Orange;
- The Transportation Corridor Agencies (TCA);
- the Irvine Ranch Water District (IRWD);
- the Metropolitan Water District of Southern California (METROPOLITAN);
- The Santiago County Water District;
- the Southern California Edison Company (SCE);
- the Regents of the University of California - UC, Irvine;
- The Irvine Company (TIC); and
- Chandis-Sherman

The foregoing NCCP participants, including the County of Orange, in its role of landowner and land manager, require the approval of incidental take for listed/unlisted species, under FESA and for "identified" species, under the NCCP Act in order to be able to undertake activities inherent in their land ownership consistent with local land use regulations. To provide certainty justifying the conservation actions to be implemented by the participants and future signatory local government jurisdictions pursuant to the Implementation Agreement, the NCCP participants also require certain assurances regarding future Section 10(a)(1)(B) permit actions and present CDFG authorizations for species dependent upon or associated with CSS and "covered habitats." In order to obtain and in reliance on the foregoing authorizations, these same NCCP planning participants (considered to be *participating landowners* under the NCCP/HCP) will be making land and funding contributions to the NCCP Reserve System and long-term Adaptive Management Program.

The NCCP/HCP also makes provision for incidental take authorization for *non-participating landowners*, as further reviewed in Chapters 3, 5, 6, 7 and 8.

The NCCP/HCP proposes to authorize CSS impacts within the subregion totaling 7,444 acres of CSS habitat, including 121 current gnatcatcher sites (600 sites exist within the subregion).

Three separate categories of "incidental take" (*i.e.*, conversion of CSS habitat and associated impacts on "identified species") are proposed under this NCCP/HCP:

- proposed incidental take related to permitted uses within the Reserve System to the extent and in the manner specified in the NCCP/HCP and the Implementation Agreement;
- proposed incidental take outside the Reserve System (including within Special Linkage Areas) resulting from activities on lands owned by landowners and agencies (*i.e.*, “*participating landowners*”) that have contributed significantly to creation of the Reserve System and/or funding long-term reserve management; and
- proposed incidental take as a result of activities occurring on lands owned by landowners whose CSS impacts will be addressed through the alternative measures of either FESA Section 7/10 and CESA Section 2081/2084, or the optional NCCP/HCP mitigation fee program discussed in Chapter 4 of the NCCP/HCP. (The NCCP/HCP refers to these landowners as “*non-participating landowners*”).

The NCCP/HCP does not propose the authorization of take within areas designated as “Existing Use Areas,” the North Ranch Policy Plan Area or within the Cleveland National Forest Congressional Boundary.

1.4.2 Summary of Specific Purposes of the Permit Applicants/*Participating Landowners*

Because of the geographic scale of the NCCP/HCP, its long-term implementation time frame and the extent of the commitments being made by the “*participating landowners*,” the County of Orange and the other *participating landowners* have several basic purposes for undertaking the NCCP/HCP planning and implementation program:

- A. *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 Section 1.1.2, in conjunction with the threatened species listing of the coastal California gnatcatcher, the USFWS has adopted a Section 4(d) Rule under the FESA which would allow incidental take of the coastal California gnatcatcher and its

habitat under certain conditions specified in the Rule (see the excerpt from the 4(d) Rule in Section 1.1.2). The Section 4(d) Rule permits incidental take of the coastal California gnatcatcher during the preparation of a NCCP ("interim take") and after final approvals of a subregional NCCP in accordance with specific requirements and standards set forth above. Accordingly, one purpose of the Proposed Project is to carry out a planning program at the natural community level consistent with the multi-species, habitat-oriented statutory purpose statements of FESA (sections 10(a) and 4(d)), the California CESA and NCCP Act, and with the environmental goals of CEQA and NEPA.

- B. *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 the 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 the 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, other habitats naturally admixed with CSS and related species, reserve design and connectivity needs to be addressed and satisfied in a manner consistent with the NCCP Conservation Guidelines.

- C. *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/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 Identified Species (as well as the specified plants on the Headlands site only) could be permitted consistent with the recommended NCCP/HCP 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 will be 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 would enable necessary economic uses to continue.

D. 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.

- E. 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 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(a)(1)(B) substantive requirements for the coastal cactus wren and orange-throated whiptail lizard in the same manner as identified in Project Purpose D, immediately preceding. The proposed Implementation Agreement defines the manner in which these future determinations will be made.

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 is proposed to:

- 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.

- F. 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 habitat included in the reserve.

As indicated in Project Purposes D and E 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 intended to be covered for regulatory purposes as described in Purposes "A" and "B" above) are termed "identified species" in the NCCP/HCP. Due to the role of the target species in defining the proposed 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 proposed 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 protection and corresponding landowner credit provided by the NCCP/HCP is set forth in Chapter 4 of the NCCP/HCP and is reviewed in Chapter 8 of this EIR/EIS.

G. *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 will provide commitments to *participating landowners* that CDFG and USFWS will assume the responsibility for assuring that all statutory and regulatory requirements (to the extent and in the manner provided for in the

Implementation Agreement) 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. The justification for such state/federal assurances is set forth in Chapter 4 of the NCCP/HCP and is reviewed in Chapter 8 of this EIR/EIS.

- H. *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, problems related to attempting to manage a small and isolated island of habitat as part of the subregional Adaptive Management Program, and the consequent probability that the site is unlikely to significantly contribute to the biological functioning of the subregional NCCP/HCP Reserve System in the long-term, this site is not proposed for inclusion in the habitat Reserve System or incorporated into the Adaptive Management Program. Therefore, one purpose of the NCCP/HCP is to formulate a strategy for addressing the conservation needs of the sensitive species located on the Headlands site without including the site in the proposed habitat reserve/Adaptive Management Program. This purpose recognizes that it may be necessary to implement conservation approaches in addition to those provided for under FESA Section 10(a)(1)(B) permits. The NCCP/HCP proposes amendment of 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 proposed in the NCCP/HCP. The site's biological resources are addressed comprehensively in order to provide certainty regarding biological mitigation to enable proactive management measures to benefit the Pacific pocket mouse to begin as soon as it is prudent.

- I. *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, local governments, the County, cities, The Irvine Company, the Transportation Corridor Agencies, the Irvine Ranch Water District, The Metropolitan Water District of Southern California, and the Southern California Edison Company have participated in long-term regional planning efforts for the purpose of conserving large-scale contiguous open space, recreation and wildlife habitat areas within what is now the Central Coastal NCCP subregion. 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 about 40,000 acres of CSS and other wildland habitat in public ownership, open space dedication agreements, general plan designated open space, and 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 contracted with project-by-project, smaller scale 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. In particular, as the NCCP/HCP is reviewed, the minimization and mitigation measures adopted as part of prior open space planning efforts should be

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 should be applied in a manner that builds upon and incorporates previous regional open space and land use planning efforts. However, prior open space planning and commitments must be reviewed to assure that these are capable of being managed consistent with the provisions of the recommended NCCP/HCP conservation strategy (see Chapters 5 and 7 of this EIR/EIS).

- J. Consistent with NEPA tiering and CEQA programmatic environmental review provisions and the take provisions of the state and federal ESA's and NCCP Act, address CSS 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 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, the NCCP/HCP and its associated EIS/EIR have, as one purpose, an intent to address potential site specific CSS 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 and mitigation measures in this EIR/EIS and NCCP/HCP as provided in applicable law.

- K. 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 each of the "target species."*

This project purpose recognizes that only USFWS has the authority to designate "critical habitat" under FESA. The intent of this purpose is to assure coordination between and

integration of reserve design planning for the "target species" and "critical habitat" designation under 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 proposed incidental take resulting from activities identified through the NCCP/HCP planning process. Therefore, the NCCP/HCP is intended to provide the analysis of habitat and species conservation factors that serve as the substantive basis for the critical habitat assurances for "participating landowners" 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 species/identified species," the NCCP/HCP indicates that it is appropriate as an integral component of the planning program for the NCCP/HCP to identify areas owned by *participating landowners* that address the "critical habitat" criteria as defined in the FESA and regulations. In particular, the NCCP Conservation Guidelines for reserve design provide specific criteria for identifying ultimate reserve areas capable of sustaining "target species" on a long-term basis. According to the NCCP/HCP, 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. This EIR/EIS will review the NCCP/HCP Reserve System and Adaptive Management Program in relation to the critical habitat designation factors set forth in the applicable USFWS regulations.

CHAPTER 2: SUMMARY OF THE ACTIONS UNDER REVIEW AND ENVIRONMENTAL REVIEW CONSIDERATIONS

SECTION 2.1 SUMMARY OF STATE AND FEDERAL AGENCY ROLES AND RESPONSIBILITIES

The County of Orange Environmental Management Agency (EMA) has prepared a Final 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/HCP (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 of Orange EMA is the lead agency responsible for preparation of the NCCP/HCP and the EIR. The USFWS is the lead agency responsible for managing preparation of the EIS. This document comprises the final EIR/EIS for CEQA and NEPA purposes and reflects programmatic and environmental revisions resulting from the public review process, including that of the lead agencies.

SECTION 2.2 ENVIRONMENTAL REVIEW PROCESS

2.2.1 Programmatic Review of the Proposed Project

The Proposed Project involves the need for environmental review under both California (CEQA) and federal (NEPA) laws and regulations. As indicated in the Executive Summary and in the "Decisions to be Made" discussions of Chapter One, the Proposed Project comprises: (1) the NCCP/HCP and its associated Implementation Agreement intended to address the requirements of the NCCP Act (substantively through consistency with the NCCP Conservation Guidelines) and (2) CDFG and USFWS review of the NCCP/HCP and its associated Implementation Agreement for purposes of authorizing incidental take (see discussion of "take" in chapters 5 and 6) pursuant to the NCCP Act, CESA and FESA. To expedite obtaining these clearances, a joint, programmatic EIR/EIS (CEQA Guidelines

Section 15170 and 15222) has been prepared to address the potential impacts to CSS "target species" and other "Identified Species" to CSS and the proposed "covered habitats" and to the Headlands plant species within the NCCP/HCP study area.

Issuance of incidental take permits and amendment of a research/recovery permit pursuant to Section 10(a) of FESA constitutes a federal action subject to NEPA compliance. Given the extent of "mitigation" provided for in the NCCP/HCP, the project could potentially qualify for review as a mitigated Environmental Assessment. However, because of the scale of the project and the potential for significant effects on the human environment, it has been determined that an EIS would be more appropriate to the project under review. Compliance under NEPA is the responsibility of the USFWS. Due to the extensive geographic scope of the Central/Coastal Orange County subregion NCCP/HCP, the number of species addressed and the implications of the Department of Interior Assurances policy, this NEPA review is intended to provide very specific authorizations for future incidental take within the entire subregion. Accordingly, NEPA review is undertaken at both a programmatic and an area-specific level of review for NEPA purposes.

To evaluate the environmental impacts of the Proposed Project and alternative conservation strategies, the Orange County EMA has prepared, in cooperation with the USFWS and CDFG, 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 of Program EIRs:

- 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 is intended to serve as the programmatic CEQA document for future development projects with respect to impacts on Identified Species, CSS and "covered habitats" (including species dependent upon or associated with CSS and "covered habitats") and for implementation measures designed to carry out the NCCP/HCP including mitigation and minimization measures addressing habitat impacts proposed to be authorized pursuant to the Implementation Agreement.

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 would 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 designated habitat (*i.e.*, CSS and the "covered habitats") and "target and identified species." 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.

Finally, it should be noted that there is an inherent redundancy in the FESA Section 10(a)(1)(B) and CEQA/NEPA topics required to be reviewed. Section 10(a) requires minimization and mitigation just as does CEQA. Likewise, FESA Section 10(a)(1)(B) requires a review of practicable alternatives, as do CEQA and NEPA.

2.2.2 Species and Habitats Addressed by the NCCP/HCP and Implementation Agreement

The Coastal Sage Scrub NCCP Conservation Guidelines identified 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, and in so doing, protect a broader suite of species dependent on or utilizing CSS habitat (Murphy 1992).

-- 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), including providing for creation and management 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, 2084 and 2090) 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 proposed 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 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, NCCP Act Section 2825, 2830 and 2835 and Sections 2081, 2084 and 2090 of CESA). Therefore, the subregional NCCP/HCP plan recommends regulatory coverage under the Special 4(d) Rule for the coastal California gnatcatcher and for 38 additional "identified species." The "identified species" proposed to receive coverage are listed below.

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
- Nuttall's scrub oak
- small-flowered mountain mahogany
- heart-leaved pitcher sage
- Coulter's matilija poppy
- Tecate cypress

Conditionally Covered Species (10)

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

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

** Species that are proposed for federal listing as threatened or endangered species

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 8).

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 designated development impacting the habitat of the Identified Species (except to the extent that Corps 404 jurisdiction and special state regulatory requirements such as the California Coastal Act are involved). Development activities covered by the NCCP/HCP and authorized for incidental take pursuant to the Implementation Agreement and Section 10(1)(B) permits would 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, those involving species dependent upon or

associated with CSS and “covered habitats” pursuant to the Implementation Agreement and those involving the Headlands plant species.

-- 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 dependent upon or associated with specified habitats outside the proposed 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, to the extent and in the manner provided for in Section 8.3.4(d) of the Implementation Agreement, to *participating landowners* for species dependent upon or associated with these habitats that are affected by planned activities. However, activities affecting 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 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 of the NCCP/HCP and is analyzed in Chapter 8 of this EIR/EIS.

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 proposed for coverage for take only for this site:

- Blochman's dudleya
- Western dichondra
- cliff spurge
- prostrate spineflower
- Palmer's grappling hook

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. None of these species is currently listed by the CDFG or USFWS, and these species are found elsewhere in Southern California. When analyzed in the context of the plants' ranges in Southern California, the expected loss or impact of these species on the Headlands site is not considered significant.

2.2.3 Notice of Preparation and Scoping

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) announcing preparation of the EIRs for both the South Subregion and Central and Coastal Subregion NCCPs 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 Draft NCCP/HCP and Draft EIR/EIS. A copy of the Scoping Report for the Central and Coastal Subregion NCCP/HCP and Joint EIR/EIS is set forth in Appendix 9.

2.2.4 Scoping Issues Considered for Further Review, Scoping Issues Not Considered Significant and Relationship of this NEPA/CEQA Review to Previous Environmental and FESA Reviews within the Subregion

A. Issues Selected for Further Consideration

Environmental concerns raised as part of the scoping process for the Central/Coastal Subregion NCCP/HCP focused on impacts to biological resources, land use/recreation/growth management, socio-economics, and to a lesser extent water and air quality. Other issues related to procedures involving the CEQA/NEPA and NCCP processes.

Appendix 9, pages 4 through 9, lists the specific questions/issues cited by scoping participants.

The following issues were determined to be significant and will be addressed in the EIR/EIS.

- Will the designated CSS reserve meet the NCCP/HCP goals and will CSS dependent species be preserved at a cost to species dependent upon other habitat?
- Will the preservation of CSS shift development to other areas that may or may not be suited for development, or encourage development scenarios different than anticipated in existing General Plans?
- The EIR/EIS must address the cumulative impacts of NCCP/HCP planning throughout the entire range of subregional CSS habitat and on the overall biological diversity in the study area.
- Air quality impacts related to changes in land use plans that would result from the NCCP/HCP were initially selected for detailed review but then were reduced in scope of analysis for the reasons set forth in Chapter 9 and below.

In response to the scoping comments and based on their own independent review, the County and USFWS determined that all of the issues summarized above warrant discussion and that the biological issues regarding impacts to CSS habitat should be addressed in the greatest level of detail. The specific impact topics and mandatory NEPA and CEQA considerations addressed in the analysis of project alternatives are presented in Chapters 3-9.

B. Issues Eliminated from Further Consideration or Substantially Reduced in Scope of Treatment

In the process of selecting issues for further consideration, the County and USFWS also determined that certain types of potential impacts do not warrant further analysis or require only limited treatment in this EIR/EIS. The eliminated "impact topics" and the reasons for their elimination are identified below. Topics receiving only limited treatment and the reasons for the refined scope of treatment are also summarized below.

Air Quality. The permits and Implementation Agreement that permit applicants are seeking would facilitate FESA and CESA compliance for land uses that may have effects on air quality in the South Coast Air Basin, which is a non-attainment area for federal and state standards for ozone, particulate matters and nitrogen dioxide. The conservation strategy proposed in the NCCP/HCP contemplates the potential use of controlled burns (an emission-producing activity) as part of reserve management. However, the NCCP/HCP, Implementation Agreement and permits would not authorize any air quality impacts and would not supersede emission standards or permit requirements under local, state and federal air quality regulations. To a limited degree, the potential use of controlled burns as part of reserve management can be said to create an opportunity for generating air emissions that otherwise might not occur. Such burns, however, would conform with applicable air quality requirements and would occur as part of fire management plans. Compared with air pollutants associated with uncontrolled wildfires (*e.g.*, the October 1993 Southern California wildfires), the emissions from controlled burns would be lower and therefore could have a cumulative beneficial effect on air quality. Given this context, it is reasonable to conclude that the NCCP/HCP and Implementation Agreement will not create or increase opportunities for air quality impacts beyond what might otherwise occur in their absence. No further analysis of potential air quality effects, beyond that referenced in CEQA materials relating to recent deletions of arterial roads from County and local government Circulation Elements, is warranted because all development activities require additional local and other governmental permits and because no significant adverse impacts are attributable to the actions and project under consideration (see discussion in chapter 9).

Climate conditions. The permits, agreement and NCCP/HCP would facilitate CESA/FESA compliance for development projects that over time may have indirect cumulative effects on micro climatic conditions in certain areas. However, no further analysis of potential effects on

climate conditions is warranted because no impacts are attributable to the actions and project under consideration.

Geology, soils, topography. The NCCP/HCP proposes the authorization of incidental take as a result of otherwise lawful land disturbances. However, land disturbance per se is not authorized by the NCCP/HCP Implementation Agreement and associated Section 10(a) permits/CDFG Management Authorization and is subject to local, state and federal regulations regarding geology, soils and topography that apply regardless of whether identified species are present or absent. The Proposed Project will facilitate compliance for land disturbances that also may have effects on geology, soils and topography but will not create or increase opportunities for such effects beyond what would occur if no CESA/FESA restrictions applied or if authorization for take were approved on a project-by-project basis. No further analysis of potential effects to geography, soils, and topography is warranted because no adverse impacts are attributable to the Proposed Project (in particular, the Proposed Project increases open space areas by providing for commitments of land areas to the NCCP/HCP Reserve System that are otherwise identified for development under current General Plans and the Proposed Project does not propose changes in land use for areas currently designated as open space).

Historic, archaeological and cultural resources. Approval of the Proposed Project would facilitate CESA/FESA compliance for land uses that may affect areas with historic, archaeological and cultural resources where sites with such resources are known to occur. However, the Proposed Project does not authorize any impact to such sites or resources or supersede local, state and federal regulations that protect such resources. The NCCP/HCP Implementation Agreement and associated Section 10(a) permits/CDFG Management Authorization will not create or increase opportunities for such impacts beyond what might otherwise occur in their absence. No further analysis of potential effects to historic, archaeological and cultural resources is warranted because no adverse impacts are attributable to the Proposed Project under consideration.

Lighting and Noise. Approval of the Proposed Project would facilitate CESA/FESA compliance for development projects that will have direct, indirect and cumulative effects on lighting and noise levels. However, the amount, distribution and form of development would be reduced under the Proposed Project in comparison with existing General Plans. Consequently it is reasonable to conclude that the Proposed Project would not increase the lighting and noise impacts associated with development. Thus, no further analysis of potential

lighting and noise effects is warranted because no significant adverse impacts are attributable to the Proposed Project under consideration.

Natural resources, fuels and energy sources. Approval of the Proposed Project would facilitate CESA/FESA compliance for land disturbance and urban development that may affect areas with natural resources and may result in increased fuel and energy consumption. However, the Proposed Project does not authorize development, and except for the eradication of invasive plant species, which is considered environmentally beneficial, will not create or increase opportunities for land disturbance impacts. The Proposed Project recommends the commitment of lands presently identified for development to Reserve System/habitat protection uses and thus reduces potential conversion of natural resources. No further analysis of potential effects is warranted because no adverse impacts are attributable to the Proposed Project under consideration.

Population, housing and employment. Approval of the Proposed Project would facilitate CESA/FESA compliance for urban development that will have direct, indirect and cumulative effects on population, housing and employment in the subregion. In addition, Implementation of the conservation strategy may affect the location and timing of individual development projects. However, the amount and rate of development in the subregion is not expected to differ significantly on a subregional basis under the NCCP/HCP because the Proposed Project will not increase or decrease opportunities for adverse impacts to population, housing and employment beyond what might otherwise occur (*i.e.*, although the Proposed Project recommends the elimination of housing designations for reserve design purposes, local General Plan provisions allow for the transfer of such housing unit opportunities to other locations). No further analysis of potential effects is warranted because no significant adverse impacts are attributable to the actions and project under consideration. Related issues, including the potential effects of the Proposed Project on land use and general plans, potential effects on public facilities/services/utilities and potential housing unit transfer within the City of Irvine are addressed in Chapters 7 and 9, which analyses include assessments of the Proposed Project's No Project and No Take Alternatives.

Population dynamics and social institutions. Approval of the Proposed Project would facilitate CESA/FESA compliance for urban development that may affect population dynamics and social institutions. However, the amount and type of development in the subregion is not expected to differ significantly, on a broad subregional basis, with or without the authorization for take and the NCCP/HCP. No further analysis of potential effects is warranted because no

significant adverse impacts are attributable to the actions and project under consideration. (See Chapter 9 discussion of "Cumulative Impacts.") Potential impacts on approved master plans are reviewed in Chapters 7 and 9 under the Proposed Project's No Take and No Project Alternatives.

Public health and safety (health risks, seismic safety, risk of explosion or release of hazardous substances). Approval of the Proposed Project would facilitate CESA/FESA compliance for urban development and individual land uses that may pose adverse impacts to public health and safety. In addition, the conservation strategy contemplates that reserve management may entail the use of certain herbicides and biocides. However, the Proposed Project does not authorize any impacts to human health or safety; does not supersede any local, state or federal regulations that govern public health and safety, including use and storage of hazardous substances; and will not increase any opportunity for such impacts beyond what might otherwise result from urban development and individual land uses. No further analysis of potential effects is warranted because no significant adverse impacts are attributable to the actions and project under consideration.

Scenic views and aesthetics. Approval of the Proposed Project would facilitate CESA/FESA compliance for land uses that may affect areas with scenic views and the aesthetics of urban and rural development. However, the Proposed Project, in and of itself, does not authorize impacts to scenic views or other effects on aesthetics. Because the Proposed Project would result in a diminution in developable land area (but not in total housing units) in areas considered scenic, the Project's impacts would be beneficial in terms of scenic protection and thus further analysis of potential adverse effects is not warranted. In addition, the reserves proposed in the NCCP/HCP include areas designated as scenic resources.

Water resources (hydrology, water quality, water supply, water bodies and wetlands). Approval of the Proposed Project would facilitate CESA/FESA compliance for urban and agricultural uses that may have direct and indirect effects on hydrology, water quality, water supplies, water bodies and wetlands. However, the Proposed Project does not authorize any impacts to water resources; does not supersede water quality and wetland protection requirements under local, state and federal law; and will not create or increase opportunities for impacts to water resources beyond what might occur if no CESA/FESA restrictions applied or if authorization for take were approved on a project-by-project basis. No further analysis of potential effects on water resources is warranted because no adverse impacts are attributable to the actions and project under consideration. Chapters 5 and 7 address the

related issue of potential NCCP/HCP effects on the operation, maintenance and construction of facilities that store and convey water supply resources.

2.2.5 Additional Public Participation During the Formulation of the NCCP/HCP

Following the Scoping Meeting, the public participation component of the NCCP/HCP planning process focused on the inclusion of representatives of environmental and public interest organizations in an ongoing discussion process prior to and during preparation of the draft NCCP/HCP. Public interest group representatives were included in a series of informal meetings involving the NCCP consultant team, landowners, CDFG, and USFWS staff. These participants provided ongoing comment to the consultant team during the NCCP/HCP subregional plan preparation process.

According to the NCCP/HCP, the purpose of these meetings was to provide a collaborative, consultative discussion 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 draft documents and help assure that the NCCP/HCP addressed the full range of public policy and planning issues.

2.2.6 Public Comments, Responses to Comments and Revisions Reflecting Responses

As part of the public review process pursuant to CEQA, NEPA, the NCCP Act and FESA, extensive public comments were received. The written public comments have been reproduced in the accompanying document titled "County of Orange Central & Coastal Subregion Part III; Joint Programmatic EIR/EIS - Comment Letters." Public testimony was also presented in oral form at public hearings before the County of Orange Planning Commission and the County of Orange Board of Supervisors.

Extensive written responses to comments were prepared and are set forth in the accompanying document titled "County of Orange Central and Coastal Subregion Part III: Joint Programmatic EIR/EIS - Response to Comments." In broad terms, the responses are grouped under two categories: (1) "General Responses" presenting issues raised in a number of

comments and/or which appeared to be of general interest and (2) "Specific Responses" which comprise responses to specific issues raised by only one party or a few parties.

In addition to providing substantive responses to specific comments, the Response to Comments document also indicates whether changes were to be made to the NCCP/HCP, the Implementation Agreement and/or the EIR/EIS in response to the comment and further lead agency assessment by the County of Orange, CDFG and USFWS. In addition to clarifications and corrections of specific matters in the documents, the responses include revisions that may be categorized as follows:

- *Species-Related Considerations*

- Three species (the golden eagle, the prairie falcon and the foothill mariposa lilly) were shifted to the category of "conditionally covered species" due to the particular needs of those species.
- Three species which are particularly associated with grasslands (the white-tailed kite, the loggerhead shrike and the California horned lark) were deleted from the list of Identified Species until such time as the NCCP Non-Profit is able to proceed with grasslands management programs, NCCP surveys and other information gathering.
- The Implementation Agreement provisions relating to species dependent upon or associated with CSS and covered habitats were modified to provide for species-specific assessments at the time of any future listing of such species and to deal with regulatory contingencies involving assurances to *participating landowners* and requirements for the future issuance of section 10(a)(1)(B) permits.
- Revisions were made to the provisions for the purchase of the Pacific pocket mouse site on the Dana Point Headlands and construction-related minimization measures were incorporated into the EIR/EIS Mitigation measures and the Implementation Agreement.
- The Implementation Agreement has been modified to provide that an assessment will be made, within one year of the hiring of the NCCP Non-Profit Executive Director, as to whether special management measures should be undertaken for the cactus wren.

- *Future Public Involvement Considerations*

- Membership of the Board of the Directors of the NCCP Non-Profit was modified to specifically provide for three “public” members.
- A provision was made in the Implementation Agreement for the appointment of a Technical Advisory Committee to provide scientific input into policy matters considered by the NCCP Non-Profit.
- Although likely required by existing law, the Implementation Agreement commits the NCCP Non-Profit to open public meetings.

- *Reserve System Configuration and Commitments*

- Some revisions were made to the Reserve System boundaries. Most revisions generally involved shifting areas proposed for inclusion in the Reserve System into the “Existing Use” category of lands subject to ongoing USFWS listed species jurisdiction (including the prohibitions against take in Section 9 of FESA).
- The Implementation Agreement was modified to provide for commitments of signatory jurisdictions to manage Reserve System lands in a manner consistent with the purposes of the NCCP/HCP after the expiration of the 75-year term of the Implementation Agreement/permits. Special Linkage provisions for signatory public agencies were also made subject to this commitment (private lands in Special Linkage areas were already subject to conservation easement requirements).

Other revisions involved the addition of some other lands to the “Existing Use” category, revisions to the MCAS El Toro re-use provisions and revisions to Implementation Agreement provisions relating to future CDFG actions in conjunction with state CESA listings.

Where applicable, the text of this EIR/EIS has been modified to reflect revisions, clarifications and corrections made in the Response to Comments including corresponding revisions to the NCCP/HCP, the Implementation Agreement and the NCCP/HCP Map Book.

**SECTION 2.3 LOCAL GOVERNMENTS AND PUBLIC AGENCIES
AFFECTED BY THE CURRENT GNATCATCHER LISTING
AND LIKELY TO BE AFFECTED BY THE COASTAL AND
CENTRAL SUBREGION NCCP/HCP**

A. Potentially Affected Local Governments and Agencies

The listing of the gnatcatcher under FESA and the preparation of the Central and Coastal Subregional NCCP/HCP pursuant to the special 4(d) Rule affect a number of local government jurisdictions and public agencies, in addition to the unincorporated area under the jurisdiction of the County of Orange (see Table 2-1). The subregional study area includes all or portions of fourteen cities: the cities of 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 (see Figure 3). Public agencies affected by the NCCP/HCP include, but are not limited to, the Transportation Corridor Agencies, the Irvine Ranch Water District, Metropolitan Water District of Southern California, Southern California Edison Company, the Santiago County Water District, University of California Irvine and the California Department of Parks and Recreation.

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 coastal sage scrub habitat. Examples of publicly owned and managed lands within the subregional study area that could be affected are the Peters Canyon Regional Park, Irvine Coast Wilderness Park, Laguna/Laurel Regional Park, Aliso and Wood Canyon Regional Park, Whiting Ranch Regional Park, the Marine Corps Air Station El Toro, Crystal Cove State Park, and the Cleveland National Forest. The local jurisdictions which become signatory to the NCCP/HCP Implementation Agreement 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 Implementation Agreement identify potential roles and responsibilities of the affected jurisdictions and potential impacts related to The Proposed Project. To facilitate the review of the environmental implications of the Proposed Project for local governments, the following outline summarizes the NCCP/HCP recommendations for the roles and commitments of local governments that determine to become signatories to the Implementation Agreement:

**Table 2-1
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													
Dana Point	Inc.																	1			2	11	2	12		
Irvine	Inc.													86	41	20	13	19	29	1	36	13	161	97		
Laguna Beach	Inc.													31	10						5		36	10		
Laguna Niguel	Inc.													3	4			1	10				4	14		
Lake Forest	Inc.	1	1							3		4	1													
Mission Viejo	Inc.									2		2														
Newport Beach	Inc.														4	1				6	3		4	10		
Orange	Inc.	21	16			30	21			16	4	67	41													
San Juan Capistrano	Inc.													3	12				1				3	13		
Tustin	Inc.	2	5							19	25	21	30													
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		3	127	51	589	310	262	164	30	16	20	41		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.

B. Summary of Roles and Commitments on the Part of Local Governments that Decide to Become Signatories to the NCCP Implementation Agreement

1. Overview - Implications of Signing or not Signing the NCCP Implementation Agreement

- "Signatory" local governments (proposed to include all local governments that own land or include within their jurisdiction CSS habitat identified for protection, "as is" treatment and/or authorized "incidental take" by the NCCP/HCP and agencies):
 - obtain certainty regarding allowable land uses (including infrastructure) otherwise subject to regulation under state and federal endangered species laws including the gnatcatcher and other species addressed "as if listed" under the NCCP/HCP;
 - if a local government owns lands within the NCCP Reserve System, it will commit to recreational use policies and infrastructure use policies and to allow certain habitat management actions/programs to be carried out on their lands;
 - in their role as a regulatory agency, commit to implementing certain construction practices to minimize impacts on species and to consider the NCCP CSS mitigation program as the sole mitigation program for CSS impacts.
- Non-Signatory Local Governments
 - continue to be subject to existing USFWS regulation pursuant to the gnatcatcher listing
 - potential future regulation under state and federal endangered species acts for species "covered" by the NCCP program as well as other species;

- both projects of the local governments and projects of "*non-participating landowners*" continue to be subject to state and federal endangered species laws.

2. Local Governments in Role of Owner of NCCP Reserve Lands

- The following local governments own lands, are responsible for dedication programs or are designated as potential recipients of future dedication of lands proposed to be included in the NCCP Reserve System:
 - Anaheim;
 - Irvine;
 - Laguna Beach;
 - Newport Beach;
 - Orange;
 - San Juan Capistrano;
 - County of Orange.
- Local governments would agree to carry out pre-NCCP dedication programs and NCCP dedication and donation programs, including formal commitment of specific dedicated or donated lands to the NCCP Reserve System once the local government accepts particular dedication or donation increments.
- Local governments would agree to carry out recreational use policies as specified in the NCCP/HCP (*e.g.*, public access policies protecting sensitive habitat).
- Local governments would agree to allow the NCCP management non-profit to carry out certain habitat management functions to be funded by the NCCP (some of these activities could be carried out by local government or other government and non-profit agencies through NCCP funding):
 - habitat monitoring programs - eradication of invasive plant species - control of animal predator species habitat enhancement and restoration programs short-term and long-term fire management programs,

including prescribed burns to reduce fuel loads and to assist in long-term CSS re-generation - grazing management;

3. Local Governments in Land Use Regulation Role

- Monitoring and development check-off functions:
 - on an annual basis, compiling and forwarding to the County total CSS habitat converted within the jurisdiction;
- Regulatory functions:
 - adopt and implement fuel modification ordinances/standards consistent with the NCCP/HCP (standards developed by the Orange County Wildland/Urban Interface Task Force) that will be applicable to areas bordering the NCCP Reserve System and within "Special Linkage Areas;"
 - as part of site clearance/grading permits/subdivision map conditions, assure compliance with "construction-related minimization measures" (e.g., limitations on grading during gnatcatcher breeding season, construction practices to minimize impacts on sensitive species) applicable to "*non-participating landowners*;"
 - for projects of "*non-participating landowners*" who decide to use the optional NCCP mitigation fee program, verify that the mitigation fee has been paid to the NCCP management non-profit before disturbance of gnatcatcher-occupied habitat is allowed;
 - for recreational use and infrastructure projects proposed to be located within the NCCP Reserve System and over which the local government has land use regulatory jurisdiction, assure that the siting and minimization of impact policies specified in the NCCP/HCP have been complied with;

- Good faith efforts regarding "Existing Use Areas" (*i.e.*, areas where the NCCP proposes to continue the "status quo" in terms of USFWS regulation of any change in use of gnatcatcher habitat resulting in "harm" and therefore "take" under FESA) if anyone proposes a change in use with the potential to significantly impact CSS habitat:
 - consider the NCCP/HCP policies in relation to potential impacts of changes in use on "unlisted species" designated as "Identified Species" by the NCCP/HCP;
 - as is presently the case under current CESA/FESA land, for any change in use subject to USFWS or CDFG endangered species jurisdiction, require that such landowners demonstrate evidence of compliance as applicable prior to conversion of CSS habitat occupied by listed species (or other actions constituting "harm" under FESA);
 - make best efforts to obtain, on a strictly voluntary basis, conservation easements over open space areas contained within "Existing Use Areas" designated by the NCCP/HCP;
- Assurances regarding CSS mitigation and future environmental review of specific projects:
 - agree to use the NCCP/HCP program as the exclusive CSS mitigation program for the mitigation of impacts on CSS and "covered habitats" identified for authorized "incidental take" in applicable USFWS Section 10(a) permits/CDFG management authorizations pursuant to the NCCP/HCP;
 - use the NCCP/HCP EIR/EIS as a program environmental document in the review of future projects involving potential impacts on NCCP/HCP "Identified Species" and "covered habitats;"
 - consider the non-CSS habitat biodiversity resources contained within the NCCP Reserve System and protected Special Linkage Areas when

reviewing the direct and cumulative impacts of future projects sponsored by the NCCP "*participating landowners*;"

- State planning law consistency requirements:
 - no General Plan amendments are required by the NCCP program to implement the NCCP/HCP;
 - to the extent that state law requires or encourages General Plan/zoning amendments for consistency purposes, local governments will each determine their own course of action;

SECTION 2.4 RELATED ENVIRONMENTAL DOCUMENTS INCORPORATED BY REFERENCE

In keeping with the CEQA tiering concepts, previously prepared and certified environmental documents relied upon in this EIR/EIS are incorporated by reference. Material incorporated by reference is summarized where information is pertinent to the analysis of impacts of the Proposed Project.

Section 15150 of the CEQA Guidelines and 40 CFR 1502.21 of the NEPA Regulations permit an EIR/EIS to incorporate by reference documents that provide relevant data. The following CEQA and NEPA documents which have provided CEQA/NEPA impact analysis, mitigation assessment, alternatives review, Coastal Act Policy analysis and baseline data for this EIR/EIS are incorporated by reference:

- The California Coastal Commission Irvine Coast LCP/CEQA Findings and Irvine Coast MCDP Final EIR
- The County of Orange Final EIR for the Irvine Coast Development Agreement
- The Final EIR for the City of Irvine GPA 16
- The Final EIR for the Tustin Ranch Master Plan
- The Final EIR for the East Orange General Plan Amendment

- The Final EIR for the Mountain Park General Plan Amendment, Specific Plan and Development Agreement
- The Final EIR and EIS for the SJHTC
- The Final EIR and EIS for the ETC
- The Shady Canyon Project Final EIR
- The Irvine Coast Phase III Final EIR
- The Planning Area 25 Draft EIR
- The Laguna Canyon Road Improvement Project I-405 to El Toro Road Final EIR
- Transportation Element Amendment 95-1 - Mitigated Negative Declaration No. IP-100
- Metropolitan Water District Central Pool Augmentation and Water Quality Project (CPA) Final EIR
- EA for the Proposed Section 4(d) Rule to Authorize Incidental Take of the California Gnatcatcher
- EA for the Shell/MWD HCP for activities at the Shell Yorba Linda site and the MWD Diemer facility
- UCI Long Range Development Plan Circulation and Open Space Amendment FEIR (12/95)

All of the documents incorporated by reference in this EIR/EIS are available for review, or can be requested for review, at the County of Orange, Environmental Management Agency (OCEMA) Environmental Planning Division, 300 North flower Street, Third Floor, Santa Ana, CA 92702-4048, Attn: Tim Neely (714) 834-2552.

Relevant excerpts, summaries and, in some cases, the entirety of the above documents are set forth in Appendix 24.

CHAPTER 3 ALTERNATIVES INCLUDING THE PROPOSED PROJECT

SECTION 3.1 OVERVIEW OF APPROACH TO ALTERNATIVES ANALYSIS

-- Two Types of Alternatives Analysis

This section of the EIR/EIS addresses what might be termed *regional conservation strategy alternatives*. Due to the scale of the NCCP subregional planning program for central Orange County, the 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 a general description of the comparative strengths and weaknesses of each alternative and the rationale for the selection of the alternatives selected for further review presented below. The alternatives selected for further review are analyzed more extensively in Chapters 5 and 7.

A second type of alternatives analysis, termed *reserve design alternatives*, 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 then analyzes the incremental, site-specific decisions made in defining the proposed reserve boundaries. This analysis assesses different configurations of lands that could potentially be included in the NCCP habitat Reserve System. 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 proposed reserves and which lands to *exclude* from the Reserve System. Accordingly, this EIR/EIS reviews reserve design alternatives as part of the geographically-oriented, and analytically similar "minimization and avoidance" analysis in Chapter 5.

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.

-- Overview of the Four Alternatives

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 defines a Reserve System and management program at one point in time.

NCCP/HCP ALTERNATIVES MATRIX

	PROPOSED PROJECT	NO TAKE	NO PROJECT	PROGRAMMATIC
HABITAT PROTECTION				
Large Scale Reserves	Yes	No	Smaller than NCCP	Depends on Funding
Certainty of Reserves	Yes	No	Uncertain	Uncertain
Occupied CSS	75%	100%	75%	Unknown
Timing of Reserve System Delineation	Certain	None	Uncertain	Uncertain
Non-gnatcatcher CSS	Substantial	No	Less than NCCP	Potentially Substantial
Other Habitat Types	Substantial	No	Less than NCCP	Unknown
CONNECTIVITY				
Within CSS	Substantial	CSS Patches Only	Substantial	Unknown
Between CSS Areas	Substantial	Limited	Moderate	Potentially High
Non-CSS Open Space	Substantial	None	Moderate	Unknown
RESERVE MANAGEMENT				
Comprehensive	Yes	No	Unknown	Unknown
Interim Management	Yes	No	No	No
Invasive Species	Yes	No	Probable	Probable
Fire	Extensive	No	Limited by Reserve Timing	Limited by Reserve Timing
Recreation	Yes	No	Limited	Limited
Monitoring	Extensive	No	Limited by Reserve Timing	Limited by Reserve Timing
Adaptive Management	Yes	No	Limited by Reserve Timing	Limited by Reserve Timing
Funding	Yes	No	Unknown	Unknown
Pacific Pocket Mouse Population Expansion	Possible	Unlikely	Unlikely	Unknown
least vireo	Probable	Unlikely	Unlikely	Potentially Substantial
Southwestern willow flycatcher	Probable	Unlikely	Unlikely	Potentially Substantial
Southwestern arroyo toad	Probable	Unlikely	Unlikely	Potentially Substantial
Quino checkerspot butterfly	Unknown	Unknown	Unknown	Unknown
Riverside fairy shrimp	Unknown	Unknown	Unknown	Unknown
San Diego fairy shrimp	Unknown	Unknown	Unknown	Unknown

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 and other listed species within the subregion, while the No Take Alternative would rely on the prohibitions on take included in Section 9 of the FESA to protect the gnatcatcher and other listed species within the subregion. Neither the No Project nor the No Take Alternatives would necessarily restrict or limit impacts on the cactus wren, the orange-throated whiptail (two of the three "target species") or the other unlisted "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 Reserve System program, but involves a different approach from the Proposed Project 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 specific reserve boundaries. The Programmatic Alternative also allows for a longer time period for accumulating scientific understanding regarding reserve design than is the case with the Proposed Project.

This Chapter concludes with findings regarding the selection of one Alternative as the preferred alternative for purposes of more detailed environmental assessment and the rationale for alternatives selected for comparative analysis in subsequent chapters of this EIR/EIS.

SECTION 3.2 THE PROPOSED PROJECT ALTERNATIVE

3.2.1 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 System - In contrast with single species HCPs under Section 10 of FESA, the subregional NCCP/HCP for Orange County proposes the creation of large scale *habitat reserves* in the Coastal and Central subareas (which together comprise the "NCCP/HCP Reserve System") 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.

3.2.2 Central Orange County NCCP/HCP Subregional Habitat Conservation Planning Objectives

In applying the above planning principles, the Orange County Central/Coastal 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 proposed incidental take resulting in the conversion of significant CSS habitat will not appreciably reduce the likelihood of CSS 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 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 proposed reserve design, consistent with the goals/purposes of the NCCP Act;
- formulation of mitigation measures that would provide adequate mitigation for "target species" habitat impacts related to development actions addressed by the NCCP/HCP that would 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;

3.2.3 Important Programmatic Elements of the NCCP/HCP

The Proposed Project's Reserve System and Adaptive Management Program consist 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 12 and Table 3-1);
- 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 Option for Non-Participating Landowners - provisions for mitigation of CSS impacts on lands located within the subregion but outside the Reserve System and owned by landowners who have not participated in the assemblage and management of the Reserve System through contribution of reserve lands or management funds (as an option, at the discretion of the landowner, to standard CESA Section 2081 and FESA Section 7/10 processes).

3.2.4 Overview of the NCCP/HCP Subregional Reserve System

A. Proposed Habitat Reserve System

The boundaries of the proposed 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.

Due to the scale of these maps, more precise delineations in the field may need to involve adjustments made on the basis of topography, legal descriptions and project boundaries.

-- 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 3-2, 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 3-3, 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 would be created that would include significant areas of twelve of the thirteen major habitat types located within the subregion (Figure 12 and Table 3-1). The proposed Reserve System would 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 proposed 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

Table 3-1
Central & Coastal Subregion NCCP
Vegetation, Target Species, and Proposed Habitat Reserve

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	18,527	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				42	53
Marsh	343		29	234				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				2	563	43	5	804
Cliff and Rock	74	7	1	1	14	29	12	35	173
Marine & Coastal	362		15	0				1,553	1,930
Lakes, Reservoirs, Basins	99	10	1	790			0	456	1,357
Water Courses	182	1	22	8	0		9	563	784
Agriculture	577	90	5	83			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			108	600
Cactus Wren Total Sightings	671	39	64		14			206	994
Total Sightings	1041	59	151	10	19			314	1594
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

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

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.

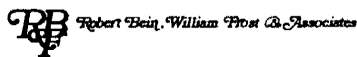


Table 3-2
Coastal Subarea Summary
 Vegetation, Target Species, and Proposed Habitat Reserve

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%	1.0%	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%	1.0%	0.7%	0.8%	96.6%	100.0%

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.

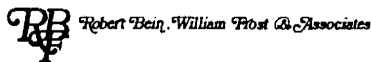


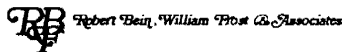
Table 3-3
Central Subarea Summary
Vegetation, Target Species, and Proposed Habitat Reserve

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									
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%			15%	100%
Cactus Wren									
Total Sightings	409	9	44		14			113	589
% of Study Area	69%	2%	7%		2%			19%	100%
Total Sightings	615	13	90	3	19			159	899
Total % of Study Area	68%	1%		0.3%	2%			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%	0.4%	0.7%	0.2%	0.2%	0.1%	0.8%	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.



When it is fully assembled, the entire reserve would be owned and managed by public agencies and managed by a non-profit corporation that would be created and would consist of representatives of individual public agency reserve owners, the CDFG and USFWS. This non-profit corporation would 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 proposes that it would be appropriate to provide 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 species proposed to receive "coverage" under the NCCP/HCP include:

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 matilija poppy
- Tecate cypress

Conditionally Covered Species (10)

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

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

** Species that are proposed for federal listing as threatened or endangered species

The habitat requirements for each of the above species are reviewed in Chapter 4. Also, five plant species are proposed to be covered on the Headlands Property only and a temporary preserve for the Pacific pocket mouse is proposed to be established.

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 proposed 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):

	ACRES OF “COVERED HABITATS” OUTSIDE THE RESERVE SYSTEM	ACRES OF “COVERED HABITATS” INSIDE THE RESERVE SYSTEM
• oak woodlands;	205	940
• Tecate cypress forest;	3	191
• cliff and rock; and,	28	74
• within the Coastal Subarea only, chaparral.	<u>260</u>	<u>3,337</u>
TOTALS	496	4,542

For these habitats, CDFG and USFWS will assume, subject to the provisions of Section 8.3.4(d) 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 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 of these species.

Within the proposed Reserve System, the NCCP/HCP proposes to limit the kinds of permitted uses to protect long-term habitat values. Residential, commercial and industrial uses would be 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 would be sited in locations compatible with habitat protection consistent with authorized take and the recreational facility planning process specified in the Implementation Agreement.

-- 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 proposed on the part of "*participating landowners*," but Reserve System habitat management policies would 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) 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 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

-- Existing Use Areas

Certain areas containing important populations of target species are not proposed to be authorized for incidental take but, instead, are proposed to 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. Since most of the Existing Use Areas contain gnatcatcher populations, it is expected that USFWS would assure the protection of net habitat value within these areas pursuant to FESA Sections 7, 9 and 10.

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 proposed for coverage for incidental take only for this site. The justification for such coverage is discussed in NCCP/HCP Sections 4.5.1 and 4.5.4 and Section 8.3.1 of this 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.

B. 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 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 proposed 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 under "C" 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 would be fully operational one year following approval of the NCCP/HCP and creation of the NCCP management non-profit.

C. Interim Management Program

Approximately 15,000 acres of the proposed Reserve System are currently publicly owned and would 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 proposed 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* would be required to 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 would be to maintain and to improve habitat values on CSS lands designated for inclusion within the Reserve System. These interim protection and habitat enhancement measures are reviewed in Chapter 7.

D. 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. The NCCP/HCP identifies proposed 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. The NCCP/HCP proposes planning policies committing 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. Thus, decisions concerning future land uses within this area would carry out the specific North Ranch Area conservation and development planning policies contained in Chapter 7.

E. Ownership of Reserve Lands

-- Current Ownership of Proposed 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 Laguna Laurel 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 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. Immediately following signing of the Implementation Agreement by the above landowners, 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 proposed reserve habitat 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 would 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 proposed 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 would 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;
- 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 Laguna Canyon preserve.

The NCCP/HCP would create an endowment fund of more than \$10.6 million to pay for the ongoing Adaptive Management Program within the reserve. The proposed endowment would be operated on a non-wasting basis, meaning that the principle would be protected and management would be funded by interest earned annually on the endowment account. Endowment funding would 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 described in Chapter 6 of the NCCP/HCP and assured through the NCCP/HCP Implementation Agreement.

Finally, major restoration and revegetation of lands within the reserve would 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 would be allocated to designated restoration areas within the Reserve System.

3.2.5 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.

A. Summary of Potential Impacts on CSS Habitat Proposed for Conversion

-- Impacts on Lands Located Inside the Habitat Reserve System and on Supplemental Non-Reserve Habitat Areas

The NCCP/HCP would authorize 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 proposed 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 would 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 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 would 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 "B" 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 would be planned, approved and mitigated in accordance with the conservation and development policies contained in Chapter 4 of the NCCP/HCP (see discussion in chapter 7 of this EIR/EIS).

-- Total conversion of CSS Habitat Proposed to be Allowed Pursuant to the NCCP/HCP

When all of the cited impacts are considered, the total authorized incidental take proposed by the NCCP/HCP would include 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, would be 7,444 acres. The 7,444 acres amounts to 24 percent of the total remaining CSS within the subregion.

B. Proposed 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.

For *participating landowners*, development activities and uses that are addressed by the NCCP/HCP would 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 CSS and "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 would mean that no additional mitigation will be required of *participating landowners*, except as specifically provided for in the Implementation Agreement.

-- Proposed 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 proposed 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.

3.2.6 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.

3.2.7 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, proposed to be carried out in the Coastal/Central Subregion NCCP/HCP, 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 and CSS and other "covered habitats"/species would appear to 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 System, 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 3.3 THE NO PROJECT ALTERNATIVE

3.3.1 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 plans (*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). This alternative further assumes 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 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 incrementally 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 to 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.

3.3.2 Comparison of the No Project Alternative with the Recommended Proposed Project

A. Species Coverage and Protection

As noted above, 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 elect to undertake Section 10 HCPs on an incremental basis 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. 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 be a listed-species and species-by-species, partial CSS habitat protection program that, according to the Environmental Assessment (EA) for the Special 4(d) Rule analysis of the No Project Alternative". . . would result in further loss and fragmentation of habitat as projects continue to develop habitat in southern California." (Draft Environmental Assessment of the Proposed Section 4(d) Rule, August 2, 1993, USFWS, p. 43). The Special 4(d) Rule 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 would be treated as if they were listed species pursuant to the CESA and FESA. The combined habitats associated with the three target species would receive full protection under the terms/provisions of the CESA and FESA. These combined habitat areas would be significantly larger than the habitat associated only with the coastal California gnatcatcher. Other species and their habitats (*i.e.*, the remaining "identified species" under the Proposed Project), would receive protection through their inclusion in the habitat Reserve System that would be created under the NCCP/HCP approach. Thus, both from the species coverage and habitat coverage perspectives, the Proposed Project would provide protections superior to the No Project Alternative.

B. 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 impacting 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, orange-throated whiptail lizard and other "identified species" as proposed by the NCCP/HCP. Further, and as noted in the EA for the Special 4(d) Rule, biological diversity on a subregional and range-side basis would continue to decline under the No Project Alternative.

By way of comparison, under the Proposed Project, protection of CSS habitat related to the three target species and other habitats would 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 37,000 acres of CSS and other habitats. Most importantly, the specific phasing and implementation measures needed to assemble the Reserve System in a timely and orderly manner, are identified by the Proposed Project.

C. 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. As reviewed above, 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 noted in subsection "B" above, it would not be possible 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, applied 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 would be 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 Conservation Guidelines, adaptive management would mean managing the reserve in a manner that would promote biodiversity, provide for high persistence of target species and provide for no net loss of habitat value, on a long-term basis, taking into account management and enhancement. Moreover, the adaptive management approach would be implemented from the outset of the Proposed Project and would continue as a flexible management program over the long term to facilitate natural successional dynamics within the CSS habitat system; under the NCCP/HCP, as new information or techniques become available, the management program would be modified to incorporate the latest information/techniques. Key elements of the NCCP/HCP adaptive management approach unlikely to be carried out due to the incremental nature of 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.

3.3.3 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 this document, 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 (see Special 4(d) Rule draft EA at p. 43-44). 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 appears to be 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 3.4 THE NO TAKE ALTERNATIVE

3.4.1 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 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 Alternatives. 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 listed species habitat) - or other CSS and non-CSS species proposed to be treated as "identified species" under the NCCP/HCP because they are currently not listed under the CESA or FESA.

3.4.2 Comparison of the No Take Alternative with the Proposed Project

A. 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). 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 reduce open

space dedication commitments provided by previous regional open space planning and related development agreements involving properties within the subregion. Chapter 5 of this EIR/EIR reviews 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. The unoccupied CSS 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 analysis of the No Take Alternative contained in Chapter 7 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.

In contrast, under the Proposed Project, the three target species would be treated as if they were listed species pursuant to the CESA and FESA. The combined habitats associated with the three species would receive full protection under the terms/provisions of the CESA and FESA. These combined habitat areas would be significantly larger than the habitat associated only with the coastal California gnatcatcher. In addition, other habitats and related species located adjacent to CSS would receive protection through their inclusion in the habitat Reserve System that would be created under the Proposed Project approach. As noted above, whereas the No Take Alternative would preclude previous regional open space dedications from being finalized, the Proposed Action would take 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 would be substantially superior to the No Take Alternative (see Chapter 7).

B. 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 and other listed species 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 and assemble lands that would 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 derives from 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, the No Take approach also could result in the termination and/or cancellation of several important development agreements between The Irvine Company and local governments that have resulted in commitments to dedicate up to 11,000 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, portion 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 FESA. 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/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.

In comparison, under the Proposed Project, protection of CSS habitat would 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 proposed habitat Reserve System containing 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 provided (under the Proposed Project Alternative, approximately half of the Central and Coastal reserves are composed of habitats other than CSS) and are committed through the proposed Implementation Agreement.

Equally important, the Proposed Project would 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 Chapter 5 and 7 of this document, the open space areas already designated and committed as a part of prior development agreements and open space planning 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 and protect biodiversity within the Reserve System, the ability of the Proposed Project to assure 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 (see Figures 15 and 16).

C. 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. Accordingly, the No Take Alternative would limit the lands available for long-term management existing public lands and to the highly fragmented, existing gnatcatcher habitat. This 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 proposed reserve design, thereby protecting a much greater area of CSS habitat and other habitats than would be the case with a "No Take" focus 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 likely 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, 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." 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.

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).

D. 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 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 proposed habitat Reserve System under the Proposed Action, and include (see Figures 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 of Orange 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 and Irvine Lake areas within the City's sphere of influence and for which defined development/open space relationships exist; and
- the Mountain Park General Plan which provides for phased dedication of Weir Canyon 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 and as further reviewed in Chapter 7, the Proposed Project is determined to be substantially superior to the No Take Alternative.

SECTION 3.5 THE PROGRAMMATIC NCCP ALTERNATIVE

3.5.1 Overview of the Programmatic 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. 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.

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 the assemblage of a large-scale habitat reserve and the formulation of a long-term habitat/species management program. The differences between the two approaches to habitat protection focus on 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 likely to occur. 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 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 Project.

3.5.2 Comparison of the Programmatic Alternative with the Proposed Project

A. 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, timing constraints and available funding. Compared with the Proposed Project, the Programmatic Alternative could address the same 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 and 36 additional "identified species," along with 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 would 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 NCCP/HCP and a Bakersfield-type programmatic approach.

In the final analysis, a determination as to 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.

B. 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 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.

In comparison, 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 allowed 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.

C. 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 a designated time period 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 identifies at the outset the entities that are proposed 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.

D. 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 for 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 appear to 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 near-term formulation of a specific Reserve System and management program appears to be a high priority for the southern California coastal sage scrub NCCP program. Finally, in comparison with the Bakersfield HCP circumstances, Orange County land values are very high and a fee program generating sufficient funds to purchase Reserve System lands would likely be prohibitively high.

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, Laguna Beach) (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, in conjunction with the concentration of species populations in existing/committed open space areas, have combined to focus 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 (see Chapters 5 and 7). 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 (see chapters 5, 7 and 8).

For the reasons outlined above, the Proposed Project, with its firm Reserve System boundaries, comprehensive Adaptive Management Program, and specified implementation measures, would be a more effective conservation strategy for the Central and Coastal Subregion than the Programmatic Alternative.

SECTION 3.6 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 1 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) assembling extensive geographic Reserve Systems to protect target/identified species, (c) providing specific and comprehensive management programs susceptible of early implementation and (d) fashioning 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 lead to the listing of the gnatcatcher as endangered, thereby severely restricting or precluding take to assure consistency with 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 that is reasonably site-specific (*i.e.*, occupied by a federally-listed species, the gnatcatcher).

The Programmatic Alternative is not further analyzed as a formal alternative because it is too speculative to attempt to identify which types and locations of habitat would actually be designated over a long period of time *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 will be effectively addressed in the chapter 5 analysis of Minimization/Avoidance alternatives on an area-specific basis (*i.e.*, the Programmatic Alternative would potentially result in a different reserve design and all of the different potential reserve design configurations of significance are addressed in Chapter 5) and in the Chapter 7 assessment of the North Ranch Policy Plan Area.

CHAPTER 4 EXISTING SETTING

INTRODUCTION

This Chapter describes those elements of the existing environmental setting that could be impacted by the proposed project. Information regarding the existing setting has been organized by resource topic, and these topics are assigned separate sections within the Chapter. These sections typically discuss the resources within the project study area, as well as the existing conditions within the regional vicinity of the project. The purpose of this chapter is to describe the existing environmental setting in order to provide a basis to assess the significance of impacts which may occur as a result of the project, as analyzed in subsequent chapters.

SECTION 4.1 BIOLOGICAL RESOURCES

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 being treated "as if listed" and are proposed to receive regulation 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.

4.1.1 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.

4.1.1.1 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).

4.1.1.2 NCCP Target Species

The NCCP target species were selected by the State-sanctioned Scientific Review Panel (SRP) and included the California gnatcatcher (*Polioptila 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. 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 associated 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.

4.1.2 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 under story 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 under story 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.

4.1.3 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 4-1.

4.1.4 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.

4.1.4.1 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.

4.1.4.2 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).

Table 4-1
PLANT COMMUNITIES ASSOCIATED WITH COASTAL SAGE SCRUB

<u>Community</u>	<u>Description</u>
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.
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.

Community	Description
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).

4.1.4.3 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.

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.

4.1.5 CSS Distribution

4.1.5.1 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]).

4.1.5.2 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 4-2. 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 4-3 and Figure 6). Most of this area was wildland. Table 4-3 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 4-2
AREAS OF COASTAL SAGE SCRUB AND ASSOCIATED COMMUNITIES

Habitat Type	Central Subarea ¹		Coastal Subarea ¹	
	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	

4.1.6 Wildlife

The wildlife species inhabiting the mosaic of habitats in the NCCP/HCP subregion associate in many ways with the plant communities (Table 4-4). 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 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

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

in riparian areas, due to the moisture available, excellent protective cover, and high availability of food.

Table 4-3
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	(54)
Chaparral	4,933	(14)	2,621	(23)
Grassland	13,147	(37)	3,082	(20)
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	(36)
Total Non-wildland (urban, agriculture, etc.)	60,291		522	
Total Area	95,763		13,402	

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

1. 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

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.

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 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.

Table 4-4
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>)
	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>)
Chaparral	Invertebrates (butterflies)	chalcedony checkerspot
	Reptiles and amphibians	coastal western whiptail, California whipsnake

Habitat Type	Taxon	Typically Associated Species
Oak woodland	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>)
	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>)

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 4-5, 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 4-5).

-- 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

Table 4-5
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 |

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.

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 (at present the USFWS has eliminated the C2 and C3 status review categories). 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.

4.1.6.2 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 all known habitat owned by *participating landowners* is in the reserve or special linkage.

-- 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. The number of plants reported from four populations totals an estimated 23,600 individuals, and two other populations are reported to be "large" and "small," respectively (CNDDDB 1995). 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 Canyon Acres (CNDDDB 5) sites are clearly outside the reserve; the Aliso Canyon mouth (CNDDDB 2) site is very near the edges of 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 is voluntarily protecting a portion of the Aliso Canyon mouth population 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 lindahlia*, 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 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 land forms 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 (*Euphydryas editha quino*)

This 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 chalcidona 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 reasons 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 plaintain 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 this subarea.

-- 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 in 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 proposed reserve, 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 proposed Reserve, 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 dependence 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 hawks 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 (Zemba 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 (Candidae).

-- 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 of the NCCP/HCP. 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 Heteronyidae 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. Bryliski (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 habitat for the pocket mouse 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. Bryliski (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 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.

The other two populations were discovered in the northern portion of Camp Pendleton by consultants for the Foothill/Eastern Transportation Corridor Agency in conjunction with the Foothill Transportation Corridor-South project. The populations (Panhe and Cuchillo) are separated by San Mateo Creek and an ongoing agricultural operation. The Panhe population is estimated to contain approximately 33 individuals. (Crude population estimates during general surveys ranged from 9-50 individuals.) No population estimate has been made of the Cuchillo population; a total of 13 Pacific pocket mice were trapped in 1995.

The newly discovered populations on Camp Pendleton, with its approximately 17 miles of relatively undisturbed coastline, significantly improve the chances of 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, activities undertaken at Camp Pendleton will be subject to Section 7 of FESA, which precludes any action taken by a federal agency that would be likely to jeopardize the continued existence of the species. As discussed above, access to the Headlands population for study and recovery efforts is expected to provide information that will be useful, and may prove critical, to further management and recovery efforts for these other populations.

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 locate 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.

-- 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 factors negatively impacting this species 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 within the subregion is in a fenced area that limits access to the occupied habitat area. However, no other protection measures have been implemented for this population, and it remains prone to stochastic events, predation by feral cats and other animals and disturbance from trespassers.

The Headlands population currently exists on a small fragment of coastal sage scrub habitat surrounded by urban and residential development. Feral and domestic cats pose a significant risk to the Pacific pocket mouse population (59 *Federal Register* 49752-49764; see generally Pearson [1964]; George [1974]; Jurek [1994]; Churcher and Lawton [1987]; Erickson [1996]). In the final rule listing the Pacific pocket mouse, the USFWS noted that all relevant data and considerations demonstrate that the Headlands population is "highly susceptible to extinction as a result of environmental or demographic factors alone (e.g., Mace and Lande 1993)" (59 Fed. Reg. 49752).

As noted in Holler, et al. (1989) and explained in greater detail in the publications cited below, four factors may operate singularly or in combination to bring about a population's extinction: 1) demographic stochasticity, which involves chance events in the survival and reproductive activities of the population (this becomes a more threatening factor when populations are extremely small); 2) environmental stochasticity, which involves temporal changes in habitat and environment; 3) natural catastrophes, such as diseases, fires or drought; and 4) genetic stochasticity, which involves changes in gene frequencies due to such factors as inbreeding and founder effect, and often results in loss of fitness through homozygosity and the expression of deleterious recessive genes (see Shaffer [1981]; Wilcox & Murphy [1985]; Gilpin & Soule [1986]; MacArthur & Wilson [1967]). The Headlands population is significantly vulnerable to all four of these factors, any one of which by itself could eliminate the population.

Erickson (1996) has also noted the validity of these threats and provided a summary of those natural processes that collectively, currently present a substantial threat to the Headlands

population. As Erickson's work describes in more detail, it is difficult to overstate the threats that currently exists for this population and the likelihood of the population's extirpation in the absence of proactive management efforts. Brylski (1993) reached similar conclusions regarding the fate of this population without active conservation measures. O'Farrell has made observations consistent with these at another small potential site for the species (O'Farrell 1994).

Inbreeding depression is but one phenomenon that poses a substantial risk to a population as small as that on the Headlands site. Genetic analysis of members of the Headlands population (via alloenzyme and/or mitochondrial DNA analysis) may be necessary to determine the present genome of the population and the relative number of successful breeding pairs of mice in the population. The results of such work could indicate that the population contains very few breeding pairs, an event that would suggest that more intensive breeding management would be required.

4.1.6.3 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 proposed for coverage for incidental take/management take only for this site. The justification for such coverage is reviewed in Chapter 8. Four of these five species have been found to occur on the Headlands site. The other species (Palmer's grappling lock) 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 Cacklebur 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 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 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.

-- 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 Gabino 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 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 coarse 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

In San Diego County, the Prostrate Spineflower 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.

4.1.6.4 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 4-6). 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 4-6 are species considered likely to be eligible for regulatory coverage in the future after completion of focused field surveys within the proposed 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 4-6
ADDITIONAL SPECIES OF INTEREST
IN THE NCCP CENTRAL AND COASTAL ORANGE COUNTY SUBREGIONS

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

Species	Federal	State	Habitat Use
Two-striped garter snake <i>Thamnophis hammondi hammondi</i>	--	--	riparian
AMPHIBIANS			
California red-legged frog <i>Rana aurora draytoni</i>	PE	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>	PE	--	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>	PT	--	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
Heart-leaved pitcher-sage <i>Lepechinia cardiophylla</i>	--	--	interior chaparral and above
Chaparral beargrass <i>Nolina "cismontana"</i>	--	--	coastal sage scrub and chaparral
Nuttall's scrub oak <i>Quercus dumosa</i>	--	--	chaparral and coastal sage scrub
Crown beard <i>Verbesinia dissita</i>	PT	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

SECTION 4.2 LAND USE/SOCIOECONOMICS

4.2.1 Land Ownership

A. Major Ownerships in the Subregion

Land ownership within the 208,713 acre Central and Coastal Subregional NCCP/HCP study area is highly varied, and includes a wide range of individual, corporate and public agency ownerships. More than half (57 percent) of the total subregional study area is included within five public and one private ownership. Major owners within the subregion area are listed below.

Major Ownerships Within the Subregion

<u>Owner</u>	<u>Acreage</u>
The Irvine Company	62,000
Cleveland National Forest	27,770
County of Orange (regional parks)	19,000
Military (MCAS-El Toro and Tustin)	5,456
State Parks	2,807
University of California-Irvine	1,489
Total Acreage	118,522

B. Public Ownership in the Recommended Reserve

Public ownerships within the recommended Reserve System 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 (EMA HPB);
- 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 approximately 135 acres, including an 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);
- the 678-acre Upper Newport Bay Reserve, the 953-acre Coal Canyon Reserve and 82 acres in Laurel Canyon owned by the State of California and managed by CDFG;
- 1,662 acres owned/managed by the City of Laguna Beach; and
- 318 acres owned by the TCA (214 acres around Siphon Reservoir and 104 acres within the Coyote Landfill).

4.2.2 Affected Local Jurisdictions

The Central and Coastal NCCP/HCP study area covers an irregularly shaped band of land across the central one-third of Orange County. It extends from the Pacific Ocean to the Santa Ana Mountains, and from the mouth of the Santa Ana River to the Dana Point Harbor. The study area is located immediately south-southeast of the northern cities. It is separated from vacant portions of the Southern NCCP/HCP study area by the cities of San Clemente and Mission Viejo.

The Coastal Subarea covers approximately 96,082 acres in Orange County, extending from the mouth of the Santa Ana River to Dana Point Harbor and inland roughly along the line traversed by Interstate 5. The Central Subarea, covering 112,631 acres, is bounded by State Routes 55 and 91 to the north, Riverside County to the east, and El Toro Road on the south.

The Central and Coastal Subregional NCCP/HCP includes all or portions of 14 cities, a number of State and federal lands, and a significant portion of the unincorporated Orange County jurisdiction. Portions of the permanent habitat reserve are located within 8 of the 14 cities in the subregion (see Figures 12 and 18).

4.2.3 Socioeconomics - Population, Housing and Employment

Information on population, housing, and employment was taken from Orange County Preferred Projections (OCP-92), and is listed for all participating jurisdictions in Tables 4.7A, 4.7B, and 4.7C. Although previous discussions mention 14 cities within the subregion, Tables

Table 4-7A
PROJECTED POPULATION FOR AFFECTED JURISDICTIONS

Jurisdiction	1990	1995	2000	2005	2010	2015	2020
Anaheim	266,406	294,625	329,946	350,248	370,456	380,782	391,114
Costa Mesa	96,357	105,875	110,970	111,201	111,430	111,889	112,348
Dana Point	31,896	35,423	37,831	38,743	39,653	40,875	42,095
Irvine	110,329	121,638	135,201	144,111	145,683	151,496	157,107
Laguna Beach	23,170	24,416	25,544	25,504	25,462	25,541	25,618
Laguna Hills	22,666	23,690	25,076	25,442	26,807	27,284	28,777
Laguna Niguel	44,400	55,999	61,516	62,900	64,286	63,938	63,589
Lake Forest	56,070	58,093	59,208	59,738	59,171	59,444	58,653
Newport Beach	66,643	70,248	78,328	81,359	84,387	84,037	83,686
Orange	110,684	119,548	123,129	126,203	129,279	132,705	136,133
San Juan Capistrano	26,183	28,477	32,253	33,566	34,876	34,969	35,061
Tustin	50,678	59,094	67,293	69,426	69,848	69,322	69,244
Villa Park	6,304	6,461	6,455	6,492	6,528	6,565	6,600
Unincorporated	148,408	198,580	272,936	324,450	369,700	398,075	428,071
Total	1,062,184	1,204,162	1,367,686	1,461,388	1,539,576	1,588,937	1,640,116

Source: Orange County Preferred Projections - 1992

Table 4-7B
PROJECTED HOUSING FOR AFFECTED JURISDICTIONS

Jurisdiction	1990	1995	2000	2005	2010	2015	2020
Anaheim	93,177	96,536	104,759	110,088	115,422	121,243	126,946
Costa Mesa	39,611	42,523	43,501	43,852	44,201	44,929	45,655
Dana Point	14,666	15,664	16,134	16,626	17,117	17,639	18,160
Irvine	42,221	47,121	53,067	56,999	57,652	60,074	62,457
Laguna Beach	12,846	13,025	13,144	13,214	13,284	13,292	13,298
Laguna Hills	8,187	8,500	9,022	9,301	9,690	10,096	10,510
Laguna Niguel	18,892	22,858	24,908	25,613	26,243	26,371	26,500
Lake Forest	20,783	20,990	21,369	21,456	21,543	21,646	21,749
Newport Beach	34,861	36,008	38,442	40,241	24,039	42,619	43,197
Orange	38,032	40,036	40,986	42,014	43,046	44,476	45,910
San Juan Capistrano	9,612	10,080	11,140	11,692	12,241	12,445	12,648
Tustin	19,300	21,782	24,526	25,226	25,822	26,163	26,522
Villa Park	1,966	2,017	2,020	2,026	2,034	2,055	2,070
Unincorporated	60,512	79,806	107,673	128,111	145,886	158,321	171,648
Total	416,636	458,941	512,691	548,464	560,230	603,384	629,290

Source: Orange County Preferred Projections - 1992

Table 4-7C
PROJECTED EMPLOYMENT FOR AFFECTED JURISDICTIONS

Jurisdiction	1990	1995	2000	2005	2010	2015	2020
Anaheim	189,355	201,776	238,661	270,096	301,503	315,193	328,989
Costa Mesa	83,918	87,998	93,998	95,497	96,997	97,198	97,398
Dana Point	6,546	8,736	9,717	9,997	10,276	10,555	10,836
Irvine	152,441	163,234	183,904	206,988	229,475	242,398	255,324
Laguna Beach	8,814	8,985	9,573	10,197	10,821	11,319	11,817
Laguna Hills	8,689	9,245	10,286	10,773	11,262	11,603	11,944
Laguna Niguel	11,000	13,360	22,067	22,667	23,268	23,735	24,200
Lake Forest	9,850	16,103	26,993	32,075	37,159	38,512	39,868
Newport Beach	72,815	73,023	74,383	77,398	80,415	82,705	84,998
Orange	89,331	94,469	102,493	106,785	111,080	114,163	117,250
San Juan Capistrano	7,394	7,831	7,997	8,996	9,997	10,495	10,997
Tustin	38,049	43,486	47,024	49,521	51,985	52,203	52,422
Villa Park	750	760	780	784	790	790	790
Unincorporated	37,587	70,904	111,781	130,121	147,611	163,890	182,056
Total	718,529	801,905	941,657	1,033,900	1,124,649	1,176,774	1,230,909

Source: Orange County Preferred Projections - 1992

4.7A, 4.7B and 4.7C include information for only 13. Information for Huntington Beach is not included because the impact to the City is minimal. Therefore, Huntington Beach has been omitted from further discussion.

Between 1990 and 2020, the total population of the affected jurisdictions and unincorporated areas within the County is expected to increase by approximately 54 percent, housing by 51 percent, and employment by 71 percent.

4.2.4 Land Use

The following section discusses the existing and future land uses for each of the jurisdictions located in the Central and Coastal Subregion. Designated land use acreages for the affected jurisdictions were compiled from each city's General Plan; they may not necessarily correspond to the GIS acreages for the jurisdictions. The acreages may differ slightly depending on whether the source was the General Plan land use designations or the GIS acreages. Information on natural habitats and target species was developed using the biologic surveys, and vegetation and target species that were completed for The NCCP/HCP.

As is discussed in Chapter 4 of Part II of the NCCP, in order to create the permanent habitat Reserve System, some lands now privately owned will need to be acquired. Implementation of the permanent habitat Reserve System, and acquisition or other transfer of parcels above, may ultimately require changes in General Plan land use designations. Implementation of the permanent habitat Reserve System will have land use effects that can be characterized in one of the following ways:

1. No effect. Reserve area is currently or planned to be open space.
2. No measurable effect. Reserve area is not currently designated as open space, but adequate area exists within the local jurisdiction or the County to accommodate any dislocated uses and still maintain adopted forecasts.
3. General Plan land use change needed. The reserve is planned in an area that is designated in the General Plan as development, and that land use will be displaced by the habitat Reserve System.

The discussion of the relationship of the NCCP to each jurisdiction's General Plan focus is set forth in Chapter 5, "Environmental Consequences."

A. City of Anaheim

Existing Conditions

Anaheim is located in the north-central portion of Orange County, west of the City of Orange and north of the City of Santa Ana. It is in the northern portion of the Central Subarea (see Figure 18). The incorporated area of Anaheim currently covers 9,389 acres, with existing development concentrated in the older northern and western portions of the City.

More than one-half of the incorporated area is currently developed or planned for development, as is shown in Table 4-8. Table 4-8 shows each city's total acreage amounts that are within the subregion. These acreage amounts are broken down to show the acreages within the NCCP reserve, Special Linkage Areas, other non-reserve open space, and other non-reserve areas.

Anaheim supports 1,696 acres of CSS and 1,847 acres of other wildland habitats, which cover approximately 38 percent of the incorporated area. Field surveys conducted for the total NCCP subregion recorded 34 gnatcatcher and 44 cactus wren sites (Table 4-7 in the NCCP/HCP).

Future Uses

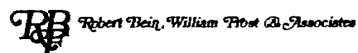
The Anaheim General Plan designates broad categories of land use; each is divided into various subcategories. The broad categories are Residential, Commercial, Industrial, and Community Services and Facilities. At this time, total acreages for each land use designation are not available.

Anaheim is expected to see significant growth over the next 30 years. Population is expected to increase by nearly 50 percent, while the number of jobs would increase by more than 70 percent (Tables 4.7A and 4.7C). Housing is expected to increase by more than one-third (Table 4-7B). Much of the employment and population growth would be accommodated in the eastern and southeastern portions of the City. Land uses in the vacant portions of the City would continue to be developed in accordance with the General Plan and individual Specific

Table 4-8
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.	296	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



Plans such as the Summit of Anaheim Hills, Sycamore Canyon, and the Mountain Park Specific Plan. Collectively, these projects include 14,960 homes and an estimated 40,500 residents, along with commercial areas, parks, schools, and other public facilities. The Eastern Transportation Corridor (ETC), a planned transportation facility designed to accommodate regional transportation needs, also traverses this portion of the City and its Sphere of Influence.

B. Costa Mesa

Existing Conditions

The City of Costa Mesa is located in the central-coastal part of the County, within the Coastal Subarea. It is bounded by the cities of Irvine and Newport Beach to the east and south and Santa Ana to the north; the Santa Ana River forms the western boundary, and John Wayne Airport is located on the eastern boundary. The incorporated area of the City covers 8,785 acres, with approximately 8,080 acres either disturbed, developed or in agriculture (Table 4-7B). The remaining 705 acres are open space.

Future Uses

The future of Costa Mesa is guided by the Costa Mesa General Plan, which designates the type, location and intensity of development. It includes four broad categories of land use: Residential, Commercial, Industrial, and Public/Semi-public. Residential growth is expected to be of medium and high density, while single family subdivisions will be located on small lots at in-fill sites. Commercial and industrial uses will occur around existing areas.

Costa Mesa - Future Land Use

<u>Land Use Designation</u>	<u>Acreage Per Land Use</u>
Residential	3,950
Commercial	1,063
Industrial	1,135
Public/Semi-Public	1,294
Golf Course	502
Fairgrounds	150
Total Acreage	8,094 ¹

Source: Costa Mesa General Plan, Land Use Element - Updated 8/8/94
Open Space Element - Updated 8/8/94

The only natural area that currently exists is located along the Santa Ana River in the Talbert and Fairview Regional Parks.

C. Dana Point

Existing Conditions

The City of Dana Point is located in the southern part of Orange County, adjacent to the Pacific Ocean. Roughly 82 percent of the City is located in the Coastal Subarea, while the remainder is located in the Southern Subregion. The City of Laguna Niguel is located immediately to the north, San Juan Capistrano is located to the northeast, and San Clemente is located to the east (Figure 18).

Dana Point covers approximately 4,149 acres; however, only 3,412 acres of the incorporated area are within the Coastal NCCP subregion. Of this 3,412 acres, Dana Point includes 121 acres of CSS; 2,794 acres of developed, disturbed, or agriculture; and 506 acres of other wildlands (Table 4-8). Field surveys for the NCCP subregion recorded twelve gnatcatcher sites; two cactus wren sites were recorded (Table 4-7 in the NCCP/HCP).

¹Total acreage includes Sphere of Influence.

Future Land Use

The future of Dana Point is guided by the Dana Point General Plan, which designates the type, location and intensity of development. The General Plan includes six broad categories of land use: Residential, Commercial, Industrial, Public, Planned Community, and Transportation. Future land use within the City is listed in the following table:

<u>Land Use Designation</u>	<u>Acreage Per Land Use¹</u>
Residential	2,488
Commercial	321
Open Space	770
Professional	4
Industrial	18
Agriculture	0
Public Facilities	0
Military	0
Water	0
Transportation	0
Not Specified	548
Total Acreage	4,149

Source: Dana Point General Plan Land Use Element, 7/9/91

Upon full implementation of the General Plan, roughly two-thirds of the City will be devoted to residential uses.

A population increase of approximately 30 percent is anticipated over the next 30 years, with an employment increase of more than 65 percent (Table 4-7A and 4-7C). Housing is projected to increase by almost 25 percent. This projected growth will be distributed throughout the City, with a substantial portion of new growth being accommodated in a project known as Dana Point Headlands. The proposed project is located in the Coastal Subarea, and is planned to include a mixture of residential uses, visitor oriented commercial, and conservation open space, including public access.

¹

Includes acreages within the Coastal and Southern NCCP Subregions.

D. City of Irvine

Existing Conditions

The City of Irvine is located in the central part of the County. It is the only City that is located in both the Central and Coastal Subareas; Interstate 5 is the dividing line between the two subareas. The City lies east of Newport Beach and Costa Mesa, south/southeast of Santa Ana and Tustin, north of Laguna Beach, and northwest of Mission Viejo (Figure 18).

The incorporated area of the City covers approximately 27,546 acres, with approximately two-thirds of the incorporated area designated as developed, disturbed or agricultural. Within the total subregion, the incorporated area of the City supports approximately 1,981 acres of CSS and 7,712 acres of other wildland habitats. Field surveys conducted for the NCCP subregion recorded 161 cactus wren and 97 gnatcatcher sites.

The City of Irvine General Plan recognizes four landform zones: the Santiago Hills, northern flatlands near MCAS-El Toro, the central flatlands located adjacent to and southwest of the northern flatlands, and the San Joaquin Hills.

Most of the existing residential development in Irvine has been in the northwestern portion of the northern and central flatlands, adjacent to the cities of Tustin and Santa Ana. Employment growth has been concentrated near the residential areas, adjacent to regional transportation facilities on the western and eastern edges of the City.

Future Uses

The City's General Plan includes 11 broad categories of land use: Residential, Commercial, Industrial, Public, Institutional, Conservation, Open Space, Military, Historical Resources, Waste Facility, and Circulation. Many of these major categories contain one or more subcategories. The City's future land uses are identified in the following table:

Irvine - Future Land Use

<u>Land Use Designation</u>	<u>Acreage Per Land Use</u>
Military	4,834
Multi-Use	198
Industrial	6,331
Commercial	2,383
Institutional	2,347
Residential	17,544
Conservation and Open Space	16,886
Total Acreage	50,523¹

Source: Irvine General Plan, Land Use Element Appendix A, August, 1993

Upon full implementation of the General Plan, nearly one-third of the City would be open space, and more than one-third would be devoted to residential uses.

Significant growth in the City of Irvine is expected over the next 30 years, with population expected to increase 40 percent, housing projected to increase by nearly 50 percent, and employment projected to increase by more than 60 percent (Tables 4.7A, 4.7B, 4.7C). This future growth would be guided by the General Plan, and would occur in vacant areas located in both the incorporated area and in the Sphere of Influence. Residential areas will be concentrated around existing areas, and will gradually decrease in density and intensity approaching the Santiago Hills to the east and southeast, and the San Joaquin Hills to the south. Future employment areas will continue to be located near regional transportation facilities, on land that is flatter and easier to build on (e.g., within the Central Flatlands). The San Joaquin Hills Transportation Corridor will traverse the south-southeastern portion of the City and its sphere (in the Coastal Subarea); the Foothill and Eastern Transportation Corridors will traverse the eastern portion of the City in the Central Subarea. All corridors were planned to accommodate regional transportation needs in Orange County. Within the City's Sphere of Influence, El Toro Marine Corps Air Station encompasses 4,738 acres containing important amounts of CSS, and is slated for closure before the end of the century.

¹ Total acreage also include Sphere of Influence.

The Conservation/Open Space/Recreation Element of the City of Irvine's General Plan identifies several different categories of open space: Preservation Areas, Recreation Areas, Water Bodies, Agriculture, Golf Course Overlay, and Landfill Overlay. These areas were identified by the City Conservation and Open Space Task Force, which also explored various means of acquiring these lands. The result was an initiative measure (Initiative No. 88-01) that was approved by the City's electorate on June 7, 1988. This initiative facilitates acquisition of the areas identified for open space through a program that consolidates large, contiguous, open space areas by transferring development rights to other areas. The City has entered into agreements with the major landowner, The Irvine Company, that specify a schedule of development and the corresponding dedication of open space. Approximately 13,100 acres either will be or already have been permanently set aside as Preservation Areas upon full implementation of this program. Land included in this program includes the Santiago Foothills in the Central Subarea and portions of the San Joaquin Hills, San Joaquin Marsh, and Bommer and Sand Canyons, and the remaining riparian areas along San Diego Creek and its tributaries.

E. Laguna Beach

Existing Conditions

The City of Laguna Beach is located in the southwestern part of the County, between the Pacific Ocean and the southeastern edge of the San Joaquin Hills, entirely within the Coastal Subarea. The City of Irvine is located to the northwest, Laguna Niguel is located to the east, and Dana Point is located to the southeast. The incorporated area of the City covers approximately 5,672 acres. The City is nearly built out, with little growth anticipated over the next 30 years.

Laguna Beach has approximately 3,374 acres of natural habitat, including 1,717 acres of CSS and 1,658 acres of other wildlands (Table 4-8). Field surveys for this NCCP/Subregion mapped 10 gnatcatcher and 36 cactus wren sites.

Future Uses

The future of Laguna Beach is guided by the Laguna Beach General Plan, which designates the type, location, and intensity of development. The General Plan includes five broad categories of land use, with subcategories for each: Residential, Commercial, Industrial,

Public/Institutional, and Public Recreation and Parks. At this time, total acreages for each land use designation are not available.

The Laguna Beach of the future will probably look much as it does today. The City is nearly built out, and existing vacant parcels are scattered throughout the City. Employment is projected to increase by more than one-third, while housing is projected to increase less than five percent (Tables 4-7C and 4-7B). Population is expected to increase by 11 percent by the year 2020 (Table 4-7A).

F. Laguna Hills

Existing Conditions

The City of Laguna Hills is located in the south-central part of the County, in the Coastal Subarea. The cities of Mission Viejo and Lake Forest are located to the north and northeast; Laguna Beach and Laguna Niguel are located to the south (Figure 18). The incorporated area of the City covers 3,325 acres.

The City is approximately 86 percent developed (Table 4-8) and supports approximately 464 acres of other wildland habitats and minimal amounts of CSS. None of the target species were sited during focused surveys conducted for the NCCP Subregion (Table 4-7 in the NCCP/HCP).

Future Uses

The future of the City of Laguna Hills is guided by the General Plan, adopted in June, 1994. The General Plan includes five broad categories of land use, with subcategories for each: Residential, Commercial/Office, Mixed Use, Public/Institutional, and Park/Open Space.

Laguna Hills - Future Land Use

Land Use Designation	Acreage Per Land Use ¹
Residential	2,611
Commercial/Office	366
Mixed Use	298
Public/Institutional	197
Park/Open Space	607
Total Acreage	4,079²

Source: Laguna Hills General Plan, Land Use Map, 6/28/94

Since the City is nearly built out, land use changes in the future will include primarily the intensification of commercial, office, and industrial land uses; redefinition of appropriate land uses; implementation of transit oriented projects; and the possible long-term intensification of current residential neighborhoods.

Over the next 30 years, the City is expected to increase in population by more than 25 percent, with an employment increase of more than 37 percent (Tables 4.7A and 4.7C). Housing is projected to increase by 28 percent (Table 4-7B).

G. Laguna Niguel

Existing Conditions

The City of Laguna Niguel is located in the southern part of the Coastal Subarea. It is bounded by Laguna Beach to the northwest, Laguna Hills to the northeast, and Dana Point to the south (Figure 18). The incorporated area of Laguna Niguel covers approximately 9,392 acres. Residential uses account for approximately 37 percent of the total land area, and open space accounts for 34 percent of the City; all other uses combined occupy approximately 29 percent (Table 4-8). Existing natural areas within the total subregion support 6 percent of CSS and 21 percent of other wildland habitat. Field surveys conducted for the NCCP Subregion indicated 14 gnatcatcher and 4 cactus wren sites.

¹ Totals may not match the General Plan Land Use Map, due to rounding.
Total acreage also includes Sphere of Influence.

Future Uses

The future of Laguna Niguel is guided by the Laguna Niguel General Plan. The General Plan Land Use Element uses several land use designations to provide for a broad variety of uses. These include Residential, Commercial/Office, Public/Institutional, Parks and Recreation, Industrial, Open Space and Water, and are shown in the following table:

Laguna Niguel - Future Land Use	
<u>Land Use Designation</u>	<u>Acreage Per Land Use</u>
Residential	3,514
Commercial	276
Professional Office/Business Park	164
Industrial	60
Public/Institutional	223
Parks and Recreation	419
Open Space	3,233
Water	26
Major Streets/R.O.W	1,507
<u>Total Acreage</u>	<u>9,422</u>

Source: Laguna Niguel General Plan, Land Use Element, 6/29/92

The City is expected to experience a 43 percent increase in population, a 40 percent increase in housing, and a 120 percent increase in employment by the year 2020 (OCP-92).

The majority of the remaining vacant land in the City has approved development agreements or other entitlement. Land that is designated as open space has been dedicated, or will be dedicated as development occurs. The remaining development will be spread throughout the City, rather than being concentrated in specific areas. The San Joaquin Hills Transportation Corridor crosses the northern portion of the City.

The Open Space Element of the Laguna Niguel General Plan indicates that the City contains or is adjacent to a number of regional open space facilities, including Laguna Niguel Regional Park, Aliso Creek corridor, Salt Creek Regional Park, and Aliso and Woods Canyons Regional Parks, all of which are in the Coastal Subarea. These, in turn, provide linkage to other open space facilities in south Orange County, including Irvine Coast Regional Park, Laguna Laurel, Crystal Cove State Park, and Whiting Ranch Regional Park, located in the Central Subarea.

The Land Use Element often calls for the development of pedestrian trails to these open space areas as part of any new projects adjacent to these open space areas.

H. Lake Forest

Existing Conditions

Lake Forest is located in the southeastern portion of the Central Subarea. The City of Mission Viejo bounds Lake Forest on the southeast, Irvine is located to the north, and Laguna Hills is located to the south (Figure 18). The incorporated area of the City covers approximately 5,352 acres.

Future Uses

The City of Lake Forest is guided by the Lake Forest General Plan, adopted by the City Council on June 21, 1994. The General Plan designates 11 broad categories of land use, which are listed in the following table.

Lake Forest - Future Land Use	
Land Use Designation	Acreage Per Land Use
Residential	3,165
Commercial	427
Professional Office	50
Mixed-Use	0
Business Park	770
Light Industrial	425
Public Facility	327
Community Park/Open Space	164
Regional Park/Open Space	298
Open Space (w/Lake)	572
Transportation Corridor	379
Total Acreage	6,577.00¹

Source: Lake Forest General Plan, Land Use Element, 6/21/94

Lake Forest is expected to see significant growth in employment, with an increase of more than 300 percent over the next 30 years (Table 4-7C). On the other hand, population and housing are not expected to increase by more than five percent (Tables 4.7A and 4.7B.)

¹Total acreage includes Sphere of Influence.

During the next few decades, the City is expected to experience increasing commercial, business park, and light industrial development as those lands become developed. Future residential development is guided by the pre-incorporation planning of nine large-scale planned communities.

I. City of Newport Beach

Existing Conditions

The City of Newport Beach is located along the central coast of Orange County in the Coastal Subarea. The City of Costa Mesa is located immediately on the northwest, and Irvine bounds Newport Beach on the east and south. The incorporated area of the City covers approximately 8,880 acres. Approximately 85 percent of the incorporated area is currently developed, with the remaining vacant land supporting 1,184 acres of other wildland habitats and 151 acres of CSS (Table 4-8). The field surveys conducted for the NCCP Subregion mapped ten gnatcatcher and four cactus wren sites (Table 4-7 in the NCCP/HCP).

Future Uses

The future of Newport Beach is guided by the Newport Beach General Plan, which designates the type, location and intensity of development. The General Plan includes four broad categories of land use, with subcategories for each. These are Residential, Commercial, Industrial, and Public/Semi-Public/Institutional, and are shown in the following table. At build out, roughly two-fifths of the total City area will be committed to residential uses, and 1,741 acres will be left as open space.

Newport Beach - Future Land Use	
Land Use Designations	Acreage Per Land Use
Residential	4,169
Commercial	1,533
Industrial	185
R.O.W. Open Space	1,741
Right of Way	2,165
Total Acreage	9,793 ¹

Source: City of Newport Beach Planning Department, 1995.

¹

Total acreage includes Sphere of Influence.

Newport Beach will experience moderate growth over the next 30 years. Population is expected to increase by approximately 25 percent; employment will increase by more than 25 percent (Tables 4.7A and 4.7B). Housing is also expected to increase by 25 percent (Table 4-7C).

The future development of the City will be guided by using the "grouping of villages" form and character. The Land Use Element also identifies the strengthening of both the physical identity and functional efficiency of form through such measures as using open space corridors and buffers and controlling residential development and the intensity of commercial development.

J. City of Orange

Existing Conditions

The City of Orange is located in the east-central part of the County within the Central Subarea, south of the City of Placentia, southwest of Villa Park, and northwest of the City of Tustin. The incorporated area of the City covers approximately 7,616 acres. Development is concentrated in the older northern and western portions of the City. More than three-fourths of the existing incorporated area is developed (Table 4-8). The remaining vacant acreage supports 758 acres of CSS and 855 acres of other wildland habitats (Table 4-8). 46 gnatcatcher and 70 cactus wren sites were identified during field surveys conducted for the NCCP Subregion.

Future Uses

The City of Orange General Plan designates seven broad categories of land use; each is divided into various subcategories. The broad categories are Residential, Commercial, Industrial, Public Facilities, Open Space, Resource Area (defined as areas where mineral or resource extraction is or may occur) and Transportation. The City's future land uses are listed in the following table:

Orange - Future Land Use

Land Use Designation	Acreage Per Land Use
Residential	9,970
Commercial	1,479
Open Space	2,668
Industrial	1,537
Public Facilities	976
Resource Areas	208
Transportation	403
Total Acreage	17,241

Source: Orange General Plan, Land Use Element, 8/89; Oral Communication with Jim Donovan, Associate Planner 2/9/95

Orange is expected to see significant growth over the next 30 years, with population expected to increase by more than 20 percent and employment increasing by over 30 percent (Tables 4.7A and 4.7C). Housing is projected to increase by approximately 20 percent (Table 4-7B).

Land uses within the City of Orange Sphere of Influence are governed by the East Orange General Plan (EOGP) and by the County General Plan. This area has been designated in the NCCP as the North Ranch Policy Plan Area. This component of the overall conservation strategy involves a 9,500 acre portion of the subregion owned by The Irvine Company and located in the Central Subarea. The Policy Plan Area is located in the unincorporated area, within the sphere of influence of the City of Orange. This area is 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 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, 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 one dwelling unit per four acres of land. The ETC right-of-way is not a part of the Policy Plan Area.

The East Orange General Plan provides for 12,350 dwelling units, 436 acres of Commercial/Employment, 249 acres of mixed use, and other supporting uses.

K. San Juan Capistrano

Existing Uses

San Juan Capistrano is located in the southern portion of the Coastal Subarea. Laguna Niguel and Dana Point are located to the southwest, and Mission Viejo is located to the north. The City covers approximately 2,399 acres and is roughly three-quarters built out.

The City currently contains approximately 634 acres of open space of which 581 acres are other wildland habitats and 53 acres are CSS (Table 4-8). Three cactus wren and 13 gnatcatcher sites were noted during focused surveys conducted for the NCCP Subregion.

Future Uses

The future of San Juan Capistrano is guided by the General Plan. The land use categories envisioned by the General Plan are Residential, Commercial, Industrial, Open Space, Public/Institutional, and Agricultural. At this time, the acreages per land use are not available.

Population is expected to increase by more than one-third over the next 30 years (Table 4-7A). Employment will increase nearly 50 percent, while housing will increase by 30 percent (Tables 4-7C and 4-7B).

The City is nearing build out capacity and has few undeveloped parcels that have not been previously approved for development.

L. City of Tustin

Existing Conditions

The City of Tustin is located in the east-central part of the County within the Central Subarea, south of the City of Orange and immediately northwest of the City of Irvine. The incorporated area of the City covers approximately 6,837 acres. Approximately 90 percent of the incorporated area is currently in some urban use (Table 4-8). Development in Tustin is concentrated in the older, west-central part of the City, near the Marine Corp Air Station-Tustin (MCAS-Tustin). Much of the remaining natural areas within the existing city limits

supports 319 acres of CSS and 349 acres of other wildland habitats (Table 4-8). Field surveys conducted for the NCCP Subregion mapped 30 gnatcatcher and 21 cactus wren sites.

Future Uses

The adopted General Plan for the City of Tustin designates the type, location, and intensity of planned development. The General Plan includes six broad categories of land use, with subcategories for each: Residential, Commercial, Industrial, Public, Planned Community, and Transportation. The land use designations are shown in the following table.

Tustin - Future Land Use	
Land Use Designations	Acreage Per Land Use ¹
Residential	4,740
Commercial	296
Industrial	181
Public	1,996
Planned Community	3,312
Transportation	591
Total Acreage	11,116 ¹

Source: Tustin General Plan, Land Use Element, 2/94

At build out, approximately 65 percent of the total planning area will be devoted to residential uses. The General Plan does not include a specific designation for open space, although the Conservation/Open Space/Recreation Element includes policies to preserve significant riparian resources and natural plant and animal communities such as Peter's Canyon area.

Significant growth is projected to occur in Tustin over the next 30 years. A 37 percent increase is expected in population; employment is expected to grow by nearly 40 percent (Tables 4-7A and 4-7C). Housing is projected to increase by more than 35 percent (Table 4-7B). Much of this growth will be accommodated in the Sphere of Influence.

Within the study area and eastern portion of the Sphere of Influence, most of the land use is guided by the East Tustin Specific Plan, also known as Tustin Ranch. This new community is approximately 65 percent complete in terms of residential units. When complete, this predominantly residential project will include approximately 9,178 units, with supporting public

¹ Total acreage includes Sphere of Influence.

facilities and commercial uses. The ETC, a new planned transportation facility designed to meet regional transportation needs, is planned adjacent to East Tustin along its southeast boundary.

Approximately 100-125 acres located in the northeastern portion of the project, including portions of both Peters Canyon and Peters Canyon Wash, have been acquired by the County as part of the 360 acre Peters Canyon Regional Park. This regional park, in turn, is part of the overall open space system currently planned and partially implemented in the Central area. The East Tustin Specific Plan states that this area could include passive recreation and other uses, including a regional hiking and biking trail, compatible with the environment and adjacent planned estate residential uses.

M. City of Villa Park

Existing Conditions

The City of Villa Park is located in the northeastern part of the County in the Central Subarea. It is south of Placentia and Yorba Linda, north of the City of Tustin, and is surrounded by the City of Orange (Figure 18). The incorporated area of the City is approximately 1,325 acres, with the City being 98 percent built out as a residential community (Table 4-8). Significant growth is not expected over the next 30 years.

Future Uses

The City currently has approximately 18.7 acres of vacant buildable land scattered throughout the City in 16 different parcels. All are located in a zone that requires a minimum net lot size of 20,000 square feet. According to the existing General Plan Growth Management Element, future growth will consist of a maximum of 20 to 25 additional homes. The City of Villa Park General Plan designates three land use categories: Residential, Commercial, and Schools. The acreages are not listed in tabular format because the City is nearly built out and should neither be affected by nor have a significant effect upon the Central and Coastal NCCP/HCP.

N. Orange County - Unincorporated Lands

Existing Uses

Those portions of the Central and Coastal Subregion not located within a city are under the jurisdiction of the County of Orange. The unincorporated lands cover approximately 108,021 acres in the subregion. Approximately 29,539 acres of the 108,022 unincorporated acres have been developed (Table 4-8.) The unincorporated area is irregularly shaped, and links the various cities in the study area. The unincorporated lands within the subregion extend from the Pacific Ocean to the Santa Ana Mountains, and include the San Joaquin Hills, Santiago Hills, and the northeastern portion of the Tustin Plain. These lands encompass a diverse combination of rugged mountains, broad flat plains with orchards and other crops, sandy beaches, and rocky ocean cliffs. The Cleveland National Forest occupies 26,000 acres in the Central Subarea.

In 1990, Orange County was home to 2,410,668 residents, of which 148,408 resided in the 254,395 acre unincorporated area (Table 4-7A). The County also supported 60,512 residences and employed 37,587 persons in the unincorporated area (Tables 4-7B and 4-7C).

The unincorporated portions of Orange County include the majority of the remaining biological resources and the largest intact blocks of undisturbed habitat. Within the subregions, these blocks support 26,790 acres of CSS and 51,521 acres of other wildland habitats (Table 4-8). In addition, focused surveys undertaken for this NCCP/HCP mapped 333 gnatcatcher sightings and 643 cactus wren sites (Table 4-7 in the NCCP/HCP). This represents 77 percent of the CSS and nearly three-fourths of all other wildlands known to exist in the entire County. Mapping prepared for this NCCP/HCP places 58 percent of the gnatcatcher sightings and 66 percent of the cactus wren sites on unincorporated lands. (Note that the amounts quoted for the unincorporated land include the Sphere of Influences of the cities.) This land will be most important in the formulation of the overall reserve design and CSS conservation strategy. Reserve design is likely to center upon the resource rich portions of the unincorporated lands, but will not ignore similar areas in the various cities.

Future Uses

Future land use in the unincorporated area outside of any Sphere of Influence is guided by the Land Use Element of the County of Orange Advance Planning Program, which designates the location, type, and intensity of development that is to occur. The Land Use Element identifies nine broad categories of land use: Rural Residential, Suburban Residential, Urban Residential, Community Commercial, Regional Commercial, Employment, Public Facilities, Open Space, and Urban Activity Centers. Land currently designated as Open Space includes areas of special scenic, ecological, or cultural significance; greenbelts; agricultural lands; recreational facilities; and reserve areas. While some of these areas are intended to remain permanently in their current state, others are considered temporary classifications until they are ready for development. A summary of the land use designations that will guide the development of unincorporated Orange County is in the following table.

Unincorporated Orange County - Future Land Use

Land Use Designation	RSA 39-F	RSA 40-D	RSA 41-B	RSA 44-E	Acreage Total Per Land Use
Residential	2,294	5,337	4,963	6,811	19,405
Urban	63	42	5	383	493
Commercial	14	252	46	53	365
Employment	78	293	17	692	1,080
Public Facilities	791	20	886	5,159	6,856
Open Space	1,523	11,470	24,334	13,315	50,642
Urban Activity Centers (UAC)	0	2,001	0	1	2,002
Total Acreage	4,763	19,415	31,251	26,414	81,843

Source: OCEMA Geographic Information System (GIS) General Plan Amendments through LU93-2

The County of Orange is broken up into ten Regional Statistical Areas (RSAs). Only those RSAs identified in the table will be affected upon implementation of the NCCP/HCP. It is anticipated that this plan would not be fully implemented until sometime after the year 2020.

Orange County experienced very rapid growth during the 1960s and 1970s, primarily in the northern part of the County outside of the study area. According to OCP-92, the growth rate has slowed since that time, a trend that is expected to continue. Between 1990 and 1995, the County's population is expected to grow at a rate just slightly over 2.0 percent, and decline 0.5 percent between 2015 and 2020.

Orange County provides much of the regional park and open space system for the entire County. Many of the cities do not include regional parks or extensive open space systems.

The Orange County Resources Element addresses a variety of resources including air quality, water resources, and energy resources. The major goal of the element is to promote the development, management, preservation, and conservation of resources to meet the current and projected needs of Orange County. As with any comprehensive plan, the goals of this element must be balanced with those of the other elements, assuring internal consistency and the ultimate development of a balanced, coordinated community. The Resources Element contains several components. For NCCP/HCP purposes, the Natural Resources and Open Space Components will be summarized here.

The Natural Resources Component has several goals and objectives. Goal 1 calls for the protection of wildlife and vegetation resources, and the promotion of development that preserves these resources. The Open Space Component includes goals that call for the retention of character and natural beauty of the environment through the preservation, conservation, and maintenance of open space, and the conservation of lands needed for the preservation of natural processes.

Orange County accomplishes the intent of the Resources Element by acquiring land for various open space purposes, most often through the Open Space/Conservation Program, established in 1972. This program is discussed in more detail later in this report. To date, this program has created 17 regional parks, as listed earlier in this report. Many recent additions have been for habitat preservation purposes. In addition, the County coordinates with other cities to further the consolidation of large blocks of habitat, such as those in the City of Irvine dedication area (e.g., Loma Ridge). The program's future activity in the Central Subarea will focus primarily on the foothills, where regional parks and other open space are being and will be acquired in areas such as Whiting Ranch, Limestone Canyon, Peters Canyon, Upper Santiago Canyon, and elsewhere. Coastal open space implementation is expected for Bolsa Chica, Aliso Creek Corridor, Laguna Greenbelt, and the Irvine Coast.

According to the County's GIS database, approximately 50 percent of the existing CSS, 18 percent of the existing chaparral, 40 percent of the existing grassland, 47 percent of the gnatcatchers, 64 percent of the cactus wrens and 42 percent of the whiptails are already included in planned open space. The unincorporated areas of Orange County contain the majority of the natural lands and target species left in the County as a whole. These lands exist

both as large blocks of contiguous habitat and as linkages from one part of the County to another.

SECTION 4.3 AIR QUALITY

4.3.1 Climate/Meteorology

The project area is influenced by the Pacific Ocean and is frequently under the influence of a seasonal, migratory subtropical high pressure cell known as the "Pacific high." These conditions result in a mild, temperate climate. This climatological pattern is infrequently interrupted by extreme periods of hot weather, winter storms or foehn winds known locally as the Santa Anas.

Temperatures in the South Coast Air Basin (Basin) are generally mild, increasing inland. For example, the annual average temperatures at Newport Beach range from 53°F to 68°F, while at San Bernardino they range from 47°F to 80°F. Most of the annual rainfall in the Basin occurs between November and April, with annual average rainfall varying from 10.3 inches at Hemet to 36.2 inches at Big Bear. Annual average rainfall at Newport Beach, the meteorological measurement station nearest to the project, is 11.9 inches.

The Basin experiences seasonal temperature inversion layers (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion layer limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning.

Surface winds in the project vicinity are dominated by the land/sea breeze system. During the day, winds are from the southwest (sea) and at night winds are from the northeast (land). Wind speeds average 4.5 miles per hour (mph). During the summer season, land/sea breeze winds average slightly higher than winds during the winter season due to greater pressure gradient forces. These low average wind speeds, in conjunction with the inversion layer, limit the vertical dispersion of air pollutants throughout the basin. The Santa Ana winds, blowing

from the great Basin, occur intermittently during the fall and winter seasons. These strong, dry northerly or northeasterly winds disperse air contaminants and last for several days.

4.3.2 Regulatory Background

A. Federal Regulations/Standards

Pursuant to the federal Clean Air Act (CAA) of 1970, the U.S. Environmental Protection Agency (USEPA) established national ambient air quality standards (NAAQS). The NAAQS were established for several major pollutants, termed "criteria" pollutants because the choices of NAAQS are supported by specific medical evidence. The NAAQS are two-tiered: primary, to protect public health; and secondary, to prevent degradation to the environment (e.g., impairment of visibility, damage to vegetation and property, etc.).

The six criteria pollutants are ozone (O₃), carbon monoxide (CO), particulates less than ten microns (PM₁₀), nitrogen dioxide (NO₂), sulfur dioxide (SO₂) and lead (Pb). The primary standards for these pollutants are shown in Table 4-9; the health effects resultant from exposure to these pollutants are shown in Table 4-10.

Data collected at permanent monitoring stations are used by the USEPA to classify regions as "attainment" if the primary NAAQS have been achieved, or "nonattainment" if otherwise. The basin is currently classified as a nonattainment area for four criteria pollutants. The Basin air quality status is listed as "extreme" for ozone, "serious" for CO, and "nonattainment" for PM₁₀ and NO₂. Concentrations of SO₂ and Pb are classified as "attainment."

A five-year deadline for NAAQS attainment was set by the CAA; however, the attainment date was subsequently revised by the CAA Amendments, which also required the states to identify nonattainment subareas within their borders and to develop an EPA approved State Implementation Plan (SIP), demonstrating attainment of all NAAQS by 1982. In a later EPA mandate, that attainment deadline was extended to 1987. The 1990 CAA Amendments specify new strategies for attaining NAAQS nationwide over the next 20 years, including mandatory three percent annual reductions of air pollutant emissions in nonattainment areas, more stringent emission limits or offset requirements for both existing and new stationary sources, the scheduled introduction of low emitting cars and trucks into the nation's motor vehicle fleet, and the development of mass transit or higher occupancy vehicle alternatives to the single passenger automobile. The CAA Amendments have designated the Basin as: "extreme" for

ozone, requiring attainment with the federal ozone standard by 2010; "serious" for CO, requiring attainment of federal CO standards by 2000; and "serious" for PM₁₀, requiring attainment with federal standards by 2001.

The USEPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the federal Clean Air Act (CAA).

Originally, there were no attainment deadlines for the CAAQS. However, the California Clean Air Act (CCAA) of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required non-attainment areas in the State to prepare attainment plans, and proposed to classify each such areas on the basis of the submitted plan, as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all. The attainment plans are required to achieve a minimum five percent annual reduction in the emissions of non-attainment pollutants, unless all feasible measures have been implemented. The Basin is classified as a "severe" non-attainment area for ozone and carbon monoxide. The basin is classified as a "non-attainment" area for nitrogen dioxide.

B. State Regulations/Standards

The State of California began to set California ambient air quality standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. These standards are listed in Table 4-9.

**Table 4-9
AMBIENT AIR QUALITY STANDARDS**

<i>Pollutants</i>	<i>Averaging Time</i>	<i>STATE</i>	<i>FEDERAL</i>	
		<i>Concentration</i>	<i>Primary</i>	<i>Secondary</i>
Ozone	1 Hour	0.09 ppm (180 ug/m ³)	0.12 ppm (235 ug/m ³)	Same as Primary Std.
Nitrogen Dioxide	Annual Average	---	0.053 ppm (100 ug/m ³)	Same as Primary Std.
	1 Hour	0.25 ppm (470 ug/m ³)	---	
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m ³)	9.0 ppm (10 mg/m ³)	
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	
Suspended Particulate Matter (PM ₁₀)	Annual Geometric Mean	30 ug/m ³	---	Same as Primary Std.
	24 Hour	50 ug/m ³	150 ug/m ³	
	Annual Arithmetic Mean	---	50 ug/m ³	
Sulfur Dioxide	Annual Average	---	80 ug/m ³ (0.03 ppm)	---
	24 Hour	0.04 ppm (105 ug/m ³)	365 ug/m ³	---
	3 Hour	---	---	1300 ug/m ³ (0.5 ppm)
	1 Hour	0.25 ppm (655 ug/m ³)	---	---
Lead	30 Day Average	1.5 ug/m ³	---	---
	Calendar Quarter	---	1.5 ug/m ³	Same as Primary Std.
Sulfates	24 Hour	25 ug/m ³	---	---
Hydrogen Sulfide	1 Hour	0.03 ppm (42 ug/m ³)	---	---
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 ug/m ³)	---	---
Visibility Reducing Particles	8 Hour (10 am to 6 pm. PST)	**	---	---

** In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. Measurement in accordance with ARB Method V.

**Table 4-10
HEALTH EFFECTS SUMMARY OF THE MAJOR CRITERIA AIR POLLUTANTS**

<i>Pollutants</i>	<i>Sources</i>	<i>Primary Effects</i>
Ozone (O ₃)	Atmospheric reaction of organic gases with nitrogen oxides in sunlight	Aggravation of respiratory and cardiovascular diseases Irritation of eyes Impairment of cardiopulmonary function Plant leaf injury
Nitrogen Dioxide (NO ₂)	Motor vehicle exhaust High-temperature stationary combustion Atmospheric reactions	Aggravation of respiratory illness Reduced visibility Reduced plant growth Formation of acid rain
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust Natural events, such as decomposition of organic matter	Reduced tolerance for exercise Impairment of mental function Impairment of fetal development Death at high levels of exposure Aggravation of some heart diseases (angina)
Fine Particulate Matter (PM ₁₀)	Stationary combustion of solid fuels Construction activities Industrial processes Atmospheric chemical reactions	Reduced lung function Aggravation of the effects of gaseous pollutants Aggravation of respiratory and cardiorespiratory diseases Increased cough and chest discomfort Soiling Reduced visibility
Sulfur Dioxide (SO ₂)	Combustion of sulfur-containing fossil fuels Smelting of sulfur-bearing metal ores Industrial processes	Aggravation of respiratory diseases (asthmas, emphysema) Reduced lung function Irritation of eyes Reduced visibility Plant injury Deterioration of metals, textiles, leather, finishes, coatings, etc.
Lead (Pb)	Contaminated Soil	Impairment of blood function and nerve construction Behavioral and hearing problems in children

C. Regional Air Quality Planning Framework

The California Air Resources Board (CARB) coordinates and oversees both state and federal air pollution control programs in California. The CARB has divided the state into 14 air basins. Significant authority for air quality control within them has been given to local Air Pollution Control Districts or Air Quality Management Districts, which regulate stationary source emissions and develop local non-attainment plans. CARB has designated all of Los Angeles County south of the San Gabriel Mountains, Orange County, and the non-desert portions of Riverside and San Bernardino counties as the South Coast Air Basin (Basin) under the jurisdiction of the South Coast

Air Quality Management District (SCAQMD). The SCAQMD is responsible for regulating stationary source emissions and has been given the authority to regulate mobile emissions as an indirect source. The SCAQMD and the SCAG jointly conduct air quality planning in the Basin.

D. 1994 Air Quality Management Plan

Compliance with the provisions of the CAA Amendments and CCAA is the primary focus of the latest 1994 Air Quality Management Plan (AQMP) developed by SCAQMD and SCAG. According to the 1994 AQMP, attainment of federal health standards will occur no later than the year 1995 for nitrogen dioxide, the year 2000 for carbon monoxide, the year 2006 for PM₁₀, and the year 2010 for ozone. State standards would be attained no later than the year 2000 for nitrogen dioxide and the year 2000 for carbon monoxide. State standards for ozone and PM₁₀ would not be achieved until after the year 2010.

The AQMP includes short, intermediate, and long-term control measures to meet targets for emission reduction. The short-term and intermediate measures focus on currently available control technology, statutory and management authority, and market incentives. Long-term measures are composed primarily of cutting edge technologies/advancements, which can reasonably be expected to become commercially viable in the near future.

SECTION 4.4 MCAS EL TORO RE-USE PLANNING AND NOISE

The NCCP Central subarea Reserve System includes an approximately 1,100-acre parcel of land located in the northeast portion of the existing MCAS El Toro. MCAS El Toro is centrally located in Orange County on a coastal alluvial plain at the foot of the Santa Ana mountains. The military base is bordered by the City of Irvine to the south and west, the Cities of Lake Forest and Mission Viejo to the southeast, the Cities of Laguna Hills, Laguna Beach, and Laguna Niguel to the south. Historic Marine Corps uses of MCAS El Toro include aviation related activities as well as a wide range of activities and uses which are ancillary or collateral to the historic aviation mission of MCAS El Toro.

Existing aircraft noise exposure in the environs of MCAS El Toro has been quantified using the airport environs land use plan ("AELUP") and the noise contours provided in the 1981 Air Installation Compatible Use Zones Study ("AICUS") which was adopted by the department of Navy. Specifically, in October, 1979, a 65 dB community Noise Equivalent Level ("CNEL") Policy Implementation Line for MCAS El Toro, based upon the AICUZ study, was adopted by the Orange County Board of Supervisors in order to ensure a consistent and equitable approach for

noise and land use determinations in the environs of MCAS El Toro. Proposed land use projects in the environs of MCAS El Toro have been compared to the 65 dB CNEL Policy Implementation Line. The 1994 Marine Corps Air Station El Toro Land Use Compatibility Study concluded that the 1981 noise contours were still “meaningful” for land use compatibility purposes. The noise policies recommended in the AICUZ study have been incorporated into the Noise Element of the Orange County General Plan.

The AICUZ provides CNEL and sound exposure levels (“SENEL”) in the environs of MCAS El Toro. The SENEL noise descriptor (which is also referred to as SEL - most commonly when used with the Ldn descriptor) describes the total acoustical energy of an individual aircraft noise event compressed into a reference duration of one second. The SENEL noise level is typically 5 to 10 dB higher than the maximum noise level (“Lmax”) for the same aircraft noise event (typically measured in dBA). SENEL is the acoustical building block used to calculate cumulative noise exposure for an annual average day using the CNEL or Ldn. SENEL is the terminology used for this descriptor by the federal government, the states, and internationally.

Leq is the sound level corresponding to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given sample period. Leq is the “energy” average noise level during the time period of the sample. The Leq noise measurement is based on the assumption that the amount of noise impact is dependent on the total acoustical energy content of the noise. It is the energy sum of all the sound that occurs during that time period. Leq can be measured for any time period. The one-hour Leq is also referred to as the Hourly Noise Level (“HNL”). A number of agencies have developed noise standards in terms of the Leq index measured in time periods of one hour or twenty-four hours.

The annual CNEL noise descriptor describes the A-weighted energy average cumulative noise exposure for each 24-hour period, including penalties of 5 dB during the evening hours (7:00 p.m. - 10:00 p.m.) and 10 dB during the nighttime hours (10:00 p.m. - 7:00 a.m.). As a practical matter, this means that aircraft events occurring during the evening hours are treated as approximately three noise events for purposes of calculating CNEL values. Each aircraft noise event occurring during the nighttime hours is treated as if ten aircraft noise events had occurred. The CNEL descriptor is used by the State of California and the County of Orange to assess community noise levels and to evaluate land use compatibility around airports.

The CNEL descriptor is similar to the Day-Night Average Level (“Ldn” or DNL”) descriptor used by the FAA and other federal agencies. Ldn is a 24-hour time-weighted energy average noise level based upon the A-weighted dB, including penalties of 10 dB for operations occurring during the

nighttime hours (10:00 p.m. - 7:00 a.m.). The Ldn descriptor includes the 5 dB evening penalty. The Federal Aviation Regulations recognize the CNEL descriptor in California to maintain consistency with state airport noise assessment criteria. CNEL and Ldn are generally considered to be equivalent descriptors of airport noise environment with 1.5 dB. Again, the only difference between the two descriptors is that CNEL includes the evening (7:00 p.m. - 10:00 p.m.) weighting penalty, while Ldn does not.

Both CNEL and Ldn account for the number of noise events per day, the time of day and the magnitude of events. Because the hourly Leq is the average of the sound exposure levels ("SEL") during an hour, CNEL and Ldn may be computed by adding the hourly Leq values for the day with same weighting factors specified above. The result is mathematically identical to summing the SEL values.

Future Uses

On November 8, 1994, the voters approved Measure A which amended the Orange County General Plan to include defined planning policies and procedures for the civil reuse planning for MCAS El Toro.

The County of Orange has been designated by the United States Department of Defense as the official Local Redevelopment Authority ("LRA") for MCAS El Toro in connection with the base reuse planning process.

The NCCP/HCP has been developed in cooperation with USFWS and CDFG to avoid conflicts between the Implementation Agreement and the reuse planning process for MCAS El Toro, and to accommodate future reuse of MCAS El Toro, in accordance with the principles and provisions specifically set forth in section 8.11 (c)(d) of the Implementation Agreement. If future aviation uses are approved as part of the reuse plan, these uses may occur in the airspace above or adjacent to a portion of the 1,033-acre NCCP Reserve System at MCAS El Toro. The USFWS and CDFG have found that historic Marine Corps aviation uses, including a range of aviation related activities within the scope, boundaries and noise contours of the 1981 AICUZ study for MCAS El Toro, have created significant noise levels and impacts but that such noise levels and impacts have not adversely affected NCCP target species within 1,033-acre area, or nearby areas on the frontal slopes of Lomas Ridge, proposed for inclusion in the NCCP Central subarea Reserve System. Therefore, USFWS and CDFG have assured and agreed in Section 8.11(c) of the Implementation Agreement that any future aviation use of MCAS El Toro which does not generate CNEL noise levels in the 1,033-acre NCCP reserve area greater than those identified in the 1981 AICUZ study for MCAS

El Toro is consistent with the NCCP/HCP and that no conditions or opposition to such aviation use(s) will be proposed or required by USFWS or CDFG.

SECTION 4.5 TRANSPORTATION PLANNING

Several major transportation projects, including both local and regional facilities, have the potential to affect CSS resources. Local facilities are generally shown on the County Master Plan of Arterial Highways (MPAH) and on the Transportation Elements of the General Plans of the participating jurisdictions. These facilities are planned to accommodate the various types of land uses shown on the General Plans. The impacts to both the roads and the land uses they serve are considered when the General Plan or project plan and its accompanying EIR are prepared. Revisions in the local planned transportation facilities shown on the MPAH must be reviewed and approved by both the city proposing the change and by the County. Thus, any changes to the local approved transportation systems and the MPAH that are proposed to implement the NCCP must be approved by both the affected city and Orange County.

Regional facilities, such as the ETC, are shown on the Regional Transportation Program (RTIP), which sets forth the major facilities that are to be built over a seven year period. This program is administered by the Orange County Transportation Agency (OCTA). The RTIP must be determined to be in conformity with applicable regional air quality plans. Any significant change to RTIP facilities, including deletion of facility legs or alignment changes, must be reviewed by OCTA for conformity with approved regional air quality plans (AQMP), which, in turn, are overseen by EPA.

SECTION 4.6 WATER RESOURCES

Fresh water resources consist of man-made reservoirs, natural lakes, and various streams, creeks, and the Santa Ana River. The latter are important sources of ground water through natural percolation from these channels into underlying aquifers. Newport Bay represents the major salt and brackish water resource within the study area. Many of the existing water resources support various riparian and aquatic habitats, in spite of sometimes extensive alteration. They are also attractive to the target species. For example, significant populations of gnatcatchers inhabit the area around Siphon and Sand Canyon reservoirs (see Figures 15 and 16).

Development in and around water resources is controlled by State, federal, and local regulations and programs. The federal government uses the 404 Permit process to review, require mitigation, and/or project revisions to decrease impacts, and to approve projects that impact wetlands. The stated goal of the federal government is to achieve "no net loss" of wetlands to development. A

1603 Permit (for streambed alteration) is required by the State before impacts to streams and riparian vegetation can occur. The State can require changes in the project and/or additional mitigation before construction is allowed. In addition, the State is presently implementing a National Pollution Discharge Elimination System (NPDES) requiring that new developments prepare a stormwater pollution prevention plan. These stormwater plans are intended, in part, to prevent excessive sediment generation that could have potentially significant adverse impacts on significant resources such as Upper Newport Bay, the Laguna Lakes, Aliso Creek, and Irvine Lake. Additionally, the County of Orange has prepared a Master Stormwater Plan for San Diego Creek intended to provide more effective upstream measures for the control of sediment generation in San Diego Creek, and ultimately to Upper Newport Bay, than is feasible with project by project control measures.

The County Resources Element includes goals, objectives and policies for the protection of surface water resources and water quality. The Resources Element also contains language calling for the conservation of the important and rare riparian, aquatic and woodland habitats found along the stream channels and canyon bottoms. The Land Use Elements for Orange County and many of the participating cities designate the land around many of the reservoirs, lakes, stream channels, and canyons as open space. Examples of such areas are Aliso Creek, Upper Santiago Creek, Irvine Lake, and Sand Canyon Reservoir.

SECTION 4.7 LANDFILLS

The County currently owns and operates five active sanitary landfills. Two of the active landfills are located in the study area. They are: Santiago Canyon Landfill, located four miles east of the Chapman Avenue/Santiago Canyon Road intersection, and the Frank R. Bowerman Landfill, located in the foothills north of MCAS-El Toro. The Santiago Canyon Landfill is approaching closure and the Coyote Canyon Landfill is closed. The County is not conducting a site selection process at this time, since there is sufficient landfill capacity to last Orange County for several decades.

Landfills are often situated in remote canyon areas, away from population centers, for reasons of health, safety and aesthetics. For this reason, it is likely that sites within either subarea may be considered as potential landfill sites. Landfill siting must be carefully done to avoid or minimize impacts due to site clearing and blockage of wildlife movement corridors. It is anticipated that the County will use the information contained in this report to site landfills in areas that minimize or avoid potential conflicts with the recommended reserve design.

Landfills that are closed may offer significant opportunities for habitat restoration.

SECTION 4.8 PARKS AND RECREATION

The Parks and Recreation Element sets forth a comprehensive strategy for the acquisition, development, operation, maintenance management, and financing of County recreation facilities, which are necessary to meet Orange County's existing and future recreation needs. This element covers regional parks, local parks, and riding/hiking trails. Two components of this element, regional parks and trails, will be addressed here, since they may affect or be affected by this NCCP/HCP. The programs that exist to acquire the land necessary to implement the intent of this element were discussed in the previous section.

According to the County Recreation Element, Orange County has 20 regional parks and 13 County beaches. The County's regional parks serve two major purposes: offering recreational or scenic attractions that are of countywide significance, and preserving wilderness areas where management programs emphasize preservation. Regional parks offer a wide variety of activities and experiences that are not available in smaller local parks. These include camping, nature study, swimming pools, athletic fields, and other facilities that require more land than is provided in a local park.

The Parks and Recreation Element classifies regional parks into several categories: Urban, Natural, Wilderness, Nature Preserves, Regional Harbors, Regional Beaches, and Historic Sites. Three of these are important to this NCCP/HCP, and are discussed below:

1. **Natural.** Generally located in a more natural setting with predominant aesthetic and passive activities such as picnicking, camping, nature/hiking trails and limited organized recreation, the management and development policy for this type of park is to permit moderate hardscape and domestication to facilitate enjoyment of natural attractions. Interpretive programs and concessions are permitted.
2. **Wilderness.** Generally pristine areas of sufficient size to make its preservation and use practicable, such facilities will have minimal improvements and are managed to protect natural resources. The management and development policy for this type of park is to permit only restricted hardscape and domestication appropriate to provide access and enjoyment/observation of natural resources and processes. Interpretive programs and concessions are permitted.

3. **Nature Preserves.** Areas whose acquisition and maintenance are undertaken primarily for protecting significant natural resources, public education is done to foster appreciation of such areas, which may also be used for scientific research. The management and development policy for this type of park is to permit only very limited improvements to be installed above those that pre-existed County acquisition. No domestication permitted. Visitor activities may be focused on interpretive outings confined to existing trails only. Interpretive programs and scientific research are permitted.

The County also uses a wilderness area overlay on portions of some natural regional parks. This overlay is used on areas that have the same characteristics as wilderness regional parks and are treated in the same manner.

The County Parks and Recreation Element identifies a wilderness system consisting of entire and portions of Wilderness, Nature Preserves, and Natural Parks. This system includes all or portions of 19 regional park facilities located throughout the County. According to the element, a total of 19,536 acres of land is included in Natural, Wilderness, and Nature Preserve regional parks. Parks located within the Coastal and Central subareas are (see Table 5-1 for existing public open space included within the NCCP/HCP Reserve System):

REGIONAL PARKS AND OPEN SPACE LOCATED WITHIN COASTAL SUBAREA

Park

- Irvine Coast Wilderness, including Buck Gully and Los Trancos
- Laguna Laurel
- James Dilly Greenbelt
- Aliso/Woods Canyon
- Sycamore Hills
- Upper Newport Bay
- William R. Mason
- Salt Creek
- Laguna Niguel
- Laguna Heights
- City of Irvine Conservation Area

REGIONAL PARKS AND OPEN SPACE WITHIN THE CENTRAL SUBAREA

Park

Coal Canyon Ecological Preserve
Santiago Oaks
Irvine
Peters Canyon
Whiting Ranch
Flemming Ranch
Limestone Canyon
Weir Canyon

The element includes acquisition, development, operation and maintenance, and financing programs for regional parks. The Acquisition Program makes much use of the land development process. Land purchases under the Acquisition Program are aimed largely at acquiring inholdings and adjacent land parcels to round out, expand, and/or refine existing regional recreation facilities. The Acquisition Program has been quite successful, amassing nearly 20,000 acres to date for regional parks. Additional acquisitions are planned. The Development Program also uses the land development process to obtain needed facilities. Public funds are used, where necessary. The later two programs address the use of public funds.

The Parks and Recreation Element also envisions a countywide system of trails for hiking, equestrian, and non-motorized biking uses. A total of 349 miles is proposed, with roughly 96 miles remaining to be constructed. The system would connect all beaches, parks, and other open space areas, allowing a user to travel from the ocean to the Cleveland National Forest. Existing trails are largely off-road and unpaved. Per the goals and objectives of the Parks and Recreation Element, these trails are intended to be used by people on a year round basis; public safety is a major consideration in design, construction, and maintenance. Acquisition is through a variety of means, including the land development process, public/private partnerships, and dedication.

SECTION 4.9 GROWTH MANAGEMENT POLICIES AND ORDINANCES

Several participating jurisdictions have growth management policies or ordinances that set forth the circumstances under which growth is to occur. Several of the participating jurisdictions address growth management in some fashion, often as a separate element of their General Plan. Orange County, Tustin, Anaheim, and Laguna Niguel, for example, all have Growth Management Elements as part of their General Plans. In general, these elements all address the impacts of growth by establishing acceptable levels for various public services, then requiring that new growth assure that service will be provided at these levels. Phasing of services and/or facilities is often

included. Growth management elements may cover one or several services. Often, the emphasis is on traffic and circulation.

SECTION 4.10 STATE AND FEDERAL COASTAL ZONE PLANNING

Much of the Coastal Subarea is subject to the planning and regulatory requirements of the California Coastal Act and the federal Coastal Zone Management Act. All development activities (subject to a few exceptions identified in the Coastal Act) within the State coastal zone require a coastal development permit from either the California Coastal Commission or from a local government issuing such a permit pursuant to a local Coastal Program certified by the Coastal Commission. Local Coastal Programs are prepared by local governments for specific areas of the coastal zone within their jurisdiction. These are reviewed and approved by the Coastal Commission as a pre-condition to the delegation of permit authority to the local government. Thus, changes to existing and future land uses, including those needed for NCCP/HCP implementation, new developments, and changes to certified Local Coastal Programs must be reviewed and approved in accordance with the provisions to the State Coastal Act.

In addition, the federal Coastal Zone Management Act (CZMA) requires that federal permits and licenses be "consistent with" a State Coastal Management Program approved pursuant to the CZMA. The California Coastal Act is such a program. As individual LCPs are certified, they are added to the CZMA approved coastal management program. The California Coastal Commission employs a process called "consistency review," through which individual federal permits and licenses (e.g., 404 Permits) are reviewed for consistency with the State Coastal Management Program. CZMA consistency review authority clearly applies within the State defined coastal zone and offshore areas.

Local Coastal Programs have been certified to the Aliso Viejo, Laguna Beach and Irvine Coast areas of the coastal zone. Additionally, the Coastal Commission has certified a public works plan for Crystal Cove State park, a public agency planning program comparable to an LCP. In 1993, the Coastal Commission approved a development agreement encompassing the remaining undeveloped areas of Upper Newport Bay within the coastal zone, an action that essentially defines the future land uses for that area. Likewise, in 1993 the Coastal Commission approved a coastal development permit and made a consistency determination for the San Joaquin Hills Transportation Corridor. Thus, the Coastal Commission has reviewed and approved all future land uses for most of the coastal zone within the Coastal Subarea.

SECTION 4.11 AGRICULTURE

Agriculture has long been an important activity in Orange County. Large areas of good soil and favorable weather attracted many settlers to the area during the last century, when much of the flat, easily tilled land was converted from natural habitat to agriculture, and major wetlands and stream channels were altered, channelized, or drained to protect fields from flooding and to maximize the area available for crops. Avocado and citrus groves, nurseries, and row crops are all important to the County's economy. In addition to the intensive agricultural uses, many areas are used for cattle grazing.

The amount of land in agricultural uses began declining in the 1940s as large areas were converted to urban uses. This trend continues today, and is expected to continue in the future.

Within the Coastal Subarea, agricultural uses primarily consist of cattle grazing. Row crops are grown in currently undeveloped flat areas in and near the City of Irvine; cattle grazing occurs in the San Joaquin Hills.

The most intensive agricultural activity in the central area is found in the northern portion of the Tustin plain, including orchards, row crops, and horticultural operations north of the MCAS-El Toro and north of Trabuco Road. Extensive avocado and citrus groves are located adjacent to, and include portions of, Loma Ridge, and in major portions of Rattlesnake, Hicks, and lower Bee Canyons. Approximately 38,000 acres of private property are used for cattle grazing in Peters Canyon, Santiago Canyon, Gypsum Canyon, and Loma Ridge.

The Irvine Company is the only major property owner in both subareas with existing agricultural activity. The Irvine Company runs the operations mentioned above, and holds some of these in Williamson Act agricultural preserves. Such preserves include land in Gypsum and Blind Canyons, land adjacent to Siphon Reservoir, and land between Jeffrey Road and MCAS-El Toro. The Williamson Act preserves are all due to expire or be removed from contractual provisions between 1992 and 1999.

The Orange County Resources Element and the General Plans of some cities (*e.g.*, Orange, Irvine and Tustin) include goals and objectives that promote the wise management of existing agricultural lands while still recognizing that such uses are relatively temporary. The County and several cities encourage landowners to maintain agricultural activities, but have no other programs in place to actively preserve existing agricultural uses. Existing agricultural programs are not likely to affect or be affected by this NCCP. There is potential for some areas currently in agricultural use to be

converted back to natural habitat through restoration. This will be considered during the formulation of the CSS conservation strategy for the Central and Coastal Subregion.

SECTION 4.12 MINERAL RESOURCES

Orange County possesses several different mineral resources. Major deposits of petroleum, sand and gravel, and minor deposits of clay, coal, and gypsum, have been found and mined. Of major importance to this NCCP are the aggregate resources. Deposits of minor importance are of poor quality, too small to mine economically, or have been mined out. Petroleum resources are located in the Brea/La Habra foothill region, outside of the study area, and will not be addressed in this NCCP.

The State Surface Mining and Reclamation Act (SMARA) is charged with assuring that adequate supplies of mineral resources necessary to California's economy are available, and that mined lands are reclaimed. SMARA also requires significant mineral resource deposits to be classified and recognized in General Plans. Within the study area, three aggregate resource areas have been classified as significant by the California Division of Mines and Geology Special Report 143, Parts III and IV. All are located in the Central Subarea, and include the Santa Ana River, Upper Irvine Ranch, and Santiago Creek. Several mining operations currently operate in these areas.

According to the Orange County Resources Element, the State Mining and Geology Board forecasts that the Orange County region has a 50 year demand for 850 tons of aggregate against current reserves (presently mined) of 257 tons. The utilization of the County's aggregate resources to meet this demand will depend on the availability and quality of these mineral resource areas. The Resources Element includes goals, objectives and policies that:

1. Promote the wise management of mineral resources to protect them for existing and future needs;
2. Reduce dependence on imported resources through sound management of local mineral lands; and
3. Ensure the efficient use of all mineral lands consistent with sound resource management practices.

The County Resources Element implements the requirements of SMARA through these policies, CEQA, and the zoning regulations.

CHAPTER 5 INTRODUCTION TO ENVIRONMENTAL CONSEQUENCES ANALYSIS AND AVOIDANCE MEASURES/RESERVE DESIGN ALTERNATIVES ANALYSIS

SECTION 5.1 NEPA/CEQA OVERVIEW

5.1.1 General NEPA/CEQA Requirements for Impact Assessment

According to the NEPA regulations, the environmental consequences “discussion in a NEPA document must address the environmental impacts of project alternatives including the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it not be implemented.” This discussion of “environmental consequences” is to include:

- (1) Direct effects and their significance.
- (2) Indirect effects and their significance
- (3) Possible conflicts between the proposed action and the objectives of Federal, regional, State, and local land use plans, policies and controls for the area concerned.

According to the CEQA Guidelines, the analysis of environmental impact shall: (1) “focus on the significant environmental effects of the proposed project” (2) review any “significant effects which cannot be avoided” if the proposed project is implemented (3) review feasible mitigation measures proposed to minimize significant adverse impacts and (4) describe significant impacts “which can be mitigated but not reduced to a level of insignificance.”

5.1.2 Organization of NEPA/CEQA Assessment of Environmental Consequences in this EIR/EIS

A. NEPA/CEQA Topics to be Addressed

Due to the geographic scale and comprehensive nature of the Central/Coastal NCCP/HCP, the discussion of the “environmental consequences” of the Proposed Project has been divided into a series of topics designed to facilitate public review and understanding of the NEPA/CEQA issues. These topics, addressed in this Chapter and in the three succeeding Chapters, are conceptually outlined below:

○ Chapter 5

Minimization/Avoidance and Review of Reserve Design Alternatives - “Minimization measures” are those actions that have been taken or will be taken to “avoid” habitat impacts by including habitat areas in the subregional Reserve System or through other measures (such as Special Linkage designations). Except for Existing Use Areas, decisions not to include CSS habitat areas in the Reserve System define those areas proposed for incidental take pursuant to the NCCP/HCP, that is, the areas which will be “impacted” as a result of the proposed action. Conversely, decisions to “avoid” habitat areas by including such habitats in the Reserve System determine which impacts will be avoided. Thus “minimization/avoidance” analysis under the 4(d) Rule and the NCCP program focuses *on options for different reserve design configurations*. As a consequence, the analysis of “minimization/avoidance” of habitat impacts in this document pursuant to CEQA/NEPA is necessarily placed within the analytic framework defined by the NCCP Conservation Guidelines “tenets of reserve design.” In this way, the NCCP Conservation Guidelines principles of reserve design serve as the substantive environmental review criteria for assessing: (a) *the adequacy of actions taken to “avoid” impacts on areas essential for reserve functions and connectivity*, and (b) *the environmental implications of alternative reserve design configurations, as reflected in the decisions regarding habitat areas to be included within or excluded from the Reserve System*.

○ Chapter 6

Significant Impacts/Incidental Take - Significant impacts are defined in terms of the modification of significant CSS habitat proposed to be allowed once all recommended

“avoidance” actions have been taken. These “impacts” are the impacts on CSS habitat that would result from not including areas within the proposed reserve and requesting Section 10(a)/NCCP/CESA authorization to modify such habitat areas pursuant to approved “take” (under FESA, the conversion of occupied habitat of listed species results in “harm” and therefore “take”). The extent of potential significant impacts is reviewed: (a) in terms of the scope of proposed modification of significant CSS habitat in each of the two planning subareas and (b) in terms of the ways in which the NCCP/HCP defines proposed “take” (*i.e.*, habitat conversion) for both *participating landowners* and *non-participating landowners* as reviewed below.

-- “Take” on The Part of “*Participating Landowners*”

(1) Habitat of Identified Species

The terms “incidental take” and “incidental take of CSS habitat” are used in this EIR/EIS as shorthand references to habitat conversion proposed to be allowed by the NCCP/HCP. The analysis in Chapter 6 refers to “occupied CSS habitat” and gnatcatcher/cactus wren “sites” in order to provide a quantitative and qualitative assessment of the significance, at this point in time, of the overall amounts of CSS habitat proposed to be protected and those habitat areas proposed to be authorized for conversion. However, due to dispersal patterns and the often substantial fluctuation in the populations of target species and the size of specific habitat areas over time, the term “incidental take proposed to be authorized” includes all CSS habitat potentially impacted by *participating landowners*. If such “take” is approved, the authorization for conversion of CSS habitat is intended by the NCCP/HCP to extend to such designated CSS habitat regardless of the populations of target/identified species (or, in the case of the Dana Point Headlands property only, the five plant species covered) occupying the area to be converted at the time habitat conversion actually occurs.

(2) CSS and Covered Habitats

The term “incidental take” also refers to modification of CSS and “covered habitats” allowed on the part of *participating landowners* pursuant to the provisions of Section 8.3.4(d) of the Implementation Agreement (analyzed in Chapter 8 of this EIR/EIS). Pursuant to the Implementation Agreement, the term “incidental take” in this EIR/EIS includes the take of any subsequently listed species dependent upon or associated with CSS and/or the “covered habitats” where Section 10(a) permits for such species are issued pursuant to Section 8.3.4(d)

of the Implementation Agreement. In this context, the term “incidental take” also includes associated CSS habitat and/or “covered habitats” in the same manner as habitat conversion allowed for Identified Species. The EIR/EIS also reviews CSS and “covered habitats” under the assumption that the conversion of such habitat areas will comprise the total acreage included in the impact assessment in Chapter 8 (the approval of the NCCP/HCP includes authorization for the conversion of these habitats outside the Reserve System in accordance with the Implementation Agreement prior to the listing of a species dependent upon or associated with these habitats).

-- “Take” on The Part of “*Non-Participating Landowners*”

With regard to *non-participating landowners*, the regulatory nexus is that of current law and extends to those activities resulting in “harm” to state- or federally-listed species. Proposed “take” for *non-participating landowners* extends only to CSS lands located within the jurisdiction of “signatory” local governments and presently identified as “occupied” because: (1) such landowners are subject to CESA/FESA regulation only if their activities are prohibited by CESA/FESA (as contrasted with “*participating landowners*” who have elected to follow the 4(d) Rule approach to CESA/FESA compliance in a broad programmatic way) and (2) it is not known which landowners will actually elect the NCCP/HCP mitigation fee option, or instead decide to pursue Section 7/Section 10 options under existing law. Therefore, proposed “take” for *non-participating landowners* must be identified in the same way as for typical Section 7/10 FESA reviews (or CESA Section 2081 processes). However, if a *non-participating landowner* elects to use the NCCP/HCP mitigation fee option, regulatory coverage is proposed to extend to all NCCP/HCP CSS-related Identified Species found on the particular site because the mitigation funding would be expended by the Reserve System non-profit management entity to benefit all CSS-related Identified Species (as part of the comprehensive reserve Adaptive Management Program).

○ Chapter 7

Proposed Mitigation Measures - In the context of the Southern California NCCP Program, mitigation measures are those actions taken to reduce or otherwise compensate for potential significant impacts on CSS habitat by creating a Reserve System and Adaptive Management Program consistent with the NCCP Conservation Guidelines. The proposed Central/Coastal NCCP/HCP Reserve System and its associated Adaptive Management Program will be reviewed to assess the extent to which these programmatic measures “mitigate” the effects of

proposed “take,” *i.e.*, the “impacts,” for CEQA and NEPA purposes, on the part of *participating landowners*. This chapter also reviews mitigation measures proposed by the NCCP/HCP to mitigate the CSS impacts of *non-participating landowners*.

○ Chapter 8

Level of Significance of Impacts Remaining Following the Application of Feasible Mitigation Measures - In the context of the Southern California NCCP Program, the level of significance of remaining impacts is determined by the extent to which the NCCP/HCP is consistent with the NCCP Conservation Guidelines. In turn, these Guidelines, by carrying out the NCCP process specified in the 4(d) Rule for the gnatcatcher, provide the substantive factual/biological basis for addressing the Section 10(a) findings required for the issuance of Section 10 (a) permits pursuant to the proposed Implementation Agreement. Thus, “levels of significance” will be assessed in terms of impacts of proposed incidental take of CSS habitat in relation to:

- Consistency with the NCCP Conservation Guidelines and therefore the NCCP Act - in particular, the provisions of the Conservation Guidelines addressing the tenets of reserve design and the finding of “no net loss of habitat value” (defined in the Guidelines as “no net reduction in the ability of the subregion to maintain viable populations of target species over the long-term”).
- The ultimate findings that must be made by the USFWS to issue a Section 10 (a) permit - that, with the minimization and mitigation measures proposed by the permit applicant and such other measures required by USFWS, the proposed taking “will not appreciably reduce the likelihood of the survival and recovery of the species in the wild;” under the (4)d) rule for the gnatcatcher, this finding is addressed by the NCCP Conservation Guidelines consistency assessment summarized immediately above.
- The rationale for treating additional “identified species” as if listed. This assessment also includes a review of “*conditionally covered species*,” which are Identified Species subject to specified conditions governing the populations of species covered and any avoidance/minimization/mitigation requirements for allowed incidental take.
- The rationale for providing regulatory coverage for *species dependent upon or associated with CSS* and with certain *specified non-CSS habitats termed “covered habitats.”*

- The “assurances” for take of Identified Species and for “covered habitats” proposed in the draft Implementation Agreement pursuant to the Department of the Interior Assurances Policy. The “level of significance” assessment also addresses the “critical habitat” and “recovery” assurances in the Implementation Agreement.

○ Chapter 9

Non-CSS Environmental Consequences and Cumulative Impacts Analysis. Chapter 9 addresses the non-CSS environmental consequences causally related to the NCCP/HCP in the context of state and federal endangered species regulation; the topics reviewed in this section derive from and build upon the “scoping” analysis set forth in Section 2.2.3. The cumulative impacts analysis in Chapter 9 relates the impacts of proposed CSS conversion to the subregional planning framework for the Central and Coastal NCCP/HCP and to other environmental impacts reviewed in a series of comprehensive master plan EIRs and local coastal programs for activities within the subregion.

B. Environmental Impacts of Project Alternatives

The analysis of alternatives in Chapter 3 focussed on identifying and assessing large-scale, alternative conservation strategies. The No Take and the No Project “conservation strategy” alternatives are further reviewed in Chapters 5 and 7. Because the Programmatic Alternative reviewed in Chapter 3 is highly speculative and subject to numerous unknowns and variables, no further review is given to this alternative as an explicit or “formal” alternative. However, as indicated in Chapter 3, site-specific alternatives to the NCCP/HCP Reserve System design, which would be one of the central considerations under the Programmatic Alternative, are reviewed in this Chapter 5 in the context of area-specific CSS habitat resources and NCCP/HCP reserve design decisions to include or exclude specific habitat areas from the overall proposed Reserve System. Thus, in analytic terms, the analysis of alternative reserve design configurations is functionally equivalent in many respects to an analysis of the Programmatic Alternative.

5.1.3 Impacts on Non-CSS Natural Resources - Causation

A. Impacts that Can be Attributed Solely to the proposed Project under the 4(d) Rule and the NCCP Take Authorization

Regarding environmental impacts other than to CSS, this document differentiates between the types of impacts that are caused solely by the Proposed Project and the types of impacts that would occur absent the gnatcatcher listing prohibitions. The first type of impact comprises land use, transportation and CSS habitat impacts where long-term changes in the use of land would result from the approval of the Proposed Project and would not otherwise result if the Proposed Project were not implemented. For impacts of this type, it can be said that the Proposed Project in fact "causes" the impacts. In other words, but for the Proposed Project, these impacts would not occur.

B. Impacts that Would Occur under Existing Approved Land Use Plans if There Were No FESA Prohibitions on Modification of Occupied CSS Habitat

The second type of impact - potential impacts on other biological resources, transportation, air quality, etc. - are those types impacts that would occur under existing, approved land use plans which have been addressed by CEQA review undertaken prior to the NCCP program. Because most of the land areas addressed by the Proposed Project have local government general plans prepared at a considerable level of detail (typically through elaborate master-planning land use programs), most of the land proposed for "incidental take" authorization has an already existing development designation previously reviewed pursuant to CEQA. As a consequence, the approval of the Proposed Project does not in itself cause such impacts. (The Chapter 1 and 2 discussions in this document indicate that this EIR/EIS addresses only CSS conservation planning considerations under FESA Section 10(a), the NCCP Act and the habitat planning framework established by the Southern California NCCP CSS Program and does not address any land use entitlement otherwise required from local government).

Although one can say that without the approval of the Proposed Project the impacts allowed by presently existing local government land use plans may not take place (impacts would also result under the No Take and No Project alternatives), one cannot say that denial of the Proposed Project is beneficial because these impacts on other resources would not then occur. As is reviewed in the No Project Alternative and No Take Alternative analyses in Chapters 3 and 7, denial of an NCCP/HCP consistent with the requirements of Section 10(a) and the

NCCP Conservation Guidelines, would potentially result in significant adverse impacts on both CSS and non-CSS resources. Therefore, this second type of impact is reviewed in this document for purposes of fulfilling NEPA/CEQA requirements to disclose the potential impacts that would result from a project approval in conjunction with other types of project approvals. But, at the same time, these types of impacts are not considered impacts which are required to be mitigated by the Proposed Project (see "scoping" discussion in Section 2.2.4). In the case of the Central/Coastal Subregion, as will be reviewed in the relevant subsections below, these secondary impacts have been addressed under various CEQA reviews (e.g., the East Orange General Plan Amendment, the Mountain Park General Plan Amendment).

SECTION 5.2 ANALYSIS OF MINIMIZATION/AVOIDANCE ACTIONS AND ALTERNATIVE RESERVE DESIGNS

5.2.1 Conceptual Distinction between "Minimization/Avoidance" and "Mitigation"

Several very important terms are used in FESA, NEPA and CEQA in ways that affect conceptual distinctions important to the analysis of "environmental consequences" in this Chapter. To begin with, the FESA Section 10(a) regulations require a finding that the permit applicant "will, to the maximum extent practicable, **minimize** and **mitigate** the impacts" of the proposed taking. According to the discussion in the gnatcatcher listing rule, the concept of *minimizing* impacts includes *avoidance* of impacts. However, the CEQA Guidelines include "*avoidance*" within the concept of "mitigation" and also refer to the review of "mitigation measures" that "minimize" significant environmental impacts. According to Section 15370 of the CEQA Guidelines, "mitigation" includes:

"(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation."

Regardless of terminology, FESA, CEQA and NEPA all require an analysis of the extent to which impacts have been "avoided" or could be further avoided. Because the FESA Section 10(a) concept of "minimization" includes "avoidance" and because this document is intended to address the environmental consequences of complying with the Section 10(a) requirements,

the term “minimization” will be considered to be the equivalent of “avoidance.” Both this document and the NCCP/HCP differentiate between “minimize” and “mitigate” by:

- (a) treating “minimization” as a functional equivalent of “avoidance” and*
- (b) treating “mitigation” as actions taken to reduce or otherwise offset those impacts which cannot “practicably” or “feasibly” be avoided.*

5.2.2 The Subregional Planning Context for NEPA/CEQA Assessment of Avoidance Actions

A. The Habitat Focus of Section 10(a) and the 4(d) Rule for the Gnatcatcher

The EA for the 4(d) Rule summarized the central threat to the survival of the gnatcatcher as follows:

[The] habitat-based threat to the gnatcatcher was recognized by the SRP [NCCP Scientific Review Panel] 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. (Final EA for the 4(d) Rule), November 1993

Thus, the EA for the gnatcatcher 4(d) Rule emphasizes that “the habitat based threat” is the central consideration in assuring the continued survival and recovery of one of the NCCP target species - the gnatcatcher.

B. The NCCP/HCP Reserve Design - NCCP Conservation Guidelines: “Tenets of Reserve Design”

The Scientific Review Panel (SRP) for the Southern California NCCP Coastal Sage Scrub Habitat Program concluded that an effective response to the “habitat-based threat” reviewed in the EA for the 4(d) Rule is the formation and management of CSS Reserve Systems at the subregional level. The criteria to be followed in determining the types and extent of habitat areas included within the Reserve System are set forth in the NCCP Conservation Guidelines’

tenets of reserve design. Consequently, the configuration of potential reserve lands is critical to the SRP's recommended conservation strategy for CSS.

The basic biological *tenets of reserve design*, as defined in the NCCP Conservation Guidelines, express a number of conservation planning principles that were applied during the NCCP/HCP reserve design process. These *tenets of reserve design* may be summarized as follows:

- conserve target species throughout the planning area (*i.e.*, “well- distributed across their native ranges”);
- larger reserves are better;
- keep reserve areas close;
- link reserves with corridors;
- reserves should be diverse;
- protect reserves from encroachment;

C. Application of the NCCP Conservation Guidelines Tenets of Reserve Design to the Central/Coastal Subregion

In applying the above conservation planning principles of reserve design to the Central and Coastal subareas, habitat areas were considered significant for purposes of inclusion within the two reserves on the basis of specific habitat characteristics. These reserve design elements are defined in the NCCP/HCP as follows:

Target species habitat: areas with significant coastal sage scrub components and target species populations. Habitats in this category make up the “core” of the reserve. Much of this habitat is currently planned open space, but some core habitat areas proposed for inclusion in the Reserve System represent substantial revisions to development designations under previously approved local government general plans.

Habitat linkage: areas of natural habitat with coastal sage scrub and other habitats that are especially important as linkages.

Biodiversity habitat: areas with minimal to modest coastal sage scrub and/or target species but containing other habitat types that contribute toward a more diverse and manageable reserve.

Restoration opportunity areas: areas which are currently subject to intensive agriculture or functionally similar land uses (*e.g.*, landfills) and areas identified through the Nature Conservancy Stewardship program where restoration would add coastal sage scrub in key linkage areas and/or contribute to a more manageable reserve boundary.

One additional component of the subregional NCCP/HCP provides important habitat functions in relation to the Reserve System but is not designated for inclusion within the Central and Coastal Reserve System itself:

Special Linkage Areas/Existing Use Areas: areas that are considered “*non-reserve supplemental habitat areas*” comprising lands where existing or future development (*e.g.*, private open space, park or golf course) is potentially compatible with connectivity functions or the protection of important populations of target species. **Special Linkage Areas** comprise areas owned by “*participating landowners*” and which would include specific habitat protection commitments over all or a portion of the designated area. **Existing Use Areas** comprise existing private open space lands owned and maintained by community homeowners associations and local parks which are not proposed to be authorized for take (*i.e.*, the status quo is maintained); generally, for these areas, there is no binding legal assurance of habitat protection provided by the NCCP/HCP but, at the same time, these areas are considered unlikely to be threatened with unmitigated loss of CSS supporting gnatcatchers due to the prohibitions against take and minimization/mitigation requirements for authorized take provided by FESA.

The NCCP/HCP Reserve System and Special Linkage/Existing Use Areas that have resulted from the application of the above Coastal/Central reserve planning principles are depicted in Figure 12.

D. Methodology for Assessing Avoidance Actions, Including Reserve Design Alternatives

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 FESA (*i.e.*, impacts on significant habitat important to the essential behavioral patterns of listed species including breeding, feeding and sheltering). According to the Federal Register discussion of

the gnatcatcher final listing 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)

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 CSS 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 to be placed ultimately in public ownership. As a result, these past large-scale master plan undertakings in Orange County have fashioned a “planning landscape” that has effectively preserved planning and habitat management options not available in many of the subregions of the Southern California NCCP planning program.

Given the extent of the pre-NCCP regional open space system, the NCCP/HCP reserve design effort was directed in part toward assessing the adequacy of these prior planning efforts for purposes of attaining the objectives of the 4 (d) Rule and NCCP Conservation Guidelines. In turn, when the NCCP/HCP determined that additional lands should be added to the pre-existing regional open space commitments, the NCCP subregional plan identified specific areas proposed to be committed to the NCCP Reserve System and supporting Special Linkage/Existing Use Areas designations.

In order to assess the extent to which the NCCP/HCP reserve design process has resulted in a Reserve System that minimizes/avoids impacts on habitat significant to the “essential behavioral patterns of the target/identified species” (see the FESA regulations definition of “harm” in relation to habitat conversion) the minimization/avoidance assessment set forth in the following subsections focuses on:

- analysis of the extent to which prior planning efforts have avoided significant CSS;

- analysis of the manner and extent to which prior “avoidance” actions have resulted in aggregations of regional-scale open space that contribute to the assemblage of Reserve Systems in the Central and Coastal subareas consistent with the NCCP Conservation Guidelines tenets of reserve design; and
- analysis of *reserve design alternatives* including: (a) the location and extent of lands proposed by the subregional NCCP/HCP to be added to the pre-NCCP regional open space system for purposes of creating a Reserve System consistent with the NCCP Conservation Guidelines and (b) lands considered for inclusion in the Reserve System but rejected for designation as part of the NCCP/HCP Reserve System.

As reviewed previously, unlike Section 10 HCPs undertaken on an incremental basis outside the NCCP program, both the scale of the NCCP planning subregion and the habitat conservation policies prescribed by the NCCP Conservation Guidelines require that the NCCP/HCP reserve design process is to be undertaken to protect and manage significant habitat resources on a subregional, rather than project-by-project basis. Likewise, for NEPA/CEQA purposes, the reserve design decisions to include or exclude particular habitat areas (*i.e.*, which areas are or not to be “avoided”), must be assessed in relation to the subregional planning context and the reserve design tenets prescribed by the Southern California NCCP coastal sage program.

Due to the geographic scale of the two NCCP subareas, the “minimization/avoidance” assessment is presented separately for the Central and Coastal subareas. For ease of reference, several maps have been provided in the EIR/EIS map binder as a subregional overview of past and present planning actions relating to reserve design/minimization of impacts considerations. The following maps will be referred to throughout this analysis:

- Figure 1 - County of Orange NCCP Subregion Boundaries;
- Figure 12 - Central and Coastal Subregion NCCP - Proposed Habitat Reserve System;
- Figure 35 - Central and Coastal Subareas - Pre-NCCP Open Space/Habitat Protection Areas (Areas committed to public ownership through past acquisition and dedication actions and areas committed to future public ownership through existing phased dedication programs);

Table 5-1
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
Mason Regional Park	344
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
Salt Creek Regional Park	418
San Juan Capistrano O/S	254
STATE	
Coal Canyon Reserve (CDFG)	953
Crystal Cove State Park	2,807
Upper Newport Bay Reserve (CDFG)	678
University of California Irvine	135
Laguna Laurel (CDFG)	82
Total Pre-Existing Public Open Space	14,948

- Figure 20 - The Irvine Company Phased Dedication Areas - specific areas owned by The Irvine Company and which are committed to future public ownership through existing phased dedication programs and through commitments proposed to be made pursuant to the NCCP/HCP;
- Figure 37 - Coastal Subarea: Pre-NCCP Planning Units within Reserve Design Context (aerial photo overlay);
- Figure 38 - Central Subarea: Pre-NCCP Planning Units within Reserve Design Context (aerial photo overlay);

5.2.3 Coastal Subarea - Minimization/Avoidance of Impacts Analysis

A. Planning Unit Analysis - Coastal Subarea

Figure 37 contains an overview map of the area commonly referred to as the coastal or “Laguna Greenbelt” in relation to the proposed reserve design for the NCCP Coastal subarea. Because the “greenbelt” was assembled through a number of distinct planning actions over time, the overview map outlines each of the major planning actions (called “planning units”) in a separate color for ease of reference in conjunction with the following analyses. Each “planning unit” identified on Figure 37 will be reviewed to assess the manner and extent to which planning/acquisition activities avoided or otherwise minimized impacts on significant habitat resources. The CSS habitat “protected” through each planning or acquisition action is then related to CSS protected through prior dedication/acquisition actions and to CSS impacted by development allowed in connection with the planning action. This analysis will allow for an understanding of the extent of habitat impacted and the extent of habitat avoided within the overall context of the implications of such actions for current NCCP/HCP reserve design planning and management options. Finally, the NCCP/HCP reserve design consideration for each of the geographic units containing CSS will be reviewed (under the subtitle “Reserve Design Configuration Alternatives”) to assess decisions to include or exclude specific areas in the proposed Reserve System.

The 1979 Aliso Viejo Local Coastal Program

County of Orange Aliso/Wood Canyons Dedication Program

○ Treatment of NCCP Target Species and CSS Habitat

One of the first major planning efforts on lands located within the Coastal Planning Area involved a landholding previously known as Moulton Ranch and now known as the Aliso Viejo Planned Community (see Figure 37). In 1974, the County of Orange General Plan was amended to provide for a planned community called Moulton Ranch. Land uses included substantial development in Lower Wood Canyon and in Aliso Canyon .

Aliso Viejo subsequently processed a Local Coastal Program for the portions of the landholding located within the coastal zone, a plan that was certified by the California Coastal Commission in 1979. Figure 16 depicts coastal sage scrub habitat in relation to the 3,200 acre greenbelt comprising most of Wood Canyon and lower Aliso Canyon dedicated permanently for public ownership and protection.

○ Consistency of the Aliso Viejo Master Plan with the NCCP Conservation Guidelines

The vast majority of the CSS habitat found in the Aliso Viejo planning area at the time of the approval of the Aliso Viejo plan was and is committed to open space/habitat protection as a result of the dedication requirements provided for in the approved Local Coastal Program (this area presently comprises the Aliso/Wood Canyons Regional Park managed by the County of Orange). Within the Wood Canyon area of the park, coastal sage scrub is the dominant vegetation type. Additionally, consistent with the SRP emphasis that “blocks of habitat should contain a diverse representation of physical and environmental conditions,” the greenbelt area contains significant oak woodlands, chaparral, riparian habitat and a freshwater marsh.

Thus, to a very considerable extent, the Aliso Viejo Local Coastal Program avoided, and thereby “minimized,” impacts on CSS habitat through avoidance by carrying out a very conscious policy of concentrating development to protect a substantial area of preserved, contiguous habitat. This planning action, a joint undertaking of the landowner, the County of Orange and the Coastal Commission, is consistent with the NCCP Conservation Guidelines

reserve design tenets, including: "Habitat that occurs in less fragmented, contiguous blocks is preferable to habitat that is fragmented or isolated by urban lands."

Laguna Heights

- City of Laguna Beach - Treatment of CSS Habitat and Consistency with NCCP Conservation Guidelines

Comprising approximately 560 acres directly adjacent to Aliso/Wood Canyons Regional Park (see Figure 37), this land area is now in public ownership. The County of Orange and the City of Laguna beach are presently in the process of preparing a lease agreement that will add the Laguna Heights area to the County of Orange Laguna Coast Wilderness Park. Acquisition of this area eliminated potential development and assures protection of a mix of plant communities, including coastal sage scrub, southern mixed chaparral and annual grassland. The functional significance of this habitat area is that it links the Aliso/Wood Canyons habitat complex with habitat areas located within and adjacent to Laguna Canyon and thus carries out the following NCCP reserve design precepts:

- interconnected blocks of habitat serve conservation purposes better than do isolated blocks of habitat;
- corridors or linkages function better when the habitat within them resembles habitat that is preferred by target species (SRP tenets of reserve design).

James Dilley Regional Preserve

(including Sycamore Hills)

○ Treatment of NCCP Target Species and CSS Habitat

Located between Aliso and Wood Canyons Regional Park and the Laguna Canyon/Irvine Coast coastal sage scrub habitat areas (see Figure 37), the James Dilley Regional Preserve comprises approximately 790 acres of coastal sage scrub and annual grassland. The Preserve was acquired by Laguna Beach in connection with the sale of a small portion of the area for a residential development and acquisition of right-of-way through the area by the TCA for the

San Joaquin Hills Transportation Corridor. Thus, development of a portion of the area for transportation facility and housing purposes created the basis for protecting the remainder of the area from future development.

○ Consistency with NCCP Conservation Guidelines

As in the case of Laguna Heights, the James Dilley Regional Preserve comprises a strategically situated habitat/open space area that is significant for “connectivity” purposes. Functionally, the Preserve provides a wide band of habitat connecting the Aliso/Wood Canyons Regional Park preserve with the Laguna Canyon/Laurel Canyon/Irvine Coast Regional Wilderness Park to the immediate west (see Figure 37). In this way, public action has assured the protection of the vast majority of this area for both habitat protection and habitat linkage purposes.

Laguna/Laurel Open Space Acquisition Area

- City of Laguna Beach and County of Orange - Voluntary Sale by The Irvine Company

○ Treatment of NCCP Target Species and CSS Habitat

As originally reviewed and approved by the County of Orange, the Laguna/Laurel Planned Community encompassed 2,150 acres located within and adjacent to Laguna Canyon (Figure 37). Laguna Canyon Ridge rises from the canyon floor to an elevation of approximately 950 ft and encompasses an area containing substantial amounts of coastal sage scrub habitat, some of which has been impacted by cattle grazing. The canyon contains important wetlands (three of the four natural lakes located within Orange County are in this area) and, in its pre-1993 wildfire condition, possessed significant stands of oaks.

Laurel Canyon is a tributary side canyon to Laguna Canyon and rises relatively gradually to an elevation of approximately 850 ft. Laurel Canyon is also an integral component of the Irvine Coast Wilderness Regional Park area habitat system and serves as a wildlife movement corridor from Laguna Canyon up onto the ridgelines and into other canyons such as Moro Canyon and Emerald Canyon. Prior to the October 1993 wildfire, Laurel Canyon contained major stands of oak and sycamore woodlands and comprised a rich and diverse mosaic of habitats including coastal sage scrub and chaparral. Much of the habitat mosaic is expected to recover from the effects of the wildfire.

In 1984, the County of Orange approved a General Plan amendment providing for residential development of approximately 3,000 dwelling units, neighborhood commercial and a golf course in Laguna Canyon. Development approved in the 1984 General Plan Amendment would have resulted in the conversion of 30-40% of the coastal sage scrub habitat then existing in the project area. In 1986, The Irvine Company initiated a modification of the development plan shifting development further inland within the project area, concentrating development in areas dominated by non-native grasses and significantly reducing project impacts on coastal sage scrub resources; however, the proposed golf course continued to be routed through areas containing some patches of coastal sage scrub. In 1988, the County of Orange approved a development agreement for the project which, under state law, grants to the landowner assurances of a "vested" right to build under local ordinances then in effect.

○ Consistency with NCCP Conservation Guidelines

Notwithstanding the 1988 development agreement, The Irvine Company in 1991 entered into a voluntary agreement to sell the entire Laguna/Laurel Planned Community site to the City of Laguna Beach in phases over time. To date, the City of Laguna Beach has purchased Laurel Canyon and entire area in Laguna Canyon west of Laguna Canyon Road. The areas purchased contain all the existing CSS of any significance within the former Laguna/Laurel Planned Community site, including areas with potential for coastal sage scrub restoration (see the draft Laguna/Laurel stewardship plan prepared by The Nature Conservancy and Figure 55).

Of the total funds committed so far, the City of Laguna Beach has funded \$20 million through a voter-approved bond issue and the County of Orange has funded \$10 million. The remaining sale areas comprise predominantly non-native grass habitat with small amounts of coastal sage scrub habitat. Thus, the City of Laguna Beach acquisition program has assured permanent public ownership of a large block of coastal sage scrub habitat. By removing potential development, with the resulting avoidance of associated impacts, the City's acquisition of these areas is consistent with the following NCCP tenets of reserve design:

- conserve target species throughout the planning area;
- larger reserves are better;
- keep reserve areas close;
- keep habitat contiguous.

The Irvine Coast Local Coastal Program

- Habitat Protection Programs

○ Irvine Company Voluntary Sale of Crystal Cove State Park and Donation of Moro Ridge to the State of California

In 1977, the County of Orange and The Irvine Company presented a land use program for preliminary review by the California Coastal Commission that comprised 12,000 units of housing and a substantial commercial recreation complex on the coastal shelf seaward of Pacific Coast Highway. However, prior to initiating formal review of this plan, The Irvine Company entered into a voluntary sale agreement with the State Department of Recreation for sale of almost all of the coastal shelf and Moro Canyon inland of PCH (see Figure 42 - Irvine Coast Open Space - 1988 The Irvine Coast Local Coastal Program). Subsequently, The Irvine Company donated approximately 500 acres on Moro Ridge, contiguous with Moro Canyon, to State Parks (see Figure 40, Moro Ridge Planning Unit).

The combined sale and dedication areas comprise 2600 acres of land, including extensive areas of coastal sage scrub (see Figure 16). The 1987 Coastal Commission LCP findings noted that, due to State Parks policy of acquiring coastal lands only through voluntary sales, rather than condemnation, the willingness of the landowner to enter into a voluntary sale agreement was critical to assuring the permanent commitment of these lands to open space protection.

Perhaps most significantly, in the context of the 1993 Laguna Hills wildfire, the sale of the coastal shelf area also presented an opportunity for a coastal sage scrub habitat restoration project undertaken under by the State Department of Parks and Recreation. This restored habitat area has experienced a major increase in gnatcatcher populations from 2 pairs to 13 pairs over the past 10 years. This coastal shelf CSS restoration area served as a very important refuge for target species during the October 1993 wildfire. As will be reviewed later, one element of the subsequently approved coastal land use plan - the golf course- helped minimize the impacts of wildfire threat by serving as an "irrigated firebreak."

○ The 1981 and 1987/88 Irvine Coast Local Coastal Programs

In 1981, The Irvine Company presented a revised Local Coastal Program to the Coastal Commission which was certified in 1982. Subsequently, in 1987 The Irvine Company proposed

to amend the certified 1981 LUP (coastal "Land Use Plan") by substantially reducing the amount of land area for development, accelerating a phased dedication program and increasing the total amount of open space to be dedicated to public agencies (Figure 41 - Comparison of Approved Land Use Plans, Irvine Coast Land Use Plan Amendment). Specifically, the 1987 LCP provided for:

- A simplified and accelerated program of phased dedications (see Figure 43 Wilderness Dedication Area, Irvine Coast Local Coastal Program) for 2600 acres of habitat/open space contiguous with what is now the Laurel Canyon public open space and with the inland areas of Crystal Cove State Park. These areas combine to create a continuous habitat area of over 5,000 acres (see Figure 42).
- The preservation of Muddy Canyon through the relocation of Sand Canyon Avenue up onto Wishbone Ridge and the commitment of Muddy Canyon for dedication to a public agency.
- A significant increase in the total area of Los Trancos Canyon (606 acres total- see Figure 41) to be preserved and a change in designation from private open space to dedication to a public agency (recorded Offer of Dedication to the County of Orange).
- A change in designation of Buck Gully (see Figures 41 and 42) from private open space under the 1982 approved Coastal LUP to dedication to a public agency (recorded Offer of Dedication to the County of Orange).

In total, the LCP certified by the Coastal Commission in 1988 provided for the dedication of almost 4,000 acres of significant , diverse habitat types including significant areas of CSS (see Figure 42).

○ Consistency with NCCP Conservation Guidelines

In approving the Irvine Coast LCP in 1988, the Coastal Commission specifically found that the increase in open space/habitat protection over the 1981 LUP constituted significant avoidance of potential development impacts on habitat resources:

A number of potential significant impacts identified in the 1982 LUP findings have been either eliminated or reduced. . . . the realignment of Sand Canyon Avenue, in

conjunction with the application of 1987 LCP ESHA ["environmentally sensitive habitat areas"] policies will now protect the resource values of Muddy Canyon that would have been significantly altered under the 1982 LUP alignment for Sand Canyon Avenue. A development area located along a knoll descending into Los Trancos Canyon has been eliminated and converted into part of the Los Trancos Canyon dedication area. Pelican Hill Road has been pulled back from the edges of Los Trancos Canyon, thereby significantly reducing potential grading impacts on the canyon. . . . Thus, in comparison with the approved plan, over 1,100 more acres of lands with significant natural resources are being conveyed into public ownership than was the case with the 1982 LUP. As a consequence, all the major canyons in the Irvine Coast Plan area will be permanently preserved. (California Coastal Commission, Irvine Coast LCP findings, November 19, 1987, at p. 17)

The Coastal Commission also made specific determinations regarding the long-term habitat benefits resulting from the permanent protection of large-scale habitat areas:

Large-scale master planning and dedication of open space lands for the Irvine Coast enables the permanent protection of large contiguous open space areas rather than the protection of smaller, discontinuous habitat areas that might result from a project-by-project site mitigation approach. A much greater degree of habitat and open space protection can be achieved by a dedication that assembles large blocks of habitat areas contiguous with the major canyons and ridges of the inland areas of Crystal Cove State Park than would be possible with project-by-project mitigation measures. . . . Prior County/Coastal Commission actions in applying this policy determination have resulted in the preservation of over 12,000 acres of open space/natural resource lands in a greenbelt area around the City of Laguna Beach These actions are far more protective of coastal resources than would be the preservation of isolated or remnant habitat areas within residential and commercial development areas. Thus, in accordance with Coastal Act Section 30007.5, the public acquisition of the open space areas made possible by the Open Space Dedication Program creates the required overall balance between concentrating development and resource protection which allows mitigation for the kinds and location of development provided for in the 1987 LCP. (Ib., Coastal Commission Findings, emphasis added)

Consistent with the LCP's emphasis on habitat protection, the large scale dedication areas were designated for limited passive recreational use under the County of Orange "wilderness park" designation.

As shown in Figure 16, the implementation of the Irvine Coast LCP allows for the permanent protection of significant CSS habitat that is: (a) contiguous with CSS located within Crystal Cove State Park inland of PCH and (b) functionally contiguous with the increased populations of gnatcatchers in the recently restored "coastal shelf" areas of the Park. The habitat conservation strategy applied in the Irvine Coast LCP open space dedication program, as reflected in the above underlined passage from the Coastal Commission findings, in many respects mirrors the following reserve design tenets from the NCCP Conservation Guidelines:

- blocks of habitat that are close to one another are better than blocks of habitat far apart;
- habitat that occurs in less fragmented, contiguous blocks is preferable to habitat that is fragmented or isolated by urban lands;
- interconnected blocks of habitat serve conservation purposes better than do isolated blocks of habitat;

Subsequently, in June 1991, the City of Laguna Beach entered into a cooperative agreement with the County of Orange to transfer management of the City's Laguna Canyon acquisition areas, the James Dilley Regional Preserve and the Laguna Heights property to the County of Orange which, when combined with the Irvine Coast Wilderness Regional Park, will form the Laguna Coast Regional Park to be maintained and operated by the County of Orange. The land holdings comprising the Laguna Coast Wilderness Park contain significant acreage of high quality coastal sage scrub habitat, consistent with the reserve design/connectivity tenets of the NCCP Conservation Guidelines.

○ Additional Minimization Measures Proposed by the NCCP/HCP - Special Linkage Provisions Included in the NCCP Coastal Area Reserve Design

• **Irvine Coast Planning Area 1C.**

Subsequent to the approval of the Irvine Coast LCP, further refinements in project design were made to enhance "connectivity" between Buck Gully and Los Trancos Canyon above and beyond the requirements of the certified LCP. During the course of environmental review for an Irvine Coast project involving an area on Pelican Hill and as a result of an interim take permit The Irvine Company prepared a "Habitat Management Plan" designed to create a functional habitat corridor between Los Trancos Canyon and Buck Gully (see Figure 45), a movement corridor that was not required by the LCP. This habitat corridor was designed specifically for purposes of enhancing wildlife movement between the two canyons. The linkage created by the habitat landscape plan (see Figure 44) is intended to maintain gnatcatcher/cactus wren genetic interchange between Buck Gully and Los Trancos Canyon. The habitat/landscape design will also aid predator (coyote) movement between the two canyons, a significant factor in reducing the impacts of other, smaller predators (e.g., the red fox) on bird species in Buck Gully and Los Trancos Canyon. The Habitat Management Plan was reviewed with staff of the USFWS and DFG in January 1992 in conjunction with the EIR for Pelican Hill Planning Area 1C. Subsequently an interim take permit was issued for this area, with further revisions to the Habitat Management Plan.

This area is now proposed as a Special Linkage Area pursuant to the Coastal Subarea reserve program.

• **Irvine Coast Golf Courses**

The NCCP/HCP designates the two Irvine Coast golf courses, located below the Irvine Coast Planning Area 1(c) Special Linkage Area, as additional Special Linkages. Because the golf courses wrap around preserved CSS and include areas being restored in conjunction with another project pursuant to an interim take permit, the golf courses provide target species dispersal opportunities. Additionally, the golf courses have been demonstrated to serve as coyote movement corridors, a factor important to long-term reserve management reviewed in Chapter 7.

- **Wishbone Hill Special Linkage Proposed by the NCCP/HCP**

As part of the NCCP/HCP planning process, a Special Linkage Area is proposed to allow for wildlife movement from Los Trancos Canyon to the Muddy Canyon LCP dedication area. Since this Special Linkage Area was previously committed for residential development by the certified LCP and the recorded Irvine Coast development agreement, this Special Linkage Area constitutes a significant avoidance action of impacts otherwise allowed by approved land use plans.

- Conclusion: Minimization of Impacts of Proposed Incidental Take in the Irvine Coast LCP Area

The Irvine Coast LCP open space areas contain substantial acres of CSS contained within over 5,000 acres of physically and/or functionally contiguous habitat. A review of Figure 16 indicates that the CSS habitat areas "avoided" within the Irvine Coast LCP area, in conjunction with the Irvine Coast Special Linkage Areas, are essential to the function of the proposed Coastal subarea reserve design. The Irvine Coast LCP open space system, in conjunction with the City of Irvine GPA 16 open space system and the City of Laguna Beach Laguna/Laurel acquisition program, constitutes the core of the proposed Coastal subarea reserve. This combined open space system extends from the ocean shoreline 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 consistent with the NCCP tenets of reserve design.

One additional avoidance action has recently been finalized by the County of Orange. On August 1, 1995 the County Board of Supervisors adopted a County of Orange Master Plan of Arterial Highways (MPAH") Amendment to delete the Sand Canyon Avenue interchange with the SJHTC, modify Sand Canyon Avenue within the coastal zone to connect with the Irvine Coast Phase III area delete the San Joaquin Hills Road extension from its current connection with Newport Coast Drive to the SJHTC (see Figure 46), delete Sand Canyon Avenue inland of the SJHTC, delete the Lake Forest extension and delete the Bonita Canyon Road extension (reviewed below under additional minimization/avoidance actions in the City of Irvine GPA area as part of the Shady Canyon project). It is determined that the roadway deletions resulting from the County MPAH Amendment constitute significant avoidance actions for NCCP CEQA and NEPA purposes.

○ Reserve Design Configuration Alternatives

The alternative reserve design configurations for the Irvine Coast LCP area require the consideration of eliminating development in areas containing populations of NCCP target species. Potential alternative reserve design configurations within the Irvine Coast LCP area involve the following three project areas:

- the residential development area below Signal Peak (Irvine Coast Planning Areas 2B and 2C);
- the residential and tourist commercial development areas on Pelican Hill; and
- the Wishbone Ridge residential development on the ridgeline between Los Trancos and Muddy Canyons.

Proposed Irvine Coast incidental take in areas not "avoided" totals 114 acres in the planning area located on the top of Pelican Hill, 215 acres in planning areas adjoining Los Trancos Canyon and 404 acres on the Wishbone Hill/Muddy Canyon ridges. Pre-fire surveys indicate that 24 gnatcatcher sites and 31 cactus wren sites were present in these areas.

As reviewed in Chapters 3 and 4 of the NCCP/HCP, the NCCP reserve design process concluded that, when considering the target species populations and extent of habitat included within the proposed Coastal reserve, these areas are not essential for purposes of achieving the NCCP/HCP goals and objectives for the Coastal subarea. Moreover, in the context of the very substantial commitments of reserve lands resulting from previous land sales and LCP actions and the extensive financial commitments made in reliance on the LCP/development agreement approvals, further reductions in residential development intensities under the existing provisions of the LCP are not feasible.

Any proposed amendments to the Irvine Coast LCP involving the transfer of development intensities beyond the development maximums established for each LCP Planning Area would require formal Coastal Commission review and approval; given the complexity of that process, the NCCP/HCP relies on the land use configurations already approved through the certification of the LCP. Accordingly, any proposed LCP amendments would be speculative at this time and have not been assumed in either fashioning or assessing the adequacy of the Coastal subarea reserve design.

Since the time of the first proposed Irvine Coast LCP, the intensity of development proposed under County-approved plans has declined from 12,000 residential units to 2,600 units. Equally significant, the land area committed to open space preservation has increased very substantially with a commensurate reduction in total development area.

In reliance on the earlier LCP and development agreement approvals, The Irvine Company proceeded with the early construction of Newport Coast Drive in order to improve inland public access to Crystal Cove State Park and to improve public access to beaches upcoast and downcoast by reducing traffic on Pacific Coast Highway through Corona del Mar. The funding of this road is based on assumed levels of residential and commercial development provided for in the LCP. Additional circulation system funding commitments include: the construction of San Joaquin Hills Road from its terminus to Newport Coast Drive, the widening of Pacific Coast Highway, the early dedication of right-of-way for the SJHTC and early payment of SJHTC fees, and participation in the County fee program for improving south County roadways. As a consequence, any further reduction in development levels beyond those specified in the LCP and the development agreement would not be feasible in economic terms and would undermine the Coastal Act LCP policies which required that very substantial public access opportunities be provided by means of the landowner's early construction of Newport Coast Drive (along with the major commitments of reserve lands provided for by the LCP for passive recreational use as well as habitat protection purposes).

In conclusion, development areas within the Irvine Coast have been reduced to less than 25% of the 10,000 acre planning area, leaving a very compact, concentrated development area and 7500 acres of habitat/open space lands which presently are or will ultimately be publicly owned. Thus, impacts on CSS habitat have been substantially minimized on the Irvine Coast through avoidance of impacts on 7500 acres of diverse, largely contiguous, high quality habitat containing significant CSS resources. Any further reduction in residential and tourist commercial development intensities is determined to be infeasible for the reasons reviewed above and would jeopardize two, and possibly three, of the four remaining increments of the Irvine Coast Phased Dedication program containing lands essential to the NCCP Reserve System (see further discussion under the No Take Alternative discussion in Chapter 7).

City of Irvine Conservation Area

- **City of Irvine General Plan Amendment 16 Open Space Protection and Phased Dedication Program**
- Treatment of NCCP Target Species and CSS Habitat

The City of Irvine's General Plan provides for a designated open space conservation area for the coastal San Joaquin Hills area primarily in an area physically contiguous with the Laguna Canyon ridge area presently in the ownership of the City of Laguna Beach and functionally contiguous with Crystal Cove State Park and the Irvine Coast open space dedication areas (see Figure 53 - GPA 16 Preservation Area Near Shady Canyon). This area, comprising approximately 4,870 acres, includes Bommer and Shady Canyons, Quail Hill and other large-scale open space habitat areas (see Figure 47, City of Irvine Implementation Districts). These areas in turn connect with the Sand Canyon Reservoir area, Mason Regional Park and ultimately with San Joaquin Marsh (see Figure 53 and Figure 54).

In June 1988, the electorate of the City of Irvine approved a major open space/land use initiative that had the effect of transferring development areas and consolidating open space areas into large-scale habitat/open space of regional significance. The initiative indicated that its purpose was to:

... consolidate important conservation and open space areas into large contiguous areas that may be integrated into local and regional open space areas.

Figure 49 (Comparison of Pre GPA 16 and Post GPA-16 Land Use Plans) portrays development/open space relationships under the General Plan immediately prior to the 1988 initiative in comparison with the City of Irvine General Plan 16 actions designed to carry out the program endorsed by the initiative. As can be seen from a comparison of this exhibit with Figure 16, impacts on CSS allowed by the previous General Plan land use designations were substantially reduced. Moreover, subsequent field surveys have identified large populations of gnatcatchers and cactus wrens in these significantly expanded open space reserves. In particular, large concentrations of gnatcatchers have been sighted in areas in close proximity to Sand Canyon Reservoir, an area which served as an important refugio for target species during the 1993 wildfires. Pre-NCCP development has already triggered the dedication of the Quail Hill area which buffers the Sand Canyon Reservoir habitat areas.

○ Consistency with NCCP Conservation Guidelines

Significantly, the City of Irvine Open Space areas are contiguous with the Laguna Canyon acquisition areas purchased from the Irvine Company by the City of Laguna Beach. As a consequence, a contiguous habitat system with significant CSS and target species populations (Figure 16) will extend from Laguna Canyon to the UC Irvine campus. For birds and mammals using the SJHTC undercrossings, this area is also contiguous functionally with the over 5,000 acres of regionally significant diverse habitat seaward of the SJHTC described previously.

Thus, joint planning on the part of the landowner and local government reduced development areas and impacts by shifting development out of the foothill areas and concentrating much of the previously allowed foothill development in flatland areas of the City. These actions significantly avoided impacts on important CSS habitat. At the same time, the configuration, location and scale of the protected habitat contribute significantly to the proposed Coastal subarea reserve design in accordance with the NCCP Conservation Guidelines (see Figure 53).

○ Additional Avoidance/Minimization Measures Proposed by the NCCP/HCP - Habitat Avoidance and Special Linkage Elements of the NCCP Coastal Reserve Design

In conjunction with the NCCP subarea planning process, additional actions have been taken to further minimize the impacts of incidental take through: (a) further avoidance of direct impacts on CSS resources; and (b) project level design features that are intended to maintain connectivity within the reserve and that will provide wildfire protection for one likely refugio area. These additional avoidance actions include:

- **Elimination of Arterial Roadways Presently Provided for in the Circulation element of the City of Irvine General Plan**

The Shady Canyon project submitted by The Irvine Company to the City of Irvine in 1994 and approved in June 1995 included significant proposed modifications to the arterial roadway system in the NCCP coastal planning area:

-- Elimination of Sand Canyon Avenue inland of the SJHTC

The Shady Canyon project includes a downsizing Sand Canyon Avenue between I-405 and the Shady Canyon project boundary and elimination of Sand Canyon Avenue between the project site and the SJHTC. Because this portion of Sand Canyon Avenue has been removed from the City of Irvine Circulation Element of the General Plan and the County of Orange Master Plan of Arterial Highways, major grading has been eliminated in Shady Canyon, from the sideslopes of Bommer Canyon up to the SJHTC and from the ridge connecting Bommer Canyon and Shady Canyons (see Figure 51, Coastal Area Deleted Arterials). Figure 51 also depicts the populations of target species avoided as a result of the Sand Canyon Avenue deletion.

The elimination of Sand Canyon Avenue also allows for the implementation of the Shady Canyon golf course/residential project which would otherwise not be feasible under the current Sand Canyon alignment in the City of Irvine General Plan. In turn, the Shady Canyon project design provides important open space protection and wildlife movement functions which have resulted in its designation as a Special Linkage Area pursuant to the NCCP/HCP. Finally, the deletion of Sand Canyon Avenue maintains many of the restoration opportunities identified for the Bommer Canyon area by The Nature Conservancy.

-- Elimination of the Lake Forest Extension

The current City of Irvine General Plan alignment for the Lake Forest extension would have necessitated significant landform alteration and habitat impacts (see Figure 51). In addition to avoiding these impacts, the deletion of the Lake Forest extension enhances an important connectivity feature of the Coastal reserve in the inland San Joaquin Hills portion of the reserve connecting with the Sand Canyon Reservoir habitat area.

-- Elimination of the Sand Canyon/SJHTC Interchange and Associated Down-Sizing of Sand Canyon Avenue within the Irvine Coast Planning Area

Regarding the Irvine Coast LCP areas, the elimination of Sand Canyon Avenue inland of the SJHTC has also resulted in the elimination of the Sand Canyon interchange of the SJHTC, thereby significantly reducing grading (grading for this interchange is allowed by the SJHTC coastal development permit and CZMA consistency review approved by the California Coastal Commission and the USFWS Section 7 consultation). As a result, significant avoidance of CSS habitat has been achieved on the ridges above Los Trancos Canyon. Additionally, by reducing the size and changing the location of connector roads between Wishbone Ridge and Pelican Ridge, increased opportunities will be created for functional connectivity between Los Trancos Canyon and the remainder of the coastal open space/habitat areas.

- **Shady Canyon Project Design Features**

As noted above, the NCCP plan proposes designating substantial portions of the Shady Canyon project area as a Special Linkage Area, thereby assuring significant NCCP reserve connectivity functions (see Figure 53). The current City of Irvine General Plan designation allows up to 3,000 units of residential development within the 800 acre Shady Canyon project area. However, by pursuing a large lot/residential golf course design, the Irvine Company has reduced the development area significantly. The current project design reduces impacts on CSS substantially (including a marked reduction in numbers of gnatcatchers potentially impacted - see Figures 51 and 52).

In addition to the significant internal project open space provided as a result of the substantial reduction in development intensity allowed by the current general plan, the Shady Canyon project development will trigger the Preservation Area K dedication provided for in the City of Irvine/Irvine Company Open Space Implementation MOU (see Figure 50, Preservation Area K Dedication Area). This dedication area provides critical linkages between the City of Laguna Beach Laguna Canyon Ridge open space area and the major populations of target species around Sand Canyon Reservoir, including the preservation of very significant habitat adjoining the Reservoir.

The combined golf course/preserved habitat area provides an open space system capable of serving as a major wildlife movement corridor from the major contiguous habitat areas of the NCCP reserve design within the San Joaquin Hills to the Sand Canyon Reservoir area (where

significant numbers of target species have been sighted - see Figure 51). Accordingly, the NCCP/HCP designates this area as a Special Linkage Area and includes a provision for a conservation easement over a specific amount of CSS contained within the Special Linkage that is not impacted by the golf course (see Figure 52).

Additionally, by protecting CSS within the golf course area, CSS habitat is surrounded by a well-watered firebreak. The golf course and residential development help create a wildfire buffer with readily available water supplies and firefighting access roads between Sand Canyon Reservoir populations of target species and adjacent wildlands within the reserve. These project design features further enhance the refugio function performed by Sand Canyon Reservoir during the 1993 wildfires.

○ Conclusion Regarding NCCP/HCP Minimization Measures

The Shady Canyon project impacts habitat occupied by approximately four to six pairs of gnatcatchers. Approximately 140 acres of CSS are impacted. 73 acres of CSS are preserved on-site with additional CSS permanently protected through the Area K dedication of 800+ acres contiguous with the City of Laguna Beach Laguna Canyon Ridge open space area. Given the already extensive reduction in development units from the 3,000 + units allowed under the GPA to 400 + units, the inclusion in the project design of a golf course/habitat protection Special Linkage Area and the deletion of portions of three major arterial roadways from the current City General Plan, it is not practicable to further reduce impacts on habitat occupied by target/identified species.

○ Reserve Design Configuration Alternatives

• **City of Irvine Planning Area 27 Modifications**

In order to protect locally significant populations of target species and to maintain functional habitat contiguity between populations of target species inland of the SJHTC and seaward of the SJHTC, a portion of Planning Area 27 designated for development pursuant to GPA 16 is proposed for inclusion in the reserve as protected open space (see Figure 53).

- **Inclusion of Non-Reserve Portions of the City of Irvine GPA 16 Open Space**

During the NCCP/HCP reserve design process, some commentators requested the inclusion of portions of the GPA 16 open space areas (generally along the frontal slopes of the San Joaquin Hills) that were not included in the proposed Coastal subarea reserve design. Biologically, these areas generally contain non-CSS habitat (e.g., non-native grasslands) and they are not occupied by NCCP target species. Since the areas in question will be set aside as open space whether or not they are included in the proposed reserve, the substantive question is whether or not inclusion of any or all of these areas is necessary to create a viable reserve.

Because the subject areas do not contain significant CSS, do not contain target species and do not contain important reserve connectivity functions, the NCCP/HCP determined that these open space areas were not essential to reserve design. Thus, while the requirements of GPA 16 assure preservation of the open space values of these areas, the "avoidance" actions of GPA 16 relative to these areas does not achieve any biological benefits for purposes of NCCP reserve design and connectivity.

B. The Coastal Subarea: Summary Assessment of Minimization/Avoidance of Impacts on Significant CSS Habitat Areas

○ Summary Regarding Minimization of Impacts Relating to "Participating Landowners"

Table 5-2 summarizes the extent of habitat proposed for incidental take on the part of "participating landowners" (i.e., those landowners who have contributed significant lands and/or funding to the NCCP/HCP) in relation to habitat proposed for inclusion within the NCCP/HCP Reserve System. Habitat lands committed as part of pre- NCCP and NCCP planning total over 17,000 acres. The NCCP/HCP would permit the potential loss of 1,600 acres of CSS on lands owned by *participating landowners* and located outside the subarea Reserve System. These lands contain 59 gnatcatcher sites. Habitat proposed for incidental take within the subarea Reserve System totals 260 acres of CSS, including seven gnatcatcher sites. Habitat proposed for incidental take within special Linkages totals 56 acres of CSS with four gnatcatcher sites. As has been reviewed in the preceding subsections, additional avoidance of significant CSS habitat is infeasible.

○ Conclusions Regarding Minimization of Impacts Relating to “Non-Participating Landowners”

This assessment of incidental take on the part of “*non-participating landowners*” relates only to those surveyed CSS lands as depicted on Figure 16. Other lands which may contain CSS habitat and target species are not addressed by this analysis.

The maximum proposed alteration of CSS habitat on the part of *non-participating landowners* is 40 acres of “occupied” CSS under the FESA regulations definition of significant habitat (*i.e.*, habitat, which if altered, would constitute “harm” to listed species). This occupied habitat contains three gnatcatcher sites. Habitat areas important to regional connectivity located in the Salt Creek inter-subregional corridor are designated as an Existing Use Area (see Figure 16).

Substantial concentrations of target species are found within CSS habitat currently owned by community associations in the vicinity of the Turtle Rock area of the City of Irvine (see Figure 16). Due to the connectivity/mixed use functions of this area, it was decided to include these areas in the NCCP/HCP as Existing Use Areas rather than reserve areas. The City of Irvine has indicated that these lands do not appear to be threatened. In combination with the Irvine Company Shady Canyon and County/IRWD Sand Canyon Special Linkages, approximately 305 acres of occupied CSS is included within the Special Linkage Existing Use Area designations for the Coastal subarea inland of the SJHTC.

As can be seen from a review of Figure 16, much of the acreage owned by “*non-participating landowners*” and not included within the Coastal reserve design is highly fragmented and physically removed from the proposed reserve. These lands have been determined by the NCCP/HCP not to have value for purposes of inclusion in the reserve program because of their locational characteristics and thus avoidance would serve no functional purpose under the NCCP tenets of reserve design (see further discussion of reserve design in Chapter 7).

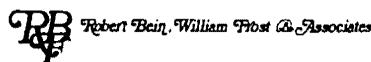
Table 5-2
Coastal Subarea Summary
 Vegetation, Target Species, and Proposed Habitat Reserve

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%	1.0%	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%	1.0%	0.7%	0.8%	96.6%	100.0%

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 only substantial acreage of CSS habitat outside the reserve, not owned by *participating landowners* and contiguous with the proposed Coastal subarea reserve is located within the City of Laguna Beach (see Figures 16 and 31). The vast majority of this acreage (particularly along Laguna Canyon Road) is on steep slopes, does not contain substantial populations of target species and generally is not threatened with development. Due to the highly fragmented ownership of these lands and the absence of serious threat, the NCCP/HCP has concluded that it is not practicable to include these lands within the proposed reserve and that, therefore, these lands are designated Existing Use Areas.

5.2.4 Central Subarea - Minimization/Avoidance of Impacts Analysis

A. Planning Unit Analysis

Figures 35 and 38 contain an overview map of major Central subarea habitat/open space areas committed to permanent protection either through past public acquisitions (*e.g.*, Whiting Ranch Regional Park), donations (*e.g.*, Upper Peters Canyon Park), dedications (*e.g.*, portions of Limestone Canyon) or through land use approvals providing for future dedications in conjunction with specific development approvals (*e.g.*, Lomas Ridge, the remainder of Limestone Canyon, Weir Canyon and Windy Ridge). Four land use planning programs have carried out a regional habitat/open space strategy explicitly directed toward concentrating development areas in order to be able to assemble an overall open space/habitat system of regional significance. These four major plans are: (1) the City of Irvine GPA 16; (2) the Tustin Ranch Master Plan; (3) the East Orange General Plan Amendment; (4) the Mountain Park Master Plan.

City of Irvine Conservation Area

- City of Irvine General Plan Amendment 16 Open Space Protection and Phased Dedication Program
- Treatment of Target Species and CSS Habitat

The comprehensive planning program that resulted in the adoption of the City of Irvine General Plan Amendment 16 ("GPA 16") is reviewed in the Coastal subarea discussion. As indicated in that summary, the fundamental open space/habitat protection goal of GPA 16 was to:

... consolidate important conservation and open space areas into large contiguous areas that may be integrated into local and regional open space areas.

In terms of the NCCP Central Subarea, GPA 16 resulted in a phased dedication program intended to assure the long-term protection of 4,126 acres of open space/habitat in the Lomas Ridge and Limestone Canyon areas located within the "sphere of influence" of the City of Irvine. These lands are contiguous with one another and extend a lateral distance of 6 miles. The pre-GPA 16 plan provided for relatively small areas of open space whereas the post-GPA 16 open space dedication area provides for a continuous band of large-scale habitat protection.

○ Consistency with NCCP Conservation Guidelines

The GPA 16 open space lands relate physically and functionally to other major public land holdings containing significant habitat/populations of target species. The GPA 16 Limestone Canyon dedication area is contiguous with Whiting Ranch and, as a result, is critical to maintaining connectivity with habitat/target species populations located in the Southern Orange County NCCP planning area (see Figures 12, 15, 57 and 62). Likewise, the Limestone Canyon dedication areas provide an essential functional connection with the large populations of gnatcatchers located in the more inland portions of El Toro MCAS (see Figure 32). Thus, the GPA 16 open space system is essential to the reserve design/connectivity program reviewed in Chapter 7.

Development has been approved in the development portion of Implementation District D (see Figure 47) but this development area does not contain CSS habitat. As a result of this development, 961 acres in Limestone Canyon dedication area D (see Figure 47) will be permanently dedicated for open space/habitat protection once the 75% buildout total is reached within the development area. By carrying out the GPA 16 dedication program, the recording of the Offer of Dedication for dedication area D will convey into public ownership the critical habitat connector with Whiting Ranch Regional Park - the essential link between the Central and Southern NCCP planning sub-regional areas (see Figure 60). Likewise, this dedication area provides the essential functional link between the NCCP preserve and the El Toro MCAS gnatcatcher populations (see Figure 15).

○ Additional Minimization Measures Proposed by the NCCP/HCP -

- **Commitments of Additional Lands on the Frontal Slopes of Lomas Ridge (the “Lomas de Santiago”)**

Populations of target species found within the GPA 16 Lomas Ridge/Limestone Canyon dedication area are shown on Figure 15 . As can be seen in Figure 15, substantial habitat for target species populations was preserved through the GPA 16 open space program. However, significant target species populations are also found in adjoining areas of the Lomas de Santiago in which development is allowed under the City of Irvine General Plan (Figure 15).

In particular, development allowed pursuant to GPA 16 would have occurred in areas containing significant target species populations in the vicinity of Rattlesnake Reservoir and Siphon Reservoir. Overall, the current General Plan would allow construction of about 1,200 dwelling units on approximately 1,700 acres of land in these areas.

The NCCP reserve/connectivity design depicted in Figure 60 proposes the elimination of allowed development in these areas. The NCCP reserve design results in significant avoidance of impacts on source populations of gnatcatchers in the vicinity of Rattlesnake and Siphon Reservoirs and thereby assures that these areas can be connected in a single block of habitat. Since no development has occurred in CSS habitat areas where presently allowed in City of Irvine Implementation Districts “A” and “B” (see Figure 47), the proposed reserve design minimizes impacts to the maximum extent feasible through avoidance.

Additionally, the Siphon Reservoir area would have been significantly impacted by the Eastern Transportation Corridor (“ETC”) alignment as originally proposed. The completion of the Section 7 consultation for the ETC has resulted in a shift of the ETC alignment, constituting a substantial reduction in and avoidance of impacts through a cooperative effort by the USFWS and one of the NCCP/HCP “*participating landowners*,” the TCA (see further discussion of the ETC, *infra* in subsection 9 and in Appendix 8).

Finally, the NCCP Central Subarea reserve design proposes that over 200 acres of land in the vicinity of the Foothill Corridor presently designated for development under the City of Irvine General Plan be changed to open space designation for inclusion in the NCCP reserve. These lands contain populations of target species and CSS habitat that are functionally contiguous with El Toro MCAS target species populations and the Limestone Canyon dedication areas.

○ Conclusion - Minimization of Impacts Of Proposed Incidental Take as a Result of GPA 16 and NCCP Planning

In terms of providing the essential habitat "building blocks" for the NCCP reserve design, it was the original GPA 16 action which provided the "core" block of protected CSS and contiguous open space. The NCCP Central subarea reserve design builds on this master-planning foundation by recommending a significant expansion of the Lomas Ridge open space system in order to assure a fully protective program for the significant populations of gnatcatchers and cactus wrens found in the vicinity of Rattlesnake and Siphon Reservoirs. The proposed subarea reserve builds on the GPA 16 Limestone Canyon phased dedication program by recommending the addition of substantial areas of developable lands containing significant CSS habitat and target species population to the Central subarea reserve in areas physically contiguous with Limestone Canyon and functionally contiguous with El Toro MCAS.

Thus, the minimization/avoidance measures taken through GPA 16 - and supplemented by the proposed reserve design - contribute the following to the NCCP plan:

- over 5,000 acres of contiguous habitat/protected open space;
- protection for the Limestone Canyon connector between the Central and Southern NCCP sub-regional planning areas (through Whiting Regional Park);
- permanent protection for the functional connection between MCAS El Toro gnatcatcher populations and the core of the Central Planning Area reserve;
- permanent protection for the source populations of target species in the vicinity of Rattlesnake Reservoir and Siphon Reservoir;
- permanent protection of target species in the vicinity of the Foothill Corridor;
- creation of a core habitat system that complements the regional scale open space/habitat areas provided for in the 1989 East Orange General Plan Amendment.

Since the NCCP/HCP reserve design for the City of Irvine Lomas de Santiago areas encompasses virtually all of the significant CSS habitat and substantial populations of target

species extant in these areas, no further alternative reserve design configurations were considered.

Tustin Ranch/Upper Peters Canyon Reservoir

- City of Tustin and County of Orange Planning Areas

○ Consistency with the NCCP Conservation Guidelines

As part of the County of Orange's Countywide park planning process, the County identified an area around Upper Peters Canyon Reservoir as a potential regional park. In conjunction with the planning for the Tustin Ranch Master Plan, The Irvine Company and the County of Orange agreed upon boundaries for the potential future park. Subsequently, in 1992, The Irvine Company donated 377 acres to the County of Orange to comprise the Upper Peters Canyon Regional Park (Figures 35 and 38).

By abandoning the development potential of the Upper Peters Canyon area and donating the land and water areas to the County, The Irvine Company contributed to the proposed reserve design in two ways:

- a significant population of target species was protected; and
- the preservation of the Upper Peters Canyon area helps assure the potential connectivity between the target species populations found on the frontal slopes of Lomas Ridge and the populations found during the spring 1994 surveys in the Cities of Orange and Anaheim (see Figures 15 and 22) identified as "special management areas" in the NCCP/HCP.

○ Reserve Design Configuration Alternatives

The Tustin Ranch area lies to the immediate south of the Peters Canyon Regional Park. Although the only remaining undeveloped lands within the Tustin Ranch project are somewhat physically removed from the Lomas de Santiago NCCP/HCP reserve area and constitute a relatively thin sliver of land area, one 200 acre parcel contains more than 100 acres of CSS occupied by relatively high densities of gnatcatchers (18 sites) and cactus wrens (16 sites).

The most compelling reason to consider including the Tustin Ranch parcel is the number of target species birds found onsite. It is not known whether the presence of the birds in the observed densities of population means that the site is a population "hot spot" or, whether the area is a population "sink" due to concentration of these target species as surrounding CSS was cleared for development. Whatever the cause, the populations are present.

The alternative of including this parcel in the NCCP reserve design was evaluated from three perspectives. The first factor addresses the issue of whether or not it is necessary to include the parcel in the Central subarea reserve design. This consideration focuses on the location of the site relative to the rest of the proposed reserve. Because this parcel is located southwest of the frontal slopes of the Lomas de Santiago, it is separated from the rest of the Central subarea reserve. The parcel is not far enough from other reserve habitat to be considered totally isolated from the reserve. However, this parcel is sufficiently removed from the rest of the reserve that interchange with other major populations of target species cannot be assured. Therefore, while inclusion of the site within the reserve could potentially enhance the reserve design, the parcel is not necessary for assembling an effective reserve in relation to the large populations that are in fact contiguous with one another in the proposed reserve design.

The second factor considered was whether the parcel could be effectively managed as part of the Central subarea reserve. The conclusion reached by the NCCP/HCP was that this parcel could not be effectively managed on a long-term basis because: (a) the area in question has extensive urban edge exposure and constitutes a relatively narrow band of CSS habitat that will be virtually surrounded by urban development; (b) both for management purposes and for maximum benefit of the use of future reserve management funds, any attempt to manage this portion of the Tustin Ranch area on a long-term basis would require a highly disproportionate amount of funds and management entity staff commitment to maintain target species in an area that would be heavily and continuously impacted by human and domestic animal intrusion; and (c) 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 in order to reduce the future threat of wildfire impacts on existing residences. Therefore, from an adaptive management perspective, it is infeasible, in environmental and economic terms, to include this parcel within the Central subarea reserve.

The third factor relevant to determining whether the parcel should be considered for inclusion within the reserve is the need for assuring the commitment of parcels "necessary" to the reserve design, as contrasted with a parcel that is merely "desirable" for the reserve design.

Under the proposed reserve design, The Irvine Company would be providing 2,200 acres of habitat along the frontal slopes of the Lomas de Santiago, an area containing 48 gnatcatcher sites and 30 cactus wren sites. Equally important, these lands provide essential habitat linkage functions. In contrast with the 1,700 additional acres of habitat proposed to be added to the NCCP reserve on the frontal slopes of Lomas Ridge in areas where no investments of infrastructure have been made to support urban development, very substantial infrastructure investments have been made in the Tustin Ranch areas adjoining the 200 acre Tustin parcel on the assumption that approved residential development will defray the costs of this infrastructure. Due to the prior infrastructure investments and due to the burden of committing 1,700 acres of additional lands to habitat protection that were designated for development under the City of Irvine GPA 16, it is reasonable to concur in the NCCP/HCP conclusion that: (a) it would be economically infeasible to require the same landowner to dedicate both 1,700 acres of land with a general plan designation for development and 200 acres available for imminent development; and (b) it is more important to assure the feasibility of assembling lands "essential" to the reserve than to add exceptional economic burdens on a landowner for lands merely considered "desirable" for the reserve.

El Toro MCAS

- Lands Owned by the Federal Government

The northeast portion of the El Toro MCAS comprises 1,033 acres of land containing very large populations of NCCP target species - 92 gnatcatcher sites and 68 cactus wren sites (see Figure 15). This large concentration of NCCP target species is situated in close proximity to the populations of target species found on the frontal slopes of the Lomas de Santiago previously reviewed. The El Toro MCAS parcel also is reasonably proximate to the connectivity areas between the Central and Southern NCCP areas.

El Toro MCAS is presently involved in base closure planning processes that may extend over a long time period. The USFWS does not have the legal authority to commit this area to the NCCP/HCP Reserve System on behalf of the federal government. However, pursuant to Section 7 of FESA, any future federal landowner would be required to meet the requirements of Section 7 as applied by the USFWS. Accordingly, the draft Implementation Agreement commits the USFWS to: (1) make its best efforts to achieve the transfer of the 1,033-acre parcel to an appropriate entity for management as part of the Central subarea reserve; and

(b) in conjunction with any future Section 7 review of proposed use of such lands prior to transfer of the parcel to NCCP/HCP management, assure the protection of NCCP Identified Species and commitment of management of the habitat areas consistent with the NCCP/HCP Adaptive Management Program to the maximum extent allowed by law.

Clearly, pursuant to NEPA, avoidance is feasible because the military use of the base will cease and no federal imperative has yet been brought forward that would require the use of the 1,033-acre parcel in a manner inconsistent with the NCCP/HCP. Moreover, the requirements of Section 7 of FESA would appear to dictate that uses contrary to the NCCP/HCP would also be inconsistent with the provisions of Section 7. Finally, the failure of the federal government to commit its own lands with habitat value of the highest order at the same time that the federal government's regulatory program results in comparable commitments on the part of local government and private landowners, could jeopardize the NCCP/HCP as a whole. For these reasons, avoidance of impacts on substantial populations of target species is concluded to be feasible.

Re-Use Planning Process

The NCCP Central subarea Reserve System includes a 1,033-acre parcel of land located in the northeast portion of the existing MCAS El Toro owned by the U.S. government and currently operated by the Department of Defense. A reuse planning process has been initiated for MCAS El Toro. The County of Orange has been designated by the United States Department of Defense as the official Local Redevelopment Authority ("LRA") for MCAS El Toro in connection with the base reuse planning process. The County of Orange has also been designated the lead agency for purposes of CEQA environmental review.

The environmental documentation prepared in connection with the reuse planning process will include consideration of the future reuse of MCAS El Toro. The environmental documentation prepared will include a discussion, where necessary, of the potential environmental impacts of the reuse planning process for MCAS El Toro as it relates to noise and its potential impacts on NCCP target species within the 1,033-acre area, or nearby areas on the frontal slopes of Lomas Ridge, proposed for inclusion in the NCCP Central subarea Reserve System.

Potential impacts of the reuse planning process on NCCP target species within the 1,033-acre area, or nearby areas on the frontal slopes of Lomas Ridge, relate to aircraft overflight disturbance on NCCP target species by noise. The general subject of noise effect on wildlife has been reviewed by Brattstrom (1982), Memphis State University (1981), Fletcher and Busnel (1978), National Academy of Sciences (1970). Noise may affect wildlife through three principal avenues: signal masking, hearing loss, or neuroendocrine system changes. Signal masking and hearing loss may adversely affect species which rely upon auditory signals for such activities as mate acquisition, territory establishment and defense, young recognition, prey detection and predator evasion. Neuroendocrine system effects include changes in blood chemistry, sexual function, auditory function and seizure susceptibility. The extent and nature of noise-induced effects depends upon a variety of variables, including intensity, frequency spectrum, duration, rest intervals, exposure pattern and species susceptibility.

The reaction of sensitive species to noise is not easy to define or predict. These reactions can be extremely dependent on the season, ecological niches, animal population density, stages of life, physical activities and physical parameters of the noise (Fletcher and Bushel 1978). For purposes of the reuse planning process, the noise criterion used for assessing the noise impacts on NCCP target species within the 1,033-acre site will be the A-Weighted Leq. Human and bird ear frequency responses have been compared to support the use of the A-weighted scale in assessing noise impacts on birds. The results of ear frequency response studies for humans and birds were obtained from "Hearing in Vertebrates: a Psychophysics Databook," by Richard R. Fay. The results were presented in the form of audiograms (Frequency vs. dB SPL). The data indicate that both humans and birds are most sensitive to noise in the 1,000 Hz frequency range. However, for frequencies less than 1,000 Hz, bird hearing is slightly less sensitive. Aircraft noise components are highest for frequencies less than 1,000 Hz. Thus, it appears that birds are slightly less sensitive than humans to aircraft noise. With this in mind, the Leq scale in conjunction with A-weighting, although most appropriate for assessing noise impacts on humans, can effectively be used to quantify "worst case" noise impacts on birds, as well as other NCCP target species.

The use of the 60 Leq criteria was developed for use in assessing traffic noise. Traffic noise, however, is generally a steady state or near steady state noise. In contrast, the noise from aircraft operating at an airport such as MCAS El Toro is marked by high single event noise peaking in an event with a duration on the order of 45 seconds, followed by rather low ambient noise levels. Thus, for an aircraft exposure of 60 Leq, there will be a substantial amount of time in which the noise level will be less than 60 dBA.

Relatively few investigations have been conducted specifically addressing the effects of aircraft-related noise upon wildlife, and many of these have concentrated upon the effects of traffic and sonic booms. Much of the information presented in the investigation is anecdotal in nature, and few controlled or systematic studies are available.

Although there are exceptions reported in the literature, the general conclusion reached by investigators is that both subsonic flight noise and sonic booms have very little effect upon wildlife behavior or survival, and that behavioral effects manifested are almost always short-term in nature, followed by rapid and complete recovery and resumption of normal behavior (Casidy and Lehmann, 1967; Bond, 1970; Welch and Welch, 1970; Cottereau, 1972, Espmark, et al., 1974; Ewbank, 1977; Busnell, 1978). Species and taxonomic groups examined generally exhibit a high degree of habituation to non-threatening noise sources. Moreover, even in a noisy environment, many species possess highly developed discriminatory capabilities, allowing them to circumvent the adverse effects of signal masking. Burger (1981) reported no effects of subsonic aircraft overflights on nesting gulls at Jamaica Bay Recreational area, located within two kilometers of Kennedy International Airport. Dunnett (1977) examined the effects of helicopter and fixed wing aircraft overflights on breeding seabirds in the North Sea and found that breeding and incubating birds were unaffected. Kushlan (1978) reported similar results with wading birds in southern Florida. Jehl and Cooper (1980), investigating the potential effects of space shuttle sonic booms upon seabirds, experimentally exposed Brandt's cormorants and western gulls on the California Channel Islands to explosions in excess of 130 dB. No significantly negative results were encountered. Ellis (1981), working with several species of raptors, reported considerable tolerances to flight noise and sonic booms produced by low level subsonic military jets. Though alarm reactions were often elicited by aircraft closer than 300 meters, the negative responses were brief and did not affect species reproduction.

The historic Marine Corps aviation uses, including a range of aviation related activities within the scope, boundaries and noise contours of the 1981 AICUZ study for MCAS El Toro, have created significant noise levels and impacts but these noise levels and impacts have not adversely affected NCCP target species within the 1,033-acre area

East Orange Conservation Area

- **The 1989 East Orange General Plan Amendment Open Space Protection and Phased Dedication Program**
- Treatment of NCCP Target Species and CSS Habitat

In 1988 and 1989, the City of Orange and The Irvine Company carried out a comprehensive master plan program for a 7,500-acre area located within the sphere of influence of the City of Orange and a portion of Limestone Canyon totaling approximately 2,500 acres (see Figures 35 and 38). This area constitutes the inland portions of Lomas Ridge and Limestone Canyon addressed by the City of Irvine GPA 16 process (see Figure 57). As will be reviewed below, the East Orange General Plan Amendment ("EOGPA") consciously carried forward regional open space planning and habitat protection program strategies intended to complement the City of Irvine GPA 16 open space planning program.

Given the scale of the EOGPA planning area, numerous habitat protection issues were raised and addressed. In terms of the NCCP Conservation Guidelines, the EOGPA planning process involved not only CSS habitat issues but also important habitat bio-diversity considerations including oak woodlands, raptor foraging habitat and riparian/wildlife movement corridors. Moreover, these issues were addressed comprehensively as part of a community planning process that witnessed the extensive involvement of the Sea and Sage Audubon Society. As a consequence, the analysis of avoidance/minimization actions taken as part of the EOGPA process necessarily involves a review of the EIR assessment of impacts/avoidance.

The EIR for the EOGPA involved extensive habitat analyses and species surveys and a comprehensive program for avoiding and otherwise minimizing and mitigating a wide variety of habitat losses. Moreover, many of the concepts reflected in the NCCP Conservation Guidelines- large-scale contiguous habitat, connectivity, habitat diversity - were anticipated in the approach taken in the EIR. In light of the comprehensive nature of the CEQA assessment for the project, much of the following review of EOGPA minimization issues is based on the EIR analysis.

The EOGPA EIR specifically addressed NCCP target species and CSS habitat, as follows:

“Directed surveys for the California black-tailed gnatcatcher and the San Diego cactus wren were conducted throughout December 1988 and in April 1989. Few areas of prime gnatcatcher habitat occur in the EOGP area.

Coastal Sage Scrub Impacts

The project as proposed would remove approximately one-half of the existing coastal sage scrub onsite, including all of the purple sage dominant coastal sage scrub. . . . Although this habitat type has the potential to support several sensitive species, the coastal sage scrub on the site is largely in a somewhat degraded condition due to extensive cattle grazing, and was found to support only small numbers of the California black-tailed gnatcatcher and the San Diego cactus wren. As with grassland, this habitat type, although diminishing regionally, is still relatively abundant. However, because coastal sage scrub provides potential habitat for several sensitive species, its loss would be a significant impact of the proposed project.

Wildlife Impacts

Levels of impacts on the San Diego coast horned lizard and the orange-throated whiptail are difficult to determine due to the lack of statistical information available on the regional distribution of these two species. Large areas of appropriate habitat . . . would be lost as a result of project implementation; however, it is likely that this loss would not have a significant impact on regional populations of either species.

The results of the site survey for the California black-tailed gnatcatcher indicate that project impacts on this subspecies would not be significant. A total of 11 black-tailed gnatcatchers were located during the December 1988 survey, and one pair and one individual were observed during the April 1989 survey. These three individuals would be permanently displaced by project implementation in Planning Area 2. An additional eight gnatcatchers were located along the northern boundary of Planning Area 2. Habitat for these individuals would be retained by project design.

Impacts on the San Diego cactus wren were not expected to be significant. Project implementation would result in the permanent displacement of three known individuals in Planning Area 1, but would retain habitat for five known individuals in Planning Area 2."

- Consistency of the East Orange General Plan with the NCCP Conservation Guidelines
- Habitat Protection - Contribution to NCCP Central Subarea Reserve Design

The following excerpts from the final EIR for the EOGP address the manner in which the mitigation measures required pursuant to the EIR address the habitat protection requirements of the NCCP Guidelines and Section 10 of FESA:

East Orange GPA MITIGATION PROGRAM

Avoidance/Minimization of Impacts

Avoidance. The land use and circulation elements of the East Orange GP have been designed to avoid impacts to significant biological resources to the maximum extent practicable. Avoided resources include: (a) regional wildlife movement corridors (Lomas Ridge and Santiago Creek); (b) sensitive habitat (oaks, native grasslands, open water, and coastal sage scrub); (c) riparian habitat in Limestone Creek; and (d) important open space areas that provide buffer zones between Planning Area 2 and Irvine Lake, and between Planning Area 4 and the proposed Limestone Dedication Area.

Preservation of Regionally Important Habitat. Impacts to oak woodlands, coastal sage scrub, chaparral, and raptor nesting and foraging habitat that are not avoided or that may potentially be the result of the indirect effects of urban development are to be compensated by means of the preservation of 2,226 acres of high value habitat located in the proposed Limestone dedication area (Orange Sphere of Influence portion) This preservation as mitigation for the EOGP was formulated to relate to other planned or existing open spaces. The mitigation design considered the following factors: (1) wildlife movement, (2) riparian systems, (3) oak resources, and (4) habitat for sensitive species.

The objective was to enhance the value of the open spaces retained within the EOGP, and the open space preserved in the proposed Limestone dedication area (Orange Sphere of Influence portion), and City of Irvine Open Space Initiative area and the proposed Limestone Canyon dedication area, Whiting Regional Park, and the Cleveland National Forest by ensuring both continued connection of these areas and the preservation of important components within them.

As in the case of the City of Irvine GPA regional open space program for areas contiguous with the East Orange GPA planning area (see Figure 35), the EOGPA regional open space planning strategy focussed on concentrating development as the primary planning vehicle for protecting large blocks of contiguous open space with high habitat values:

Avoidance/Minimization through Concentration of Development

As discussed [above], a number of both regionally and locally significant impacts on wildlife habitat can be expected to result from the proposed project. This situation was recognized early in the planning stages. As a result, the project was planned so that the dedication of a large, biologically important habitat area in Limestone Canyon could be available to serve as full or partial mitigation for any significant impacts. Use of the proposed Limestone dedication area for mitigation of impacts to biological resources from the proposed development of the EOGP area (as well as from the ETC) is supported by the 1988 SBs 2048 and 2049 approved in 1988 by the State Legislature.

The proposed Limestone dedication area is adjacent to the EOGP area. The dedication area supports 2,919 acres (including the proposed dedication area for the mitigation of ETC impacts) of high quality habitat, including oak woodlands, coastal sage scrub, chaparral, riparian, and grassland habitat. Except for grazing activity and several dirt roads, this area is relatively undisturbed. The ecosystem of the proposed dedication area is dominated by large, contiguous oak woodlands that fill the canyons of the area. The oak woodlands are surrounded by coastal sage scrub and grassland, a habitat combination that supports at least 16 breeding pairs of raptors. The eastern portion of the proposed dedication area supports chaparral, a habitat type not

present within the EOGP area, adding to the diversity of the area. In general, except for the eastern portion of Planning Area 4, bounded by Santiago Canyon Road and Hicks Canyon Haul road, the proposed dedication area contains a higher habitat diversity and quality than does the EOGP area.

Many of the above measures were the result of extensive negotiations and cooperative planning with the Sea and Sage Audubon Society, resulting in a formal agreement between Sea and Sage Audubon and The Irvine Company on September 14, 1994 (set forth in its entirety in Appendix 20).

Regarding CSS habitat resources, the net effect of the final EIR mitigation requirements is the following:

Coastal Sage Scrub

Loss of coastal sage scrub, a locally significant impact, would be mitigated to a level of less than significant through avoidance of onsite habitat (1,148 acres) and preservation of 1,318 acres of coastal sage scrub within the proposed Limestone dedication area (Orange Sphere of Influence portion).

Additionally, the final EIR for the EOGPA required measures intended to enhance the habitat values of the preserved CSS within Limestone Canyon by means of an additional "avoidance" action, the removal of cattle grazing:

. . . 1,318 acres of coastal sage scrub habitat [that] would be permanently preserved in the proposed Limestone dedication area (Orange Sphere of Influence portion) . . . would be enhanced through the removal of grazing pressure to allow the recovery of coastal sage scrub in disturbed areas within the proposed Limestone Regional Park, improving the quality of gnatcatcher habitat.

The regional scale open space commitments summarized above provide essential elements of the Central subarea reserve design. As can be seen from a review of Figures 12, 57 and 58, the Limestone Canyon and Lomas Ridge open space areas are critical components of the Reserve System. The EOGPA Limestone Canyon dedication area provides contiguous habitat with Whiting Regional Park and with the remainder of Limestone Canyon and the

frontal slopes of Lomas Ridge within the City of Irvine reserve areas. The EOGPA Lomas Ridge open space area is contiguous with the City of Irvine Lomas Ridge open space areas. Thus, avoidance actions taken in conjunction with the adoption of the EOGPA are consistent with and further the reserve design tenets of the NCCP Conservation Guidelines.

- Connectivity Requirements of the NCCP Conservation Guidelines

In effect anticipating the NCCP Conservation Guidelines emphasis on assuring habitat “connectivity,” the East Orange GPA EIR addressed habitat “connectivity” as a central feature of the plan's conservation strategy:

Connectivity

Interruption of wildlife movement, a locally significant impact, would be mitigated to a level of less than significant through a combination of avoidance, replacement, and preservation. The total effects of preservation of open space within the EOGP area and the proposed Limestone dedication area, in combination with the City of Irvine proposed Lomas Ridge Limestone Canyon dedication areas and Whiting Regional Park, would conserve important regional wildlife movement links between Cleveland National Forest, Limestone Canyon, and Irvine Lake (Exhibit 14). Protection of these links between valuable sources of perennial water would be maintained as follows:

- *Santiago Creek. Dedication of portions of Santiago Creek within the proposed Limestone dedication area (Orange Sphere of Influence portion), which connects with Santiago Creek outside the study area and provides a continuous corridor to the Cleveland National Forest. In addition, at least 5 acres of riparian revegetation will be done adjacent to Santiago Creek directly adjacent to Irvine Lake above the 790-foot elevation that marks the upper limit of IRWD jurisdiction (Exhibit 37).*
- *Western Edge of Irvine Lake. Maintenance of connection with Fremont Canyon to be achieved through enhancement of lake edge with riparian mitigation, landscaping of the hiking and equestrian trail to provide*

adequate cover for wildlife movement, and design of a safe undercrossing of the road aligned on the western edge of Irvine Lake to allow wildlife access. Undercrossing will be constructed in accordance with the results of current research on the correct design of undercrossings. The undercrossings will be at least 25 feet wide and 12 feet high, and, if deeper than 35 feet, will have a split median to allow light to enter the undercrossing midway. This design maximizes air circulation and light. Maintenance of this access is considered important due to the high quality of biological resources located in Fremont Canyon.

- *Limestone Creek. Low intensity development within Limestone Creek to include a golf course and crossings of Limestone Creek at Jeffrey Road and Santiago Canyon Road adjacent to Irvine Lake designed to maintain wildlife access to the lake; the low flow channel would be protected and enhanced for wildlife use. 100-foot to 250-foot buffer channel is maintained through residential area.*
- *Although Loma Ridge would be bisected by the ETC and the Jeffrey Road extension, the portion of Loma Ridge immediately northwest of the proposed Limestone dedication area would be preserved to provide important wildlife access to the Limestone dedication area (see Figure 57).*

The habitat connectivity features of the golf course are assured in part through a series of design and management measures set forth in Attachment G of the Sea and Sage Audubon Agreement with the Irvine Company (see Appendix 20 for the full text of the Agreement). These measures include specific targets for preserving existing riparian habitat and land use and management measures intended to protect oak and native shrub resources.

Thus, the EOGPA emphasis on assuring connectivity for wildlife movement purposes mirrors the emphasis in the NCCP Conservation Guidelines on assuring connectivity. Not only is connectivity preserved within the EOGPA planning area, but the regional scale open space commitments also provide connectivity with the NCCP Southern subregion via contiguity with Whiting Regional Park and with significant populations of NCCP target species within the contiguous City of Irvine portions of the proposed Central subarea

reserve. These “avoidance” actions provided the land use framework for additional connectivity measures proposed by the NCCP/HCP in the EOGPA area (see discussion below under “Additional Avoidance/Minimization Measures Proposed as a Result of NCCP Planning”).

○ Conclusions Regarding Consistency of the EOGPA Open Space and Habitat Protection Program with the NCCP Guidelines Tenets of Reserve Design

As reviewed above, the East Orange General Plan Amendment consciously avoided in significant measure, and thereby minimized, impacts on CSS habitat and on gnatcatchers. Additionally, the East Orange GPA made significant contributions to NCCP reserve design goals in terms of: (a) preservation of large blocks of open space containing CSS habitat in areas contiguous with other CSS habitat slated for preservation, (b) bio-diversity (*i.e.*, the protection of significant oak, riparian and raptor habitat resources), and (c) connectivity with existing and committed large-scale habitat and open space areas. The overall contribution of the East Orange plan to the NCCP reserve design may be summarized as presented in the following passages from the GPA EIR:

The concentration of development in the EOGP area with mitigation accomplished through preservation of the Limestone dedication area would avoid piecemeal mitigation and fragmentation of valuable habitat areas in contrast with the situation that would result if the entire EOGP and Limestone dedication area were to be developed. The dedication would preserve a large, high-value habitat area that would be important to adjacent natural areas preserved in Whiting Ranch, the Irvine sphere of Influence portion of the proposed Limestone dedication area, and the City of Irvine open space reserve area south of the Loma Ridge and west of the Limestone dedication area. These large, natural open space areas are either adjacent or in close proximity to the Cleveland National Forest and are connected to it and each other by important wildlife movement corridors.

Figures 15 and 38 illustrate the manner in which the EOGP preservation areas contribute to the NCCP reserve design in terms of large-scale habitat preservation, habitat diversity and regional connectivity. As reviewed in the above passages from the final EIR and in the NCCP/HCP Chapter 4 summary of the proposed Central subarea reserve, the EOGP program contributes critical elements to the NCCP reserve design through: (a) avoidance

of habitat resulting from a conscious policy of concentrating development in order to preserve regionally significant open space in large, contiguous blocks of land and (b) specific connectivity features incorporated into the overall land use plan. Finally, as reviewed in Chapter 7, the EOGP contributes to the NCCP Adaptive Management Program through measures requiring the removal of cattle grazing (the NCCP/HCP Adaptive Management Program modifies this requirement by instead requiring the review and approval of a grazing management plan in order to retain some of the management benefits of grazing) and enhancement of existing CSS habitat and other habitat types.

○ Reserve Design Configuration Alternatives

-- Additional Avoidance/Minimization Measures Proposed as a Result of NCCP Planning

Given the scale of the EOGP dedication program and the limited impacts of allowable development on NCCP target species, the NCCP reserve design efforts have focussed on assuring connectivity between the preserved habitat resources in Limestone Canyon/Lomas Ridge and the remainder of the Central subarea reserve. As a result of the NCCP planning program, several "rural residential" areas approved for development in the EOGP will be converted to preserved open space (see Figures 20 and 61). The intent of these additional commitments of otherwise developable land to the NCCP reserve design is to enhance "connectivity" from Lomas Ridge open space areas to Irvine Regional Park area CSS habitat by providing a continuous band of habitat/open space from Lomas Ridge through the closed Santiago landfill to Irvine Regional Park. These four additional NCCP-designated linkages, shown in Figure 61, comprise:

- An archipelago-type linkage that crosses a 1,500 foot area containing development and the ETC to a coastal sage scrub ridge-top open space (3,000 feet by 1,200 feet) and then crosses another 1,500 foot area to a larger block of CSS leading to the Irvine Lake dam.
- Two 1,000 foot wide ridges separated by a 1,000 foot segment of the ETC are included (containing a mixture of grassland and CSS and one gnatcatcher site) - This corridor and the previously described corridor connect to the north frontal slope area of Lomas Ridge (which contains the Rattlesnake and Siphon Reservoir

populations of target species and associated habitat) and are passable by birds but not mammals.

- A corridor originating on the south frontal slope block, 500-1500 feet wide and 4,000 feet long, and containing two gnatcatcher sites. This area follows the Limestone Creek area previously described and subject to The Irvine Company/Sea and Sage Audubon Agreement.
- A linkage following along Santiago Creek through two special linkage zones designated by the NCCP/HCP to several planned open space areas between Irvine Lake and the North Ranch Policy Plan Area. These latter two linkages are passable to birds and mammals.

All four of the NCCP-added linkages lead to the Irvine Lake dam, where Santiago Creek provides a corridor to the mouth of Weir Canyon and the remainder of the Central subarea reserve. Further, the ETC wildlife undercrossings provided for through the CEQA/NEPA Section 7 consultation processes, relate to the above linkages.

-- Reserve Design Alternative Considered and Rejected: Re-Design the East Orange General Plan Area to Create a Wide North-South Habitat Corridor in the Western Portion of the EOGPA Area

The NCCP/HCP considered an alternative oriented toward creating a single, wide natural lands corridor in the western portion of the planning area (the "western corridor alternative") to link the frontal slopes of the Lomas de Santiago directly to Irvine Regional Park, and through the park, to Weir Canyon and other reserve areas to the north. The proposed re-design would require eliminating allowed residential and commercial uses in the western portion of the EOGP and shift these uses to the central and eastern portions of the EOGP.

Given the configuration of the EOGPA, this proposed alternative would require costly and time-consuming re-planning of the entire EOGP. The uses in the western portion of the EOGP tend to be the higher intensity elements of the plan, due to proximity to existing urban uses/infrastructure and proximity to the ETC. Hence, the proposed alternative would necessitate a plan re-design effort likely requiring several years of land

use/community planning and would raise significant new land use and conservation planning issues, including:

- 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 proposed "western corridor" alternative would require committing the lands closest to existing infrastructure and with the more gentle terrain to open space. The uses presently allowed by the EOGPA within this area would be re-located to areas with more severe terrain and more distant from existing infrastructure (sewer, water, roads, etc.). As a consequence, the costs of development would be significantly higher, with likely negative implications for housing affordability; this would have severe consequences both for the feasibility of undertaking development and for compliance with General Plan Housing Element/regional fair share requirements. Therefore, from the perspective of economic feasibility, social feasibility (Housing Element requirements) and environmental feasibility (jobs-housing balance/air quality requirements reviewed in the final EIR for the EOGPA), this alternative is determined to be infeasible.
- From the perspective of NCCP requirements, the extension of infrastructure (particularly the likely increase in sizing of Santiago Canyon Road beyond that required by the current EOGP plan) would have significant impacts on habitat connectivity from Lomas Ridge/Limestone Canyon around Irvine Lake to Irvine Regional Park. The widening of Santiago Canyon Road beyond that required for the current EOGP would likely entail far more impacts on wetlands areas and oak woodlands than the current EOGP. Additionally, the attempt to accommodate increased intensities of development would necessitate re-consideration of development opportunities in CSS habitat and significant oak woodlands outside Limestone Canyon that were rejected during the EOGPA EIR review process and potential development within Limestone Canyon itself (see Figure 58).

Equally importantly, the recorded Limestone Canyon Offer of Dedication is keyed to specific development intensities and provides for dedication incrementally as development proceeds. The Irvine Company portion of the Limestone Canyon dedication area is considered by the NCCP/HCP to be particularly important to the reserve design. This area contains important core habitat occupied by NCCP target species, biodiversity habitat (including regionally significant oak woodlands - see Figure 73) and CSS habitat linkage

areas. Due both to the need to completely revise the EOGP and the provisions of the Offer precluding dedication until the development “triggers” are attained, the existing assurances of the commitment of Limestone Canyon would be placed in jeopardy. Without the present assurance of the ultimate dedication of Limestone Canyon, a critical element of the NCCP Central subarea reserve would be missing from the Reserve System. The attendant uncertainty and inability to assure habitat connectivity would be such that consistency with the NCCP reserve design tenets could not be shown in the NCCP/HCP. Therefore, from the perspective of satisfying the reserve design tenets of the NCCP Conservation Guidelines, the proposed “western corridor alternative” is determined to be environmentally infeasible.

Thus, while the “western corridor alternative” might help further NCCP connectivity goals in abstract terms (*i.e.*, assuming that all of the other EOGP regional open space provisions could be retained as is, despite the substantial shift in development intensities toward these areas), this alternative was determined to be infeasible for the reasons stated above. Moreover, given the NCCP planning uncertainties raised by this alternative, the NCCP/HCP determined that the same connectivity objectives could be attained by enhancing open space corridors provided for by the current EOGP. As reviewed in the previous subsection, more than 1,000 acres of natural lands are proposed to be committed above and beyond the EOGP requirements, primarily along a central open space corridor extending from Lomas Ridge and Limestone Canyon to both the southern and northern shore of Irvine Lake (see Figure 61).

○ Conclusion Regarding EOGPA Area Minimization/Avoidance Actions

In light of (a) the extensive habitat preservation measures required of the EOGPA as originally approved, (b) additional permanent conservation area commitments proposed in the recommended NCCP reserve design, (c) the limited impact of proposed development on NCCP target species, and (d) the need to maintain a feasible level of development to assure the implementation of the EOGPA phased dedication program, the NCCP/HCP has concluded that additional avoidance of CSS habitat and target species would not be practicable.

- **The Mountain Park General Plan Amendment Open Space Protection and Phased Dedication Program**
- Treatment of NCCP Target Species and CSS Habitat

The Mountain Park Master Plan involved significant portions of the NCCP Central Subarea including Gypsum Canyon, Windy Ridge and Weir Canyon. As in the case of the EOGP reviewed above, the Mountain Park Master Plan emphasized a regional open space strategy of concentrating development to protect regionally significant open space on Windy Ridge and of providing a large-scale dedication of a regionally significant habitat area, Weir Canyon, as mitigation for development impacts within Gypsum Canyon (see Figures 35 and 38).

NCCP target species and CSS habitat are treated in the Mountain Park EIR as follows:

EXISTING HABITAT

Coastal Sage Scrub.

In Gypsum Canyon, coastal sage scrub generally occurs on south and west facing slopes at lower elevations, on sandy soil containing a high percentage of gravels. Exclusive of the large chaparral area, coastal sage scrub and scrub/grass mixes are the characteristic communities found on the hillsides of Weir Canyon.

This is a sensitive habitat for the following reasons: 1) it is the primary habitat of several sensitive animal species occurring on the site, including San Diego horned lizard, orange-throated whiptail lizard and California gnatcatcher and numerous other species; and 2) there is an ongoing and rapid incremental loss of this habitat in Orange County and Southern California as a whole.

Other significant habitat types reviewed in the EIR include:

Tecate Cypress Forest. The principal component of this community, Tecate Cypress, is classified as a Category 2 candidate species. Tecate cypress forest is

limited to only five locations in the United States, with more stands located on the Baja Peninsula. the Sierra Peak/Fremont Canyon populations are the northernmost occurrence of Tecate cypress and represent the only examples of this community in Orange County. There is substantial scientific and public interest in this forest; at least two sensitive plant species grow within this community, and it is potentially utilized by several sensitive animal species.

Chaparral: Most of the chaparral occurring at lower elevations on the project site exhibits evidence of cattle grazing, as previously described. Chaparral dominated habitats total 1,307 acres in Gypsum Canyon and 219 acres in Weir Canyon.

CSS SPECIES

California Gnatcatcher. The distribution and numbers of this species have been greatly reduced in southern California, chiefly due to destruction and fragmentation of coastal sage scrub habitat. The presence of one breeding pair of California gnatcatchers is an indication that the coastal scrub-dominated areas of Gypsum Canyon are suitable for use by this species. A total of 494 acres of potentially suitable habitat exists within the potential grading line for this project, a portion of which is confirmed as suitable by the presence of one pair of gnatcatchers; and this reduction in the habitat of California gnatcatcher is considered to be a significant project impact. The importance of this loss relative to regional gnatcatcher populations depends on the relationship of this habitat to other preserved gnatcatcher habitat in the region.

Thus, the EIR identified impacts of one pair of gnatcatchers and impacts on 494 acres of potentially suitable CSS habitat. However, due to the temperature extremes experienced by Gypsum Canyon, it is doubtful that this area would support significant numbers of gnatcatchers even with enhancement of existing CSS habitat.

○ Consistency of the Mountain Park Plan with the NCCP Conservation Guidelines

• **Habitat Protection - Contribution to NCCP Subarea Reserve Design**

The final EIR for the Mountain Park Master Plan provided for major dedication areas which contribute significant components of the proposed Central Subarea reserve design (see Figures 15, 38, 62 and 63). The purpose and habitat functions of these dedication areas were summarized in the final EIR as follows:

Project Open Space/Habitat Preservation Program

Dedication Areas. The large scale of the project and the attendant range of impacts require a comprehensive approach to habitat preservation. Rather than attempting to address potential project impacts on an incremental basis, resulting in the preservation of numerous small habitat areas throughout the development area, the primary focus of the project's open space program is the preservation of major, contiguous open space areas both on site and off site.

In order to preserve the regionally important ridgelines and to accommodate the regional circulation system, substantial grading will be necessary in the lower portions of the canyon and near the proposed ETC., To achieve these objectives, a concentrated development concept was used in formulating the Specific Plan. Under this concept, grading, roads, and urban land uses are concentrated in the central canyon area, leaving regionally important hillsides and ridgelines undeveloped.

Project development areas in Gypsum Canyon have been concentrated, in part, to allow for the preservation of large scale open space areas at the upper end of the canyon and along the ridges. The mitigation program thus protects significant on-site resources by including within the open space most of the Tecate cypress grove, substantial areas of coastal sage scrub, raptor foraging areas and a terrestrial/flyway movement corridor along the ridgelines The large scale habitat preservation approach also is supportive of the opportunity to create a permanent link to the Cleveland National Forest areas in the event that the City of Anaheim review of the Coal Canyon project leads to the protection of proposed open space areas adjoining Coal Canyon.

The concentration of development allows for the preservation of large scale contiguous open space areas on site, but results in significant impacts on other resource areas located within the canyon bottom. Therefore, the project open space program also includes the preservation of high value habitat areas off site within Weir Canyon. Preservation of Weir Canyon, when assessed in conjunction with the above on-site preservation efforts, is intended to compensate for regional cumulative habitat impacts and to complement an already substantial and evolving network of large scale, protected open space within the immediate subregion and within Orange County as a whole. The Weir Canyon dedication area, in combination with the large scale open space, habitat areas preserved on site, will provide a major regional open space habitat network extending from Santiago Creek to Weir Canyon to Gypsum Canyon to Coal Canyon and the Cleveland National Forest.

Figures 15, 64 and 65 show the significance of the Weir Canyon and Windy Ridge dedication areas for the Central subarea reserve. Weir Canyon contains important populations of NCCP target species and major biodiversity resources (particularly oak woodlands) while also serving a critical connectivity function reviewed in the following subsection. Windy Ridge is a large block of contiguous habitat that also provides major connectivity functions. Therefore, the avoidance actions provided for in the Mountain Park plan contribute significantly the NCCP/HCP reserve design and consistency with the NCCP Conservation Guidelines.

- **Connectivity Requirements of the NCCP Conservation Guidelines**

As noted in the above excerpt from the Mountain Park EIR, the project's open space conservation program is intended to "provide a major regional open space habitat network extending from Santiago Creek to Weir Canyon to Gypsum Canyon to Coal Canyon and the Cleveland National Forest." Figures 15, 38 and 62 illustrate how the major open space dedication areas of the Mountain Park plan contribute connectivity elements essential to the NCCP reserve design. The NCCP "connectivity" features of the Mountain Park plan will be assured by means of the following mitigation measures required by the final EIR:

Regional Open Space/Habitat - Dedication and Management Implementation Measures. The project applicant shall implement the regional open space/habitat preservation program by means of the following measures:

Preservation of 850 acres within Open Space Area 31 (including the Tecate cypress ecosystem) and dedication of all of Open Space Areas 31 and 32 (totaling 1,238 acres) within Gypsum Canyon to a public or non-profit entity for habitat preservation purposes and educational/passive recreational uses consistent with habitat conservation.

Preservation and phased dedication of the 1,348 acre Weir Canyon open space area to a public agency or non-profit entity for habitat conservation purposes and educational uses consistent with habitat conservation.

For the above reasons, it is determined that the Mountain Park "avoidance" measures contribute significantly to the ability of the NCCP/HCP to meet the requirements of the "connectivity" aspects of the NCCP tenets of reserve design.

○ Reserve Design Configuration Alternative: Re-Design the Mountain Park Specific Plan to Reduce Development in the Gypsum Canyon Portion of the Plan Area

An alternative to the proposed Central subarea reserve design emphasizing increased avoidance of impacts on CSS habitat would involve a re-design of the Mountain Park plan to reduce development in the Gypsum Canyon area. The Mountain Park Plan area is characterized by substantial differences in elevation, much of which is above the elevation limits of the gnatcatcher. The plan area is dominated by chaparral rather than by CSS, (see Figure 64), with the CSS resource areas manifesting the effects of extensive cattle grazing. Orange throated whiptail lizards are found onsite but only two gnatcatcher sites were identified during the 1991/92 surveys conducted in accordance with NCCP Survey Guidelines (the previous EIR survey summarized above found only one pair of gnatcatchers). Although the extremely limited population of target species may be a result of the degraded conditions of CSS, it is also very likely that the wider range of temperature extremes in Gypsum Canyon is inimical to long-term gnatcatcher use (*i.e.*, the Canyon is not characterized by the maritime temperature influences characteristic of large populations of gnatcatchers in Central Orange County).

In contrast with Gypsum Canyon, Weir Canyon does have significant populations of NCCP target species and contains regionally significant oak woodlands resources (see Figures 15, 64 and 65). The conditions of approval for the Mountain Park plan and recorded development agreement require the dedication of Weir Canyon, as well as Windy Ridge

(see Figure 63). These two dedication areas are essential components of the Central subarea reserve design. Weir Canyon and Windy Ridge are not only functionally connected but also link with the CDFG Coal Canyon Reserve to the east and with the EOGP to the south to provide for a continuous open space link between the Lomas de Santiago and the Cleveland National Forest (see Figures 38 and 62). This corridor linkage adequately addresses the need for biological connectivity within the Central subarea, and by providing the linkage to the Cleveland National Forest, allows for connectivity with the 12,000 Chino Hills State Park area to the north. If the Mountain Park Specific Plan were to be re-designed, the open space dedications resulting from the specific plan and development agreement approvals would have to be re-negotiated and the availability of these areas for inclusion within the Central subarea Reserve System could not be assured. Consequently, the re-design alternative would leave unresolved the status of critical elements of the Central reserve while at the same time promising few benefits due to the limited habitat value of Gypsum Canyon for NCCP target species.

For the reasons set forth above, it is determined that the re-design alternative involving further avoidance of CSS habitat within Gypsum Canyon provides few potential NCCP planning and management benefits while, at the same time, jeopardizing the ability of the NCCP/HCP to satisfy the reserve design tenets of the NCCP Conservation Guidelines. Since it would not be necessary to include the Gypsum Canyon portion of the specific plan area in the NCCP Reserve System in order to address the NCCP reserve design requirements for either important target species habitat or biological connectivity, a re-assessment of the Mountain Park specific plan was determined not to be necessary by the NCCP/HCP. Accordingly, the re-design alternative is not a reasonable alternative for CEQA/NEPA purposes because it would not further the attainment the goals and objectives of the Proposed Project set forth in Chapter 1 and because the alternative is environmentally infeasible because it would likely preclude the ability of the NCCP/HCP to meet the requirements of the NCCP Act and Section 10(a) of FESA. Thus, the "avoidance" of impact on CSS resources contemplated under this alternative would not further the purposes of the NCCP coastal sage scrub habitat program for Central Subarea.

○ Conclusion: Minimization of Impacts of Incidental Take within the City of Anaheim Gypsum Canyon Area and within the City of Orange Weir Canyon Sphere of Influence Area

Overall, the Mountain Park plan makes significant contributions to NCCP reserve design goals in terms of: (a) preserving CSS for target species, particularly in Weir Canyon (see Figure 15), in areas contiguous with other important elements of the NCCP Central Subarea reserve design, (b) contributing significant habitat diversity, particularly oak, Tecate Cypress and chaparral resources (see Figures 64 and 65), and (c) assuring connectivity provided by the Weir Canyon and Windy Ridge dedication areas from other portions of the proposed reserve to the Cleveland National Forest, and ultimately to the Chino Hills area (see Figures 38 and 62). These regional open space planning goals were summarized in the final EIR for the Mountain Park Plan as follows:

Project Objective - Provide Regional Open Space/Habitat Preservation Areas

Providing for regional open space and wildlife habitats was a key planning objective in the formulation of a plan for the Mountain Park area. The study area is central to an extensive network of regional open space and habitat (refer to Section 3.4, Project Open Space Program). The proposed project includes 1) phased dedication of 1,238 acres of open space (Open Space Areas 31 and 32) within the Mountain Park area, . . . and 3) the phased dedication of 1,348 acres in Weir Canyon for habitat preservation and open space. . . . The project follows resource protection strategies articulated in a number of recent master plan actions (e.g., the Aliso Viejo LCP, the Irvine Coast LCP, the City of Irvine Open Space Initiative and General Plan Amendment 16, and the East Orange General Plan Amendment) which have focused on preserving large blocks of contiguous open space on a master plan basis rather than preserving fragments of habitat within development areas on a project-by-project basis. The Mountain Park project . . . preserves habitat areas of regional significance (the Tecate cypress) and major ridgelines. Off site, the project proposes to preserve Weir Canyon, a habitat and potential open space area of regional significance. In turn, both of these open space areas take on additional significance due to the potential for complementing the project open space areas and by providing

regional open space linkages with the Coal Canyon open space and the Cleveland National Forest.

The Coal Canyon Area

- Reserve Design Configuration Alternative

One of the design alternatives considered by the NCCP/HCP involved including the currently undeveloped Hon Company property located in the Cypress/Coal Canyon area within the proposed Central subarea reserve. The primary rationale for this alternative is the value of the property as a biological linkage between the Central subarea and the Chino Hills area of northern Orange County (see Figure 62). Other reasons included claims of the presence of target species.

The preliminary reserve design concept included a portion of the Hon property within the Reserve System, primarily to enable wildlife to cross the property and to pass under/over State Route 91 into the Chino Hills to the north. However, closer review of the area and consultation with resource agencies during the reserve design planning process indicated that inclusion of this ownership within the reserve would not be feasible and would not be necessary for the following reasons:

- The Hon Company has an approved Specific Plan/Development Agreement that permits the construction of 1,500 dwellings on about 300 acres of the property. The EIR for this entitlement was challenged by litigation and has been defended successfully by the Hon Company. This entitlement established a land value for acquisition purposes.
- Hon has shown no evidence of being a willing seller. It wishes to proceed with the development plan approved by the City of Anaheim and successfully litigated in court.
- Based on the value of the permitted residential and commercial uses approved as part of the Development Agreement, acquisition of the property would be extremely expensive.

- There is no nexus between the impacts that might result from NCCP planned activities and impacts to Coal Canyon that may result from the Hon Company development. The projects of *participating landowners* will be separately and adequately mitigated (see Chapters 7 and 8) by the NCCP/HCP. Hon Company will have to mitigate any impacts resulting from their proposed development.
- The Coal Canyon property lies within the City of Anaheim. Absent a willing seller, and due to the voluntary nature of the NCCP program, the County's ability to assert eminent domain within the City would be subject to substantial legal challenge.

Since Coal/Cypress Canyon is not essential, either as habitat for the NCCP Reserve System or as a wildlife movement corridor for NCCP target species connectivity purposes, this alternative is not a reasonable alternative in terms of attaining the goals and objectives stated in Chapter 1. Additionally, this alternative is rejected as economically infeasible because of the projected cost of the property and because the property owner is not a willing seller - the NCCP/HCP indicates that potential acquisition lands will be obtained only from willing sellers (*i.e.*, condemnation is not an option due to the potential exposure to jury awards). Therefore, additional "avoidance" actions are unwarranted and infeasible.

7. The Potential Acquisition of the Barham Ranch Property and the Santiago Ranch Property

Several parcels of land are identified by the NCCP/HCP for potential "avoidance" actions if voluntary acquisitions can be consummated with willing landowners. The Barham Ranch parcel is identified on Figure 61 and would reinforce connectivity between Irvine Regional Park and Weir Canyon. This acquisition is considered by the NCCP/HCP to be desirable but not essential for reserve design "connectivity" purposes. The Santiago Ranch is identified on Figure 60 and is also considered by the NCCP/HCP to be desirable but not essential for reserve design "connectivity" purposes.

Unlike the Hon parcel reviewed in the previous subsection, none of the landowners has indicated opposition to considering voluntary sale. Thus, the identified "avoidance" actions are potentially feasible, but, until actual sale agreements are entered into, none of these potential acquisitions can be considered to be "minimization/avoidance" actions for NEPA and CEQA purposes. As indicated above, these potential acquisitions are not considered essential for NCCP reserve design purposes.

8. SCE Parcel Adjacent to Portola Ranch

The 99-acre SCE parcel adjacent to Portola Ranch is proposed for acquisition and is considered "essential by the NCCP/HCP because this parcel provides a critical connectivity linkage with the NCCP Southern Subregion. As a *"participating landowner,"* SCE has committed to making this parcel available for acquisition (see the NCCP/HCP Implementation Agreement).

9. SCE Anaheim Area Utility Corridor Special Linkage.

The only CSS area in Anaheim designated by the NCCP/HCP as a Special Linkage Area involves the 94 acres contained within the linear SCE easement that crosses the City in a southwest to northeast direction. While the entire easement in this area contains about 195 acres, only portions in or near the CSS habitat are designated as Special Linkage Areas. SCE 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 designated area contains 135 acres, including 51 acres of CSS, and 4 gnatcatcher sites and 1 cactus wren site. Current and future uses within the right of way consist of operations and maintenance activities for overhead electrical transmission lines with limited potential for significant direct impacts on CSS (*i.e.*, total impacts likely to be one acre of CSS or less). No future development is proposed within the easement.

10. ETC Alternatives: Deletion or Re-Design of the ETC to Further Avoid Impacts on CSS Resources and the NCCP Reserve Design.

One of the alternatives proposed during the NCCP reserve design process focussed on a request to consider deleting or re-routing the ETC through the Central subarea to avoid habitat potentially included within the NCCP reserve design. If deletion were not feasible, 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 by the NCCP/HCP, the USFWS issued a Biological Opinion (dated July 6,1994, set forth in full in Appendix 8) in conjunction with a formal Section 7 consultation for the ETC pursuant to FESA. The Biological Opinion stated the following conclusions regarding 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. (Biological Opinion, at p. 3)

. . . . 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. (Biological Opinion 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 proposed as part of the draft Central Subregional NCCP 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 (Biological Opinion, at p. 23)

Avoidance actions incorporated into the Section 7 consultation conditions included a re-alignment of the ETC in the vicinity of Siphon Reservoir to reduce impacts on significant populations of NCCP target species included within the Central subarea proposed reserve and acquisition/restoration of a parcel of agricultural land in the same area for commitment to the NCCP reserve.

Following the issuance of the Biological Opinion/Section 7 Consultation for the ETC, grading commenced for construction of the transportation facility. The majority of the ETC right-of-way has already been graded. In view of the specific findings prepared by the USFWS regarding ETC avoidance measures and relationship to the NCCP reserve design

and in light of the fact the grading for the ETC has already significantly altered CSS resources within the grading cross-sections for the ETC, the alternative calling for the deletion or re-design of the ETC project is infeasible for environmental and economic reasons, and would not further the project purposes stated in Chapter 1.

11. Arterial Road Extensions - Culver Drive, Jeffrey Road, Jamboree Road, the North Lake (Irvine Lake) Road and the Santiago Canyon Road Widening

Three major arterial roads are planned to cross portions of the central subarea reserve: Culver road, Jeffrey Road and Jamboree Road. Relative to the size of the reserve, these three roads have relatively minor direct impacts on the CSS habitat type mosaic, affecting 14.7, 36.7 and 20.5 acres of wildland habitat within the reserve, respectively (County of Orange estimates). CSS habitats account for 7.1, 24.8 and 7.7 acres of these amounts. Restoration of cut and fill slopes may offset some of these direct impacts. The primary indirect impact concerns the degree of habitat and target species population fragmentation which may result from these roads. For most birds, and the large and medium-sized mammals which can readily cross even arterial-sized roads, these roads do not form a complete enough barrier to fragment a population. For small mammals and most reptiles and amphibians, which can find major roads difficult to successfully cross, arterial roads may fragment populations. This effect can be exacerbated if the road design causes it to be a "mortality sink." This effect is most significant when fragments are less than a few hundred acres in size, and none of these three arterials would create fragments this small.

The potential for significant population fragmentation can be reduced further by design features aimed at barrier, no curb/rolled curb) and reducing road kill (e.g., strategically placed fencing, especially for reptiles and amphibians). Other potentially significant indirect impacts are also associated with habitat fragmentation, and include potential wildfire ignition sources, potential to introduce weedy plants through landscaping, opportunities for unauthorized recreational access, etc. These potential impacts also can be avoided through appropriate design and management measures, such as fencing, abatement of roadside weeds, use of native landscaping materials within the reserve, etc. For these reasons, construction of the three arterial roads would not significantly adversely affect the basic function of the Reserve System. Measures directed toward assuring that the impacts of construction of those three arterials within the Central subarea reserve will be minimized with respect to reserve functions are reviewed in Section 7.3.2.B. Consequently, with regard to any future review of these arterial roads pursuant to Section

4(F) of the Federal Transportation Act, these roads and the Reserve System will be considered to be jointly planned.

Both the construction of the North Lake Road (around the northern edge of Irvine Lake) and the widening of Santiago Canyon Road were reviewed at a general plan level of CEQA review as part of the EOGP. Alternatives were examined as part of the EOGP EIR process and mitigation measures were adopted addressing the projected impacts in the context of both specific roadway impacts (*e.g.*, the Heron rookery mitigation measures for the North Lake Road) and of the overall EOGP impacts. Both road construction actions are necessary to provide circulation capacity for the EOGP and there are no feasible alternatives acceptable to the City of Orange. Potential impacts on Identified CSS and on "covered habitats" were reviewed as part of the NCCP/HCP, with the additional 1,059 acres of donation lands to be added to the NCCP Reserve System (above and beyond EOGP dedication areas) within the EOGP area serving to provide a basis for the levels of significance findings in Chapter 8. Since impacts have been reduced to an acceptable level, further consideration of alternatives is unwarranted for NCCP/HCP purposes.

B. The Central Subarea: Summary Assessment of Minimization/Avoidance of Impacts on Significant CSS Habitat Areas

○ Conclusions Regarding Minimization of Impacts on the Part of *Participating Landowners* - Extent of Habitat Included within the NCCP/HCP Reserve System in Relation to Proposed Incidental Take

Table 6-6 in Chapter 6 summarizes the extent of proposed incidental take on the part of "*participating landowners*" in relation to Central subarea habitat recommended for inclusion in the NCCP/HCP Reserve System. CSS habitat located within the North Ranch Policy Plan area committed to future planning by one of the *participating landowners* totals 3,003 acres. Total CSS habitat proposed for conversion on the part of *participating landowners* and located outside the Central Subarea reserve comprises 3,118 acres (Table 6-8). Of this acreage proposed for conversion, habitat considered "significant" for purposes of Section 9 of FESA and proposed for "incidental take" on the part of *participating landowners* outside the Reserve System totals 351 acres of CSS, supporting 38 gnatcatcher sites and 67 cactus wren sites. Occupied CSS habitat proposed for incidental take within the Central Reserve System totals 25 acres. Overall, 67% of subarea

gnatcatcher populations and 71% of cactus wrens, are protected by the reserve design and Special Linkage commitments by *participating landowners*.

○ Conclusions Regarding Minimization of Impacts Relating to “*Non-Participating Landowners*”

Proposed incidental take of occupied CSS habitat on the part of “*non-participating landowners*” in the Central subarea totals 76 acres. An additional 20 acres of occupied CSS habitat is within Special Linkage designations, with an additional 326 acres of occupied CSS within Existing Use Areas.

Spring 1994 surveys identified concentrations of target species located within areas that are already substantially urbanized (see Figures 7, 8 and 15). These areas are physically distant from the proposed reserve and cannot effectively be managed as part of the Reserve System. Areas in public ownership or in community association ownership are designated as “Existing Use Areas” which means that voluntary protection measures will be sought by the NCCP/HCP Non-Profit Corporation. As indicated in the NCCP/HCP, the subregional plan does not propose including lands within Existing Use Areas for incidental take authorization and, as a consequence, any entity wishing to convert occupied gnatcatcher habitat would have to obtain the approval of the USFWS and/or CDFG under then applicable law (see Section “C” below).

C. Avoidance/Minimization of Impacts on Significant CSS Habitat within the Subregion resulting from the “Existing Use” Designation

“*Existing Use Areas*” are those areas within the Central/Coastal subregion that contain important populations of NCCP target species but which are geographically removed from the Reserve System such that they do not provide connectivity functions for reserve management purposes. Although it has been determined to be infeasible to incorporate these areas into the Reserve System or to be treated as Special Linkage Areas (due to ownership patterns and location in relation to the Reserve System), these areas are considered to be sufficiently important that authorization of incidental take cannot be proposed based on current information. Accordingly, the NCCP/HCP indicates that these areas will continue to remain subject to applicable FESA and CESA jurisdiction in exactly the same manner as they would be had there been no NCCP program.

Many of these areas function as existing open space maintained by community and homeowner associations, other privately owned lands and some public parklands that, in their current conditions, are able to support significant populations of target species. As a consequence, so long as the "existing use" is maintained, the populations of NCCP target species are expected to continue to be maintained subject to normal population fluctuations.

Where a landowner proposes a change in use and such proposed use has the potential to cause harm to a state or federally listed species, the landowner would be required - as is presently the case - to obtain the approval of the relevant state or federal wildlife agency. The NCCP/HCP assumes that any approval of such a change in use would be required to meet applicable CESA and FESA requirements regarding listed species protection (as indicated in the NCCP, the applicable wildlife agency could determine that the use of the NCCP/HCP mitigation fee for *non-participating landowners* would or would not be appropriate in specific circumstances, along with other regulatory approaches including avoidance and mitigation of impacts by means of other measures). It is reasonable to conclude that CDFG and USFWS intend that the CESA and FESA review processes would maintain overall net habitat value within the subregion for any such proposed change in use within Existing Use Areas just as is required pursuant to the NCCP/HCP for proposed incidental take by *participating and non-participating landowners*.

Table 6-10 of the EIR/EIS indicates that 1,103 acres of CSS, with 87 surveyed gnatcatcher sites supported by 600 acres of occupied CSS, are located within designated Existing Use Areas in the subregion. These populations are considered protected for purposes of avoiding or minimizing impacts on a subregional basis.

CHAPTER 6 ANALYSIS OF SIGNIFICANT IMPACTS/INCIDENTAL TAKE FOLLOWING APPLICATION OF AVOIDANCE ACTIONS

SECTION 6.1 OVERVIEW OF THE IMPACTS ANALYSIS PRESENTED IN THIS CHAPTER

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. The "impacts" summary in this Chapter is presented primarily in quantitative terms. Additional assessment of the environmental impacts of proposed take is set forth in Chapters 7 and 8.

6.1.1 Subregional Reserve System - Quantitative Overview

- Quantitative Assessments of Habitat and Species Protection

To understand the quantitative assessments of habitat/species protection presented in this Chapter 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 6-1 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 proposed Reserve System, Special Linkage Areas, 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 26,000 acres included within the Cleveland National Forest (CNF) Congressional Boundary is omitted from such calculations. This means that 3,559 acres of CSS and 22,464 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.

Therefore, while Table 6-1 and Figures 4, 15 and 16 summarize the location and total amount of CSS and other natural habitats existing within the subregion, Table 6-2 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 6-2 indicates that a total of 30,833 acres of CSS habitat is located outside the CNF, and that 61 percent of the 30,833 acres of CSS is included within the proposed reserve. 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/special management 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 6-1 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.

Table 6-1
Central & Coastal Subregion NCCP
Vegetation, Target Species, and Proposed Habitat Reserve

Vegetation	Special Reserve	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	18,527	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				42	53	
Marsh	343		29	234				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				2	563	43	5	804	
Cliff and Rock	74	7	1	1	14	29	12	35	173	
Marine & Coastal	362		15	0				1,553	1,930	
Lakes, Reservoirs, Basins	99	10	1	790			0	456	1,357	
Water Courses	182	1	22	8	0		9	563	784	
Agriculture	577	90	5	83			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		108	600	
Cactus Wren	Total Sightings	671	39	64		14		206	994	
Total Sightings		1041	59	151	10	19		314	1594	
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

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

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.

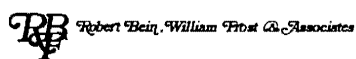


Table 6-2
Distribution of Wildlands
 Within the Reserve and Supporting Geographic Components
 (Percentage of Wildlands, excluding National Forest)

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.



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 would not impact the habitat supporting these sites and no mitigation would be required under the NCCP/HCP.

Therefore, the habitat located within the grading limits for the toll roads and Portola Parkway that supports 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). In addition, ten of the cactus wren sites are not considered because they are within the CNF Congressional boundary. Thus a total of 994 cactus wren sites are used for calculations.

- A Multiple-Habitat/Multiple-Species Reserve System - Extent of Particular Habitat Types Contained Within the Proposed Reserve System

The NCCP/HCP includes more than 35,000 acres of wildlands within the proposed reserve design. The remainder of the Reserve System consists of agricultural, developed 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 System 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 Linkage Areas, Existing Use Areas, other permanent open space, and the North Ranch Policy Plan Area are included (these areas contain an additional 19 percent of the remaining wildlands), the proposed conservation strategy protects roughly two-thirds (64 percent) of the subregional wildlands. Only about one-third (36 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.

When considering whether a particular CSS or non-CSS species is adequately protected by the proposed reserve design, consideration should be given to the share of the related species-habitat contained in the reserve. 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 34 percent of the chaparral and almost 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 proposed reserve design. Therefore, the proposed subregional management strategy protects habitats which a number of species are dependent on or are associated with, including:

- coastal sage scrub;
- chaparral;
- riparian;
- woodlands;
- Tecate cypress; 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).

As reflected in the above information, 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 6-1) within the reserve 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, as reviewed above, incorporates a significant share of other habitats, including riparian 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 6-3 and 6-4 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.

Protection for lower elevation CSS was a key criteria used to formulate the recommended reserve design, particularly CSS habitat located within the Coastal subarea and along the frontal slopes of the Lomas de Santiago. The reason for this emphasis on lower elevation of CSS located within the coastal climate zone is that 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 (see Figure 7). Accordingly, the reserve design 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 (See Figure 17).

Table 6-3
Central Subarea Summary
Vegetation, Target Species, and Proposed Habitat Reserve

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										
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%		15%	100%	
Cactus Wren	Total Sightings	409	9	44		14		113	589	
	% of Study Area	69%	2%	7%		2%		19%	100%	
Total Sightings		615	13	90	3	19		159	899	
Total % of Study Area		68%	1%		0.3%	2%		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%	0.4%	0.7%	0.2%	0.2%	0.1%	0.8%	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.

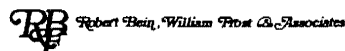


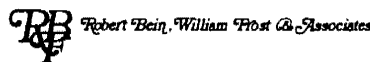
Table 6-4
Coastal Subarea Summary
 Vegetation, Target Species, and Proposed Habitat Reserve

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%	1.0%	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%	1.0%	0.7%	0.8%	96.6%	100.0%

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.



- Target Species Protected

Tables 6-1 and 6-2 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 boundary. Some of the bird symbols are virtually on the boundary but, despite the clear biological relationship of the sighting to adjoining habitat, a "count" of surveyed target species sites relying solely on a GIS-mapping would count these sightings as outside the reserve.
- 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 sufficiently close to habitat proposed for inclusion in the NCCP/HCP Reserve System and Special Linkage Areas to reasonably conclude that these sites should be considered "protected." Evaluations of vegetation/bird maps by USFWS staff (Dr. Linda Dawes) and the project team biologist, reflecting considerable field experience on the part of both biologists, indicated that 20 of the 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 proposed Reserve/Special Linkage systems.

Thus, the professional judgment of biologists who know the study area was relied on to identify those bird sites "protected" by the NCCP/HCP which would not be accurately

reflected in an inherently "coarse-grained" GIS only approach. The estimates of these biologists place the level of protection afforded by the combination of the Reserve System and other geographic components at about 80 percent of the target species birds.

SECTION 6.2 PROPOSED INCIDENTAL TAKE AND CSS IMPACTS

Four separate categories of potential incidental take are considered under the NCCP/HCP:

For *participating landowners* the NCCP/HCP proposes that incidental take be allowed in the following areas within the subregion:

- incidental take related to permitted uses within the Reserve System;
- incidental take on lands located within Special Linkage Areas;
- incidental take outside the Reserve System and Special Linkages;
- for *non-participating landowners*, unavoidable incidental take on lands located outside the Reserve System and Special Linkage Areas/Existing Use Areas.

The NCCP/HCP does not propose to authorize incidental take on other Non-Reserve, Supplemental Habitat lands identified by the NCCP/HCP as "Existing Use Areas".

6.2.1 Proposed Take Is "Incidental Take"

The Section 10(a)(1)(B) regulations require that proposed take must be "incidental" to activities that otherwise would be lawful absent the federal listing. Incidental take identified in the NCCP/HCP would 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. All take that would be authorized under the NCCP/HCP would be incidental to otherwise lawful purposes.

6.2.2 Summary of Proposed Incidental Take by *Participating and Non-Participating Landowners*

It should be noted that the quantified assessments of incidental take of habitat presented in this Chapter need to be interpreted using the referenced graphics that show the location of species whose habitat is subject to incidental take. The locations of bird sites shown on figures in this document are based on previous NCCP field surveys, and both the location and number of birds sites will vary in the future from year to year. Under natural conditions individual birds and other CSS species will move frequently and the subregional bird population will fluctuate significantly from year to year in response to changing climate, population dynamics, and natural/man made events such as fires. All references to "gnatcatcher sites" and "cactus wren sites" are merely for purposes of providing perspective on the significance of loss of CSS in terms of surveyed "occupied" habitat. However, due to population fluctuations and dispersal, the focus of environmental assessment in this EIR/EIS is on consequences of actions on CSS habitat and associated habitat located within the overall subregional CSS mosaic of habitat types.

As noted in the introduction of Chapter 5, the terms "incidental take" and "incidental take of CSS habitat" are used as shorthand references to habitat conversion proposed to be 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 proposed to be 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 proposed to be 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.

Table 6-5 summarizes the incidental take proposed to be 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" proposed to be authorized by the NCCP/HCP is framed in terms of CSS acreage. In turn, where incidental take is authorized outside the Reserve System on the lands of participating landowners, conversion of CSS would be authorized on any lands containing natural expansion of CSS.

Table 6-5
SUMMARY OF PROPOSED AUTHORIZED TAKE WITHIN THE CENTRAL
AND COASTAL NCCP SUBREGION

OWNERSHIP/LOCATION	Total CSS ACRES ⁵	OCCUPIED CSS ACRES	GNATCATCHER SITES ¹
1. <i>PARTICIPATING LANDOWNERS</i>			
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. <i>NON-PARTICIPATING LANDOWNERS</i> 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.

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 proposed definition. The total acreage subject to future conversion includes 512 acres of CSS within the Reserve System, 4,718 acres outside the Reserve System (and any natural expansion of CSS) 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 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. Proposed "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* 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

The following discussions, tables, and Figures 29 and 30 identify the incidental take that the NCCP/HCP proposes to be authorized for *participating landowners* and *non-participating landowners*, and where the authorized take will occur.

6.2.3 Proposed Incidental Take by *Participating Landowners*

Proposed Incidental Take 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 6-6) 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 acres of occupied habitat. The 512 acres of CSS habitat impact and incidental take of nine identified gnatcatcher sites (Table 6-6 and Figures 29 and 30) is authorized based on the mitigation provided by the creation of the permanent habitat Reserve System and implementation of the “adaptive management” program within the Reserve System.

Proposed Incidental Take 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 proposed Reserve System. As indicated in Table 6-7 and Figure 12, 1,906 acres within the subregion are included within Special Linkage Areas. Table 6-7 and Figures 15, 16 and 29 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 .

Table 6-6
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 6-7
GNATCATCHER SITES AND CSS ACREAGE WITHIN
SPECIAL LINKAGE AREAS

SPECIAL LINKAGE	GNATCATCHER SITES ¹	CSS ACRES	OCCUPIED CSS ACRES	TOTAL ACRES
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.

The NCCP/HCP would authorize 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 and Frank R. Bowerman special linkages. The take is related to the proposed construction of golf courses, road and landfill facilities. For these *participating landowners* (i.e., County EMA HBP and IRWD for the Sand Canyon and Frank R. Bowerman Landfill Special Linkage Areas, and The Irvine Company for the Shady Canyon and Limestone Creek Special Linkage Areas), land contributions to the Reserve System, funding for NCCP planning and Implementation Agreement commitments for specified habitat/open space areas within these Special Linkage Areas have been determined to adequately mitigate proposed incidental take within the special linkages.

Non-participating owners of occupied habitat within Existing Use Areas would not be authorized to take occupied habitat under the NCCP/HCP and will be treated in the manner described in Section 6.3 below.

Proposed 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 recommended 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 6-8 and Figures 29 and 30). As indicated previously, the incidental take authorization for *participating landowners* affecting CSS habitat outside the Reserve System applies to all CSS whether the CSS is greater or less than the amount of CSS existing at the time of NCCP/HCP surveys. 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 *participating landowners* at the time the NCCP/HCP Implementation Agreement is signed,

development on these lands would be considered fully mitigated for purposes of gnatcatcher/CSS impacts and no additional mitigation would be required.

Table 6-8
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.

6.2.4 Proposed Incidental Take Authorized for *Non-Participating Agencies and Landowners To Be Mitigated Through Alternative Measures (Section 7 or 10 Permits or the Optional Mitigation Fees)*

Proposed Regulatory Approach for *Non-Participating Landowners*

According to the NCCP/HCP, unlike the first categories of proposed 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*. On lands located outside the Reserve System authorization for such incidental take will be addressed in one of the following ways, provided that the land is not classified as "Existing Use Area" (see Section 6.3):

- 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, owners of lands within the jurisdiction of local governments that are signatory to the Implementation Agreement, may exercise the Mitigation Fee option under the NCCP/HCP and choose to pay a fee to the reserve non-profit managing 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 would be fulfilled as soon as the designated funds are accepted by the non-profit managing authority. The NCCP Non-Profit would use these fees to fund restoration/enhancement activities within the reserve, or to purchase additional reserve lands. The mitigation fee under this option would be established by the NCCP Non-Profit and, as appropriate, periodically adjusted to reflect the actual costs of restoration and land.

Authorization and Mitigation of Proposed Incidental Take and Loss of CSS on the Lands of Non-Participating Landowner Properties outside the Reserve System

The NCCP/HCP proposes to authorize the conversion of up to 2,108 acres of CSS located on non-participating ownerships outside the Reserve System (Figure 30). As indicated in Table 6-5 and Figure 29, this incidental take of CSS could result in the loss of 11 identified gnatcatcher sites occupying 116 acres of CSS habitat. As noted above, the NCCP/HCP Mitigation Fee option would be available only for the lands of *non-participating landowners* located within local government jurisdictions that become signatory to the Implementation Agreement.

In the Central Subarea, eight gnatcatcher sites identified during NCCP surveys are proposed for 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.

In the Coastal Subarea, habitat supporting three (3) gnatcatcher sites is proposed for 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 other Coastal Subarea site is located on the southern edge of Aliso Viejo, adjacent to the Aliso-Wood Canyon Regional Park (Figure 29).

**Table 6-9
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
LAGUNA NIGUEL		0	0
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.

SECTION 6.3 EXISTING USE AREAS

Proposed Regulatory Approach - Maintain Regulatory Status Quo

In Existing Use Areas, the NCCP/HCP proposes to maintain the status quo of federal regulatory protection of the gnatcatcher. Accordingly, the NCCP/HCP does not authorize incidental take resulting from the conversion of habitat within Existing Use Areas occupied by coastal California gnatcatchers. So long as existing uses are maintained in these areas, no additional mitigation or habitat management would be required. However, if changes in use are proposed with the potential to result in take of gnatcatchers (as defined in FESA regulations) in these areas, the project proponent would be required to obtain approvals from

the USFWS and affected local jurisdictions subject to the gnatcatcher listing. As a matter of law, these requirements would also extend to any future listing, pursuant to FESA and/or CESA, of any species supported by Existing Use Area habitat.

Habitat Proposed To Be Subject to Continuing USFWS Regulation

Table 6-9 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 Existing Use Areas varies. About 1,100 acres of CSS habitat containing 87 gnatcatcher sites is located on *non-participating* ownerships within Existing Use Areas. 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.

Existing Use Areas in the city of Anaheim contain 450 acres of CSS and twenty (20) known gnatcatcher sites. In the City of Orange, a total of 181 acres of CSS support 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 three Existing Use Areas contain occupied gnatcatcher habitat. The Irvine/turtle rock area contains 29 gnatcatcher sites and 124 acres of CSS. In the City of Laguna Niguel, the lands owned by Robert O'Hill contain four gnatcatcher sites and about eighteen acres of CSS. This habitat could be impacted by a large-lot residential development plan that is now under consideration. In addition, the Salt Creek Corridor contains more than 140 acres of CSS and supports eight gnatcatcher sites.

SECTION 6.4

FUTURE TAKE WITHIN THE NORTH RANCH POLICY PLAN AREA

The NCCP/HCP does not propose to authorize incidental take of occupied CSS gnatcatcher habitat within the North Ranch Policy Plan Area. Therefore, the CSS habitat that supports the five gnatcatcher sites located within the North Ranch Area would be treated in the same manner as occupied CSS habitat located within designated Existing Use Areas (see Section 6.3). Any future proposals to convert occupied CSS habitat within the North Ranch Policy Plan Area would require approval by USFWS in addition to local government approvals.

SECTION 6.5

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 Implementation Agreement contains assurances by CDFG and USFWS to *participating landowners* relating to future impacts of "Planned Activities" (as defined in the Implementation Agreement) on species dependent upon or associated with specified "covered habitats" (see Figure 69), as well as CSS. Pursuant to Section 8.3.4(d) of the Implementation Agreement, USFWS will be responsible for any actions above and beyond the NCCP/HCP required to enable the USFWS to issue Section 10(a) permits to participating landowners if species dependent upon or associated with CSS (other than Identified Species) and/or the "covered habitats" are listed in the future. The USFWS commitments are subject to the extent of its legal authority as specified in the Implementation Agreement. The Implementation Agreement further provides that, in the event the USFWS actions are not sufficient to allow for the issuance of Section 10(a) permits, additional mitigation may be required if participating landowners wish to obtain Section 10(a) permits. These Implementation Agreement assurances are set forth more fully and reviewed in Chapter 8.

The total acreage of "covered habitats" that may be converted outside the Reserve System is as follows:

- 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).

Subject to the Implementation Agreement provisions requiring that the FESA Section 10(a) jeopardy standards must be met, CDFG and USFWS will, issue Section 10 and/or Section 2081 permits to *participating landowners* concurrent with the listing of species dependent upon or associated with CSS and the “covered habitats” for planned activities carried out by *participating landowners* in accordance with the NCCP/HCP (see Section 8.3.4(d) of the Implementation Agreement). As provided for in the Implementation Agreement, signatory local government CEQA commitments would apply to CSS and the “covered habitats” commencing with the “Effective Date” of the Implementation Agreement.

Table 6-10
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.

CHAPTER 7 ANALYSIS OF PROPOSED MITIGATION MEASURES

SECTION 7.1 CONCEPTUAL AND PROGRAMMATIC FRAMEWORK FOR THE REVIEW OF THE NCCP/HCP MITIGATION MEASURES

7.1.1 Mitigation in the Context of a Subregional Habitat Conservation Planning Program

The NEPA/CEQA concept of mitigation of impacts for a program undertaken on a regional scale necessarily reflects the goals of the program and the statutory standards addressed by the program. As indicated in Chapter 1, the purposes and goals of the USFWS, CDFG and the permit applicants are to fashion a habitat conservation planning and implementation program that addresses coastal sage scrub habitat on an ecosystem basis at a subregional level, pursuant to the State of California NCCP coastal sage scrub program.

The substantive regulatory standards to be applied in assessing the mitigation of project impacts reflect the subregional perspective of the Southern California NCCP Coastal Sage Scrub Habitat Program and the scientific conservation planning framework provided by the NCCP Conservation Guidelines. At the heart of the NCCP Conservation Guidelines are the tenets of reserve design and the policies that prescribe the formulation of an Adaptive Management Program. According to the NCCP Conservation Guidelines, the combination of a properly formulated Reserve System and a comprehensive Adaptive Management Program will allow for the mitigation of impacts of proposed incidental take such that the net habitat value of the subregion for "target species" will be maintained on a long-term basis.

As noted previously, three important conservation planning principles are reflected in the NCCP Conservation Guidelines:

- Creation of a Reserve System - the assemblage of large scale habitat reserves capable of protecting and maintaining populations of "target species" over the long term.
- Assurance of Connectivity - the provision of land areas necessary for the dispersal of target species and the ability to maintain genetic flow within and between areas.

- Adaptive Management - the creation of an institutional basis and program for undertaking management actions necessary to sustain populations over the long term, and in so doing, to adapt management actions to new information and changing habitat needs.

7.1.2 Summary of the Programmatic Elements of the NCCP/HCP Intended to Mitigate Proposed Take

In Chapter 3, the programmatic elements of the NCCP/HCP intended to apply the above conservation planning principles of the NCCP program were summarized as follows:

1. Reserve System - Creation of a publicly-owned 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);
2. Special Linkages - Designation of "Special Linkages" to enhance biological connectivity within the Reserve System and subregion;
3. Adaptive Management Program - Implementation of an "adaptive management" regime within the Reserve System, as recommended by the state's NCCP Conservation Guidelines;
4. 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;
5. Funding - Establishment of a funding program to pay for creation of the Reserve System, adaptive management and other mitigation measures; and
6. Mitigation Program for Non-Participating Landowners - Provisions for mitigation of CSS impacts on lands located within the subregion but outside the Reserve System and owned by landowners who have not participated in the assemblage and management of the Reserve System through the contribution of reserve lands or planning/implementation funding.

The first five program elements summarized above are intended to serve as mitigation provided on the part of *participating landowners* for proposed incidental take for which they are

responsible, both outside and within the Reserve System. As noted above, the final program element is proposed under the NCCP/HCP to serve as a vehicle by which *non-participating landowners* may mitigate the impacts of incidental take on their lands.

The following subsections assess the extent to which the above programmatic features of the NCCP/HCP mitigate the potential significant impacts of proposed incidental take, both on the part of “*participating landowners*” and on the part of “*non-participating landowners*”.

SECTION 7.2 MITIGATION PROVIDED BY THE NCCP/HCP RESERVE SYSTEM AND ASSOCIATED LANDS

7.2.1 The NCCP/HCP Reserve System and Special Linkage Areas

In order to assess the extent and manner in which the proposed Reserve System and Special Linkage elements of the NCCP/HCP mitigate the impacts of proposed incidental take, it is necessary first to examine the biological principles that guided the formulation of these two program elements.

A. Tenets of Reserve Design as Applied by the Central and Coastal NCCP/HCP

Each of the tenets of reserve design set forth in the NCCP Conservation Guidelines (see Appendix 3) was further elaborated upon by the NCCP/HCP so that the broader conservation planning principles of the reserve design tenets could be applied in practical terms to the planning subregion. The following excerpt from the Central and Coastal NCCP/HCP explains the specific biological rationale used in formulating the reserve design under environmental review (the actual language of the NCCP Conservation Guidelines is underlined):

1. Conserve 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. Larger reserves are better: 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.

3. Keep reserve areas close: Blocks of habitat that are close to one another are better than blocks of habitat 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. The presence and type of linkages 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.

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 efforts to remain viable, and reserve habitats in the ten-acre range will often not be viable in the long run. (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.

5. Link reserve with corridors: Interconnected blocks of habitat serve conservation purposed better than isolated blocks of habitat. Corridors or linkages function better when the habitat within them resembles habitat that is preferred by target species.

- 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).
- Corridors function best when they contain native habitat (*e.g.*, coastal scrub, mollified 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. 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. Reserves should be biologically diverse: Blocks of habitat should contain a diverse representation of physical and environmental conditions.

- 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.

- Larger areas typically support a greater species richness owing to increased habitat heterogeneity in larger patches.

7. Protect reserves from encroachment: Blocks of habitat that are roadless 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 (e.g., non-native grasses) 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 firebreaks 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 functionally intertwined. For example, larger reserves (paragraph "2" above) are likely to encompass greater habitat heterogeneity and, in turn will be more diverse (paragraph "6" above). Hence, adherence to the principles expressed in paragraph "2" will contribute to satisfying the requirements set forth in paragraph "6" - the preservation of biologically diverse reserve units. Likewise, the principles expressed in paragraphs "4," "5," and "6" all are related to geographic proximity and connectivity of reserve units. If reserve units are close (paragraph "3") and/or contiguous (paragraph "4"), corridors and linkages (paragraph "5") will be maintained. If reserve units are close but not contiguous, corridors may have a more important role.

B. NCCP/HCP Reserve Design Process

The NCCP/HCP reserve design process involved the use of existing biological information, field analysis by the staff biologists of USFWS and CDFG in cooperation with the NCCP/HCP consulting biologist and review of specific species and habitat issues with local biologists and scientists on an ad hoc basis. The overall process was interactive, with USFWS/CDFG staff biologist involvement occurring at each step of the process.

Regarding scientific information used in the NCCP/HCP reserve design process, the primary data and information sources summarized in Chapter 4 were expanded upon by additional information obtained from sources such as the Natural Diversity Data Base of Sensitive Species developed and maintained by the California Department of Fish and Game. In addition, information from numerous EIR/EISs of previously completed projects were incorporated to the initial assessments and the Orange County GIS. (Appendix 7 contains all cited field survey reports/data).

Once the basic survey information was incorporated into the planning of the proposed Reserve System and the essential design elements were defined, additional input was folded into the iterative process through a number of planning meetings with an informal Working Group. The recommendations of the Working Group were considered by the NCCP/HCP consultant team and were available for independent review and comment. At each step of the process, reserve design proposals and alternatives were reviewed by agency biologists.

The ongoing iterative review process of the NCCP/HCP included input from a number of environmental consultants, biologists and planners from: private industry, local jurisdictions, environmental groups as well as a cross section of State and Federal agencies with special expertise. Chapter 11 lists the persons and organizations consulted during the NCCP/HCP planning process. As indicated, staff of The Nature Conservancy with expertise in CSS and oak woodlands management, and local raptor and amphibian experts were consulted among others.

The public review process allowed wide dissemination of the NCCP/HCP and the various components of the proposed plan. This process offered an additional opportunity for scientific and expert review of the proposed plans, with specific comments addressed in the Response to Comments and revisions to the Final NCCP/HCP and Final EIR/EIS (Species covered as Identified Species, additional conditions of coverage and additional species treated as conditionally covered species, revisions to the "covered habitats" provisions of the Implementation Agreement were among some of the issues responded to). The resulting NCCP/HCP represents the culmination of the extensive ongoing iterative review and assessment, using what the USFWS and CDFG consider to be the best scientific information available in a manner consistent with the principles of conservation biology and in the context of effective and comprehensive land use planning at the local government level.

The NCCP program acknowledges that additional research will be needed to improve conservation of CSS and other habitats. The State and federal agencies as well as participants

have begun or will soon initiate research in six areas: 1) biogeography and inventory of CSS community using GIS, 2) trends in biodiversity, focusing on species/area relationships and isolation effects, 3) dispersal characteristics and landscape corridor use, 4) demography and population viability analysis for target and other species, 5) surveys and autological studies of sensitive animals and plants, and 6) baseline and continuing genetic studies. The additional studies will direct adaptive management and increase scientific understanding for effective management of habitats and species within the Reserve System. Ongoing research within the Southern California NCCP region includes more than 60 studies that focus on the first five of these areas.

C. Assessment of Conformity of the Proposed Central and Coastal Reserve System with the NCCP Tenets of Reserve Design

1. Coastal Subarea Reserve and Special Linkage Areas

- NCCP/HCP Reserve Design Objectives

As presented in Chapter 3 of the NCCP/HCP, the regional scale NCCP Conservation Guidelines were translated into geographically specific subregional reserve design objectives for each of the two NCCP/HCP subareas. The NCCP/HCP reserve design objectives for the Coastal subarea are:

- 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/Wood Canyon area, 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).

- Incorporate other biologically important habitat as practical and to the degree consistent with manageability considerations.
- Determine whether there is any potential link to other subareas/subregions.

-- Protection of Core Habitat and Important Peripheral Areas

Figure 16 depicts the Coastal subarea reserve design and Special Linkage Areas in relation to significant populations of target species and associated habitat. In conformance with NCCP reserve design tenets, the Coastal subarea reserve protects core habitat throughout the San Joaquin Hills. The functionally contiguous core habitat areas of the reserve contain all but one of the substantial concentrations of target species found in the Coastal subarea. Additionally, the Coastal subarea reserve includes important peripheral areas which function as refugia and recolonization sources in the event of fire or other catastrophic event, and includes Crystal Cove State Park, the Sand Canyon Reservoir area, Sycamore Hills, the Aliso/Wood Canyon area, Buck Gully and Upper Newport Bay.

-- Reserves Should Be Diverse

Consistent with the NCCP Conservation Guidelines' emphasis on bio-diversity within reserve areas, other biologically important habitat has been incorporated into the Coastal reserve. These areas, each of which has been contributed through pre-NCCP planning efforts, include Aliso/Wood Canyon, Laurel Canyon and upper Los Trancos Canyon. Indicative of the bio-diversity considered essential to reserve design under the NCCP Conservation Guidelines is the fact that more than 50% of the Coastal subarea reserve includes high quality, non-coastal sage scrub habitats such as riparian zones, oak woodlands, different forms of chaparral, rock outcrops and grasslands (see Table 7-1 and Figure 16).

-- Larger Reserves with Contiguous Habitat are Better

In the context of the Coastal subarea reserve design, the planning and acquisition actions taken by the Coastal Commission, the State Department of Parks and Recreation, the County of Orange, the City of Laguna Beach and the City of Irvine between 1979 and the present have

combined to remove from development more than 10,000 acres of land that had been designated for development. These lands, which constitute the core habitat areas of the Coastal subarea reserve, were shifted to permanent open space/habitat protection through a combination of public acquisition and master-planning dedication requirements which were reviewed in Chapter 5.

Approximately \$36 million for Crystal Cove State Park and \$30 million for the Laguna/Laurel, Sycamore Hills acquisitions has been spent to date on public acquisitions of open space (see Figure 37). Additionally, to date approximately 4,200 acres have been dedicated (including offers which can legally be accepted by public agencies at present) as open space in Aliso/Wood Canyons, the Irvine Coast, Los Trancos Canyon and Buck Gully. Additional acreage is committed for dedication in the Irvine Coast LCP area and in the City of Irvine San Joaquin Hills open space reserve areas (see Figure 20). The expenditure of public funds and private landowner open space dedication commitments reflect the combined efforts of these parties to protect large, contiguous blocks of diverse habitat which, in turn, protects the vast majority of occupied CSS in the subarea.

As reviewed in Chapter 5, these pre-NCCP planning undertakings, in many instances, also mirror and anticipate the current directives of the NCCP guidelines for reserve design and connectivity. In contrast with the fragmented "planning landscape" of some other Southern California NCCP sub-regions, the product of the coastal San Joaquin Hills planning programs is a 16,000 acre greenbelt (see Figure 37). Due to the contribution of prior "avoidance" actions to the assemblage of the core habitat areas of the reserve, the NCCP/HCP indicates that the NCCP Coastal subarea reserve design has placed greater emphasis on assuring consistency with the NCCP Conservation Guidelines emphasis on "connectivity" (see Figure 29), as reviewed below, than on assembling core habitat.

-- NCCP "Connectivity Planning": Protection of Essential Linkage Areas within the Reserve and between the Reserve and Important Peripheral Areas

With the ability to focus land planning on "connectivity" functions, the Coastal subarea reserve design proposes further "avoidance" actions directed toward creating and enhancing connectivity both within the Coastal subarea reserve and between the main portions of the reserve and Upper Newport Bay (see Figures 16, 29 and 54). These new Reserve and Special Linkage Areas connect Buck Gully, Upper Newport Bay and San Joaquin Marsh as follows (see Figure 54):

- A Special Linkage through the El Capitan Park connects Buck Gully and the San Joaquin Reservoir/Bonita Reservoir area (a block of habitat with 17 gnatcatcher sites and five cactus wren sites). The reservoir area is connected to Upper Newport Bay and San Joaquin Marsh via new NCCP Reserve areas along Bonita Creek, which is to be restored as a habitat corridor after construction of the SJHTC. Special Linkage Areas provided for through the Irvine Company Shady Canyon Project Special Linkage Area commitment and the County of Orange/IRWD Sand Canyon Reservoir Special Linkage (created as part of a golf course project) are proposed to assure connectivity between the primary San Joaquin Hills areas of the reserve inland of the SJHTC and the Sand Canyon Reservoir area populations of target species.
- A linkage and NCCP Reserve area on the north slope of Signal Peak crosses the SJHTC via a planned wildlife under crossing to a block of habitat between the SJHTC and Newport Coast Drive containing four gnatcatcher sites and two cactus wren sites. This habitat area in turn connects to the San Joaquin Reservoir/Bonita Reservoir area via the SJHTC's restoration area on the closed Coyote Canyon landfill (pursuant to the Section 7 consultation mitigation conditions) is augmented by a Special Linkage through a proposed golf course on a portion of the landfill (see Figures 53 and 54).
- A block of habitat (with six gnatcatcher and six cactus wren sites) has been added to the reserve on a ridge above the SJHTC to further augment the northern linkage in the portions of the reserve inland of the SJHTC (Figure 53).
- Preservation of habitat due to the proposed deletion of the SJHTC/Sand Canyon Road interchange and the San Joaquin Hills Road extension in the Irvine Coast/San Joaquin Hills Planned Community area and the planned deletion of Sand Canyon Avenue, the Lake Forest Extension and the Bonita Canyon Extension originally planned to be located in the City of Irvine GPA 16 portions of the reserve and within the Shady Canyon Special Linkage (see Figures 46 and 51).

Thus, a combination of prior land use/coastal planning and NCCP reserve design planning has resulted in protection of the following connectivity linkages between core habitat and peripheral areas (Figures 12 and 16):

Table 7-1
Coastal Subarea Summary
 Vegetation, Target Species, and Proposed Habitat Reserve

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%	1.0%	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%	1.0%	0.7%	0.8%	96.6%	100.0%

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.



- Crystal Cove State Park to the San Joaquin Hills via Los Trancos Canyon and Muddy Canyon;
- Los Trancos Canyon to Buck Gully through the Planning Area 11 Special Linkage and the Newport Coast Golf Course Special Linkage;
- the Sand Canyon Reservoir area to the San Joaquin Hills via Quail Ridge and a Special Linkage zone oriented around the proposed golf course in lower Shady Canyon;
- Sycamore Hills and Aliso/Wood Canyon to the San Joaquin Hills via Laguna Canyon;
- 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 natural and 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 resulting from mitigation measures and approval conditions provided for through the SJHTC EIR/EIS and Section 7 FESA consultation;

Although Special Linkage Areas are not part of the NCCP/HCP Reserve System, the habitat protection and connectivity commitments made by *participating landowners* are assured through the provisions of Sections 5.2.1 and 6.1 of the Implementation Agreement and, therefore, are properly considered in assessing consistency with the NCCP Conservation Guidelines and as mitigation measures pursuant to CEQA and NEPA. A more detailed analysis of the connectivity functions of each Coastal Subarea linkage is set forth in Chapter 4 of the NCCP/HCP. NCCP/HCP Policies which serve as mitigation measures are identified in Section 6.1 of the Implementation Agreement.

-- NCCP "Connectivity" Planning: Linkages with Other NCCP Subareas

During the preparation of the NCCP/HCP, it was proposed that a north-south biological corridor be fashioned to directly link the Central and Coastal subareas. The potential corridor

would involve enhancing the San Diego Creek Channel through The Irvine Company Spectrum area in order to link the Coastal subarea with the southerly portion of the 1,033-acre El Toro MCAS area proposed for eventual inclusion within the Central subarea reserve.

San Diego Creek flows from tributaries in the Lomas de Santiago and eventually discharges its flows into Upper Newport Bay via a circuitous route that has been significantly altered by agricultural activities and urban flood control facilities. Where riparian or other natural habitat continues to exist, the width of the natural corridor is generally fairly narrow (except in the vicinity of Planning Area 34). Due to stream bed alterations preceding the NCCP planning process, continuous natural habitat does not exist, and in many areas, the creek is a channelized flood control facility surrounded by intense urban development.

The degraded/altered character of much of the creek, in combination with limited remnant riparian habitat (in relation to the length of the creek), its narrow width in many areas, close proximity of urbanized uses and the costs that would be required (both acquisition of extremely valuable land and major riparian restoration) to achieve a wildlife movement corridor functional in any sense, are all factors that to lead to a conclusion that the technical and economic feasibility of such an undertaking could not be shown. Additionally, discussions with resources agency staffs indicated that, even if the corridor were to be acquired and constructed, the biological viability of such a corridor (*i.e.*, environmental feasibility) was extremely suspect and the expected connectivity capability of the corridor would be marginal. For these reasons, it has been determined that a direct linkage between the Central and Coastal subareas is infeasible in technical, economic and environmental terms.

As an alternative to a direct Central and Coastal linkage, the NCCP/HCP provides for an inter-subregion linkage through the Salt Creek corridor connecting the Coastal subarea with the Southern Orange County NCCP subregion by including portions of the corridor within the reserve (City of San Juan Capistrano) and designating other portions (about 800 acres in the cities of San Juan Capistrano and Laguna Niguel) as Existing Use Areas (see Figure 56). This linkage is approximately five miles long and typically is approximately 1,000 feet wide. The linkage area extends through the Southern NCCP area via Trabuco Creek and the O'Neill Regional Park to connect with the Central Subarea north of the Oso Reservoir via the SCE corridor habitat linkage adjacent to Portola Ranch. In this way, the Coastal subarea is effectively linked to the Central subarea via the connectivity with the Southern NCCP subregion. In addition to the linkage function provided by this area, the inclusion of the Salt

Creek corridor in the Reserve System would result in the protection of an important population of target species.

2. Central Subarea Reserve and Special Linkage Areas

-- NCCP/HCP Reserve Design Objectives

The NCCP/HCP program defined the following reserve design objectives 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 climate 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 potentially other hillsides in the Orange/Anaheim area
- Provide linkages between the core habitat areas and the population concentration areas. Connect the concentration areas with 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 Southern NCCP Subregion.
- Incorporate other biologically important habitat as practical and to the degree consistent with manageability considerations

-- Protection of Core Habitat and Important Peripheral Areas

Figure 15 depicts the Central subarea reserve design in relation to significant populations of target species and associated habitat. The proposed additions of The Irvine Company lands on the frontal slopes of Lomas Ridge and Limestone Canyon and the Department of Defense El Toro MCAS lands, in combination with previously committed regional open space areas, protect the habitat of all but one of the substantial concentrations of target species populations in the subregion. Core habitat on the frontal slopes of the Lomas de Santiago and Weir Canyon is included in the proposed reserve. A review of Figures 7, 8 and 15 indicates that the reserve design is consistent with the NCCP reserve design precept to "conserve target species throughout the planning area."

The only large block of habitat in the Central subarea not directly addressed by the reserve design is the North Ranch Policy Plan Area (see Figures 24 and 30). Due to distinctly different habitat characteristics (elevational/habitat differences - see Figures 13 and 17) and the absence of detailed target species and habitat inventories that would allow for site-specific planning, this area was excluded from the NCCP/HCP planning effort with the concurrence of USFWS and CDFG. However, the NCCP/HCP provides assurances that habitat conservation and development planning will be carried out in accordance with policies protective of the Central reserve area functions and in furtherance of connectivity between the reserve and Cleveland National Forest (see discussion in Subsection "3" below)].

-- Larger Reserves with Contiguous Habitat Areas Are Better

As noted above, several areas with locally high densities of gnatcatchers and cactus wrens not contained within previously committed open space are included in the proposed reserve, including the magazine area of MCAS El Toro, the Siphon Reservoir area and the Rattlesnake Reservoir area (see Figure 60).

The El Toro property currently is used for training and magazine (ordinance) purposes. The Irvine Company acreage in the vicinity of the Siphon and Rattlesnake Reservoirs currently is designated for residential use on 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 The Irvine Company frontal slope lands actually were acquired by the TCA from The Irvine Company 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 Irvine Company and El Toro 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 Irvine Company 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. The Irvine Company-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 gnatcatcher source 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 eight percent of the total subregional reserve area, but contain 37 percent of the subregional gnatcatcher sites. 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. Therefore, the importance of these two components to the Reserve System is much greater than indicated solely by the acreage total.

The only population concentration not included in the reserve is not feasible to avoid because:

- (a) it is an island of habitat severely impacted by existing and future urban development and
- (b) it is not susceptible to long-term management due to these factors and to its distance from core habitat (see more extensive discussion in Chapter 5). Consequently, the proposed Central subarea reserve design conforms with the NCCP reserve design tenet that "large blocks of

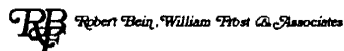
Table 7-2
Central Subarea Summary
 Vegetation, Target Species, and Proposed Habitat Reserve

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										
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%		15%	100%	
Cactus Wren	Total Sightings	409	9	44		14		113	589	
	% of Study Area	69%	2%	7%		2%		19%	100%	
Total Sightings	615	13	90	3	19			159	899	
Total % of Study Area	68%	1%		0.3%	2%			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%	0.4%	0.7%	0.2%	0.2%	0.1%	0.8%	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.



habitat containing large populations of the target species are superior to small blocks of habitat containing small populations." Thus, the combination of avoidance actions resulting from pre-NCCP regional open space planning and land areas proposed to be added to the reserve by NCCP/HCP have protected core habitat and important peripheral areas to the maximum extent feasible, in a manner consistent with the NCCP Conservation Guidelines.

The Central subarea reserve design is also consistent with the following precept from the EA for the 4(d) Rule:

Land to be incorporated into the reserve network would be selected [under the NCCP Conservation Guidelines] 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.

-- Reserves Should be Diverse

In addressing the NCCP Conservation Guidelines' emphasis on providing for bio-diversity within the reserves, past and proposed avoidance actions have included substantial areas of diverse habitat including major oak woodlands in the Limestone Canyon and Weir Canyon.

Overall biodiversity within the Central subarea is also 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:

- 823 acres of CSS located in three Special Linkage and three Existing Use Areas;
- 1,089 acres of land in other permanent public open space, but located outside the Reserve System;
- the 9,456-acre North Ranch Policy Plan Area (NRPPA) that is designated to protect CSS and other habitat pending completion of planning and to protect the function of the Reserve System proposed in this NCCP/HCP; and
- the 26,404 acres of natural habitat contained within the Cleveland National Forest.

-- NCCP/HCP "Connectivity" Planning: Protection of Essential Linkage Areas within the Reserve and between the Reserve and Important Peripheral Areas

Pre-NCCP and NCCP/HCP-proposed avoidance actions contribute the following significant linkages to the Central reserve:

- Linkages between the core habitat areas and the high concentrations of target species populations are provided by:
 - MCAS El Toro magazine area is connected to core habitat via several parallel strips and large patches of natural habitat between Portola Parkway and the Foothill Transportation Corridor (see Figure 60).
 - Linkages in the form of the previously described consolidation of the Lomas de Santiago frontal slopes, Siphon Reservoir area, and Rattlesnake Reservoir area into a block of contiguous, preserved habitat (see Figure 60)
- Linkages through the EOGPA 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 (see Figure 61). The proposed reserve includes a similar linkage between the Weir Canyon dedication area and the CDFG Coal Canyon preserve through the Windy Ridge dedication area which ultimately connects to the Cleveland National Forest (see Figure 62).

As noted in the review of the proposed Coastal subarea reserve, the Special Linkage commitments are sufficiently assured to allow for their consideration in connection with this assessment of conformity with the NCCP Conservation Guidelines and as mitigation. A more detailed analysis of Special Linkage Areas in the Central subarea is set forth in Chapter 4 of the NCCP/HCP.

-- NCCP "Connectivity" Planning: Linkages with Other NCCP Subareas

The Weir Canyon/Windy Ridge/CDFG Coal Canyon preserve linkage within the reserve also provides a subregional linkage to the north toward the 12,000 acre Chino Hills State Park and CSS HCP areas in northern Orange County. Although the northern portion of Orange County is not a formal NCCP planning subregion, a major HCP employing the NCCP Conservation

Guidelines criteria has recently been completed and a Section 10(a) permit is anticipated in the near future for this HCP in the northern Orange County area (see Shell/MWD Summary in Appendix 18). A central element of the regional conservation strategy articulated in that HCP is a program to add significant CSS habitat in Carbon Canyon and the Shell Northeast Preserve to Chino Hills State Park and to initiate habitat enhancement and restoration, along with fire management, for the portions of Chino Hills State Park in the vicinity of the cities of Yorba Linda and Brea. The Shell/MWD HCP conservation strategy further indicates that this preservation/enhancement/restoration program could then be expanded upon by State Parks to strengthen CSS habitat linkages with other large-scale regional open space areas in San Bernardino and Orange Counties (see discussion in Appendix 18). Thus, the Weir Canyon/Windy Ridge/CDFG Coal Canyon preserve elements of the Central subarea reserve provide significant connectivity linkages with the Chino Hills State Park area already identified as a central element of the regional CSS strategy by USFWS and CDFG in the anticipated approval of the Shell/MWD HCP (see Figure 62).

Linkages to the Southern Orange County Region are provided via (1) a higher elevation linkage northeast of Cook's Corner and (2) a lower elevation linkage through Whiting Regional Park owned by one of the *participating landowners*, the County of Orange, and NCCP-proposed acquisition of lands owned by Southern California Edison, another of the *participating landowners* (see Figure 60). The NCCP/HCP indicates that the purchase of the Portola parcel owned by SCE is essential to this linkage and that funding for the purchase will be the highest priority for the NCCP/HCP implementation program.

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 Cleveland National Forest, 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. Habitat linkages included within the

proposed reserve adequately provide for animal movement within the subarea. Therefore, These past and proposed avoidance actions provide for subregional "connectivity" consistent with the NCCP Conservation Guidelines.

3. Areas of the Subregion not Addressed by the Proposed Reserve Design - Impacts on Reserve Design and Connectivity and on Protection of Significant Populations of Target/Identified Species

The NCCP/HCP reserve design does not address two portions of the Central/Coastal Subregion - an area termed the "North Ranch Policy Plan Area" and the Cleveland National Forest (see Figure 30). The following subsections review the reasons for not including these areas within the proposed Reserve System (and the associated incidental take analysis, particularly the differences in habitat types, relative limited numbers of NCCP target species and elevation differences. This analysis will conclude with an assessment of the measures taken to assure that future planning in these areas with potential impacts on the NCCP Reserve System and the overall implications of the NCCP/HCP proposals for these areas as they relate to the biological integrity of the proposed Reserve System/consistency with the NCCP Conservation Guidelines. It is important to note that, as proposed by the NCCP/HCP, the treatment of the North Ranch Policy Plan Area and the Cleveland National Forest is neither intended to propose incidental take to be authorized nor to rely in any way on mitigation provided by the NCCP/HCP creation and management of the Central/Coastal Reserve System for take within the North Ranch Policy Plan Area and the Cleveland National Forest ("CNF").

-- North Ranch Policy Plan Area (North Ranch Area)

This component of the overall conservation strategy involves a 9,456-acre portion of the subregion owned by The Irvine Company and located in the Central subarea (Figure 30). The North Ranch Area is located in the unincorporated area, within the Sphere of Influence of the City of Orange. This area is 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, 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 North Ranch Area.

According to the NCCP/HCP, the need to designate this portion of the subregion as a "policy plan area" rather than including it within the proposed 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" (see Figures 7 and 8). Second, chaparral, not CSS, is the dominant habitat within this portion of the subregion (see Figure 4). 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 (see Figure 17). Fourth, as noted above, the vast majority of this area has not undergone general planning. Finally, the landowner (The Irvine Company) has indicated that it has no immediate (next five years) plans to commence development within this area.

The North Ranch Area is proposed to bridge 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 the delineation of site-specific habitat corridor linkages and habitat preservation areas.

In response to this situation, and based on the analysis of the biological functions of these areas conducted by USFWS in conjunction with a proposal to "swap" portions of the North Ranch Area for lands at MCAS El Toro (see Appendix 17), the NCCP/HCP proposes to implement coordinated conservation and development planning within the North Ranch Area consistent with the following policies applicable to Irvine Company ownership (The Irvine Company owns the vast majority of the North Ranch 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 bio-diversity goals. The expected result of implementing the NRPPA 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, thereby providing protection for multiple species within the North Ranch Area.

2. By addressing subregional bio-diversity 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. The Irvine Company 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 with regard to the NCCP target species. Generally, unless the subject CSS meets the priority criteria in Policy 4, 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 bio-diversity.
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 bio-diversity 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 The Irvine Company 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 bio-diversity 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 rather than small, inter-connected fragments of open space.
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, The Irvine Company, and local government jurisdictions will provide the basis for amendments of the NCCP/HCP, the Implementation Agreement, and Section 10(a) permits for The Irvine Company.
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).

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 inside the Congressional Boundary is privately owned. 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' 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 the proposed NCCP/HCP and must be reviewed by CDFG and USFWS, consistent with the requirements of FESA, CESA, and the NCCP Planning Guidelines.

-- Conclusions Regarding Planning Status of the North Ranch Policy Plan Area and the Cleveland National Forest with Respect to the Consistency of the NCCP/HCP Reserve System with the Tenets of Reserve Design

The absence of significant populations of NCCP target species within the NRPPA and the Cleveland National Forest indicate that the decision to defer NCCP planning for these areas will not significantly affect the NCCP/HCP's ability to protect significant populations of NCCP target species. Given the connectivity features of the proposed Central reserve previously reviewed, the proposed planning status of the NRPPA will not impede the ability to manage a reserve consistent with the NCCP Conservation guidelines tenets of reserve design. Additionally, the provisions for mitigating any impacts of activities allowed under future NRPPA planning in accordance with applicable law, as well as the planning principles regarding enhancing connectivity of the NCCP/HCP Reserve System and connectivity between the NCCP/HCP reserve and the Cleveland National Forest, indicate that future planning will extend NCCP planning criteria to the remainder of the subregion.

With respect to subregional bio-diversity goals, the NRPPA planning principles specifically emphasize subregional bio-diversity. Regarding subregional connectivity planning, the NRPPA planning principles specifically address three major areas of emphasis on connectivity planning that reflect previous USFWS planning (see Appendix 17). Because the Cleveland National Forest is owned by and under the direct jurisdiction of the federal government, it is assumed that USFWS will carry out its statutory mandate under FESA Section 7 to protect listed species and otherwise use its authority within the Department of the Interior to assure that federal land management actions do not preclude future NCCP planning for the Cleveland National Forest.

4. Conclusions Regarding Consistency of the NCCP/HCP with the NCCP Tenets of Reserve Design: Assessment of Significance of Protected CSS in Comparison with Unprotected CSS and Overall Bio-diversity of the NCCP/HCP Reserve System

As noted in Chapter 3, the Coastal subarea reserve includes 16,647 acres of wildlands in and surrounding the Laguna and San Joaquin Hills. Within this reserve, CSS constitutes 49% of the total wildlands. Other important habitat components include chaparral (20%) and grasslands (18%). Virtually all of the CSS within the Coastal Subarea Reserve System (96 %) is found at elevations below 900 feet and 100% of the reserve CSS is below the 1,200 foot elevation (see Figure 17). 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 gnatcatcher sites and 77% of the cactus wren sites surveyed in the subregion are located and protected within the reserve itself and within Special Linkages and Existing Use Areas (see Figures 15 and 16).

The Central subarea reserve contains 18,531 acres 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 49% of the reserve land area.

Other major habitat types included within the subarea reserve include chaparral (19%), grasslands (15%), riparian habitat (5%) 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 (see Figure 17). Approximately 70% of gnatcatcher sites located in NCCP surveys and 73% of cactus wren sites are found in areas located within the reserve. All but one substantial population of gnatcatchers are located within the reserve or in Special Linkage Areas.

In response to the NCCP Conservation Guidelines' emphasis on bio-diversity, 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 proposed reserve contains:

- 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.

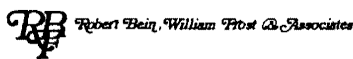
Table 7-3
Central & Coastal Subregion NCCP
Vegetation, Target Species, and Proposed Habitat Reserve

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	18,527	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				42	53
Marsh	343		29	234				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				2	563	43	5	804
Cliff and Rock	74	7	1	1	14	29	12	35	173
Marine & Coastal	362		15	0				1,553	1,930
Lakes, Reservoirs, Basins	99	10	1	790			0	456	1,357
Water Courses	182	1	22	8	0		9	563	784
Agriculture	577	90	5	83			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			108	600
Cactus Wren Total Sightings	671	39	64		14			206	994
Total Sightings	1041	59	151	10	19			314	1594
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

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

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.



The consistency of the reserve design with the NCCP emphasis on bio-diversity also requires an assessment of 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 almost 10 percent of the CSS habitat within the subregion.

While no specific share of subregional habitat types can be considered protected over the long term within the North Ranch Policy Plan Area (North Ranch Area), it is reasonable to conclude 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 proposed reserve design.

5. Consideration of Further Reserve Design Revisions to Mitigate any Adverse Effects of Reserve Design Modifications made during the Response to Comments Review Period

Several changes to the Reserve System, Existing Use Area and Special Linkage boundaries were made in response to public comments and to correct several GIS map registration errors. These revisions have been incorporated into the Final NCCP/HCP and are reflected in this FEIR/FEIS and Final Implementation Agreement. These revisions in Reserve System, Existing Use Area and Special Linkage designations are summarized below.

The net result of the changes to the proposed habitat reserve boundary is depicted in Figures 74 and 75 (showing the types/locations of map changes) and as acreage changes in the NCCP/HCP, EIR/EIS and Implementation Agreement. All tables, maps and text numbers contained in the cited documents have been modified to reflect the boundary and related acreage changes.

- **Changes to the Habitat Reserve System Boundary**

Some areas formerly included in the habitat Reserve System have been 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 summary table in General Response to Comments #13). The change in classification for these areas does not represent a reduction in habitat protection in

terms of the amount of authorized incidental take because no take is authorized in the subject areas under the NCCP/HCP and Implementation Agreement.

- **Revised Salt Creek Corridor Designation**

In terms of the overall subregional conservation strategy, the most significant impacts involve changes within the City of Laguna Niguel that affect the biological linkage corridor through Salt Creek, which links the Coastal Subarea Reserve and the South Subregion. Shifting the Salt Creek Corridor from a “reserve” to an “Existing Use Area” designation eliminates the prospect for adaptive management under the NCCP/HCP within this corridor. It also raises the question of whether the biological connectivity provided by this corridor can be protected.

Because the NCCP/HCP does not authorize take in Existing Use Areas, the gnatcatcher sites in the corridor retain protection under the FESA. When and if the local government and/or landowner propose changes to existing land uses/site conditions within these areas, USFWS and CDFG will review the subject plans under the authority provided by the FESA, CESA and NCCP Guidelines, as appropriate. This review will include a consideration of the “connectivity” role of the occupied habitat; and the appropriate regulatory approval, if granted, will reflect both on-site biology and subregional connectivity considerations. If the local jurisdiction is a signatory jurisdiction to the Implementation Agreement, the applicant may obtain a federal permit authorizing incidental take under FESA (Section 10(a)) or Section 7 Consultation, or the USFWS can determine whether payment of the mitigation fee to the non-profit management corporation would be more appropriate. If the landowner is located within a jurisdiction NOT signatory to the Implementation Agreement, payment of the optional mitigation fee is not allowed and the project applicant may obtain incidental take authorization only through Section 10 permit application or Section 7 consultation.

- **Effects of the Boundary Revisions on Findings of NCCP/HCP Consistency with FESA, CESA and the NCCP Conservation Guidelines**

The boundary revisions incorporated into the NCCP/HCP as result of local agency and other comments have been evaluated to determine whether they would affect the prior “consistency” findings contained in the Draft EIR/EIS and Implementation Agreement. For the reasons set forth below, the lead agencies have 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 are consistent with the NCCP Conservation Guidelines and that address the requirements of FESA and CESA:

- Revisions to reserve boundaries do not impact core habitat areas or areas containing significant target species populations.
- Boundary revisions do not authorize take of habitat within areas considered important to subregional and regional biological connectivity.
- Boundary revisions do 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 consist 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 relating to GIS registration/translation problems resulting from combining different databases (e.g., in the Mountain Park area) do not impact habitat value or reserve function.
- Other peripheral areas deleted from the reserve are existing or necessary future fuel modification areas and, therefore, would 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 is mitigated by its designation as an "Existing Use Area," a designation that would prohibit 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 maintain 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.
- Based on the above determinations, the boundary revisions do not alter the findings contained in the EIR/EIS 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 do not affect the conclusions reached above regarding the contributions of the Reserve System to mitigation on the part of *participating landowners*.
6. Conclusions: Consistency of the Proposed NCC/HCP Reserve System and Special Linkage Areas with the Tenets of Reserve Design of the NCCP Conservation Guidelines

For the reasons set forth in the preceding subsections, 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, 15 16, 17, 29, 32 and 33 portray the consistency of the NCCP/HCP with this tenet of reserve design.

- NCCP Guidelines: Larger reserves are better.

NCCP/HCP Consistency: Figures 12, 15 and 16 portray the consistency of the NCCP/HCP with this tenet.

Table 7-4
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

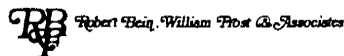
Notes:

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.



- NCCP Guidelines: Keep reserve areas close.

NCCP/HCP Consistency: Figures 12, 15, 16 and 30 portray the consistency of the NCCP/HCP with this tenet.

- NCCP Guidelines: Link reserves with corridors.

NCCP/HCP Consistency: Figures 12, 15, 16, 22, 32, 53, 54 and 6 portray the consistency of the NCCP/HCP with this element of the reserve design guidelines .

- NCCP Guidelines: Reserves should be diverse.

NCCP/HCP Consistency: Figures 15 and 16 portray the consistency of the NCCP/HCP with this aspect of the tenets of reserve design.

- NCCP Guidelines: Protect reserves from encroachment.

NCCP/HCP Consistency: Figures 12, 15, 16, 53, 54, 60 and 61 portray the consistency of the NCCP/HCP with this tenet of reserve design.

Therefore, for the reasons set forth in this Section 7.2, the NCCP/HCP Reserve System is 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.

RESERVE SYSTEM AND SPECIAL LINKAGE MITIGATION MEASURES

1. Reserve System Implementation Measures

The implementation mitigation measures required to establish the NCCP/HCP Reserve System are set forth in Sections 5.2 and 5.3.1 of the NCCP/HCP Implementation Agreement and are incorporated by reference into this EIR/EIS as “Mitigation Measures.”

2. Special Linkage Area Mitigation Measures

Habitat protection requirements and commitments within NCCP/HCP Special Linkage Areas are set forth in Chapter 4 of the NCCP/HCP and in Section 6.1 of the Implementation Agreement and are incorporated by reference into this EIR/EIS as “Mitigation Measures.”

7.2.2 Analysis of the No Take Alternative - Implications for Reserve Design and Connectivity

A. Land Use/Phased Dedication Relationships

Figures 15 and 16 portray occupied CSS in relation to: (1) the NCCP reserve designs for both the Central and Coastal planning subareas (2) occupied CSS within the proposed reserve areas and (3) occupied CSS outside the proposed reserve areas that would be impacted by development under presently existing General Plan and zoning entitlements. These maps were reviewed to determine: (a) the implications of a No Take Alternative in terms of extent of conflict with approved local government plans, particularly conflicts with open space dedication programs where specific open space dedication increments are linked - as mitigation measures - to the approval of specific development areas authorized under current General Plans and (b) the manner in which a No Take Alternative would affect the reserve design/connectivity features of the proposed sub-regional plans.

In geographic terms, the scale of the NCCP planning subregion presents a much wider array of issues for the No Take Alternative than would be the case for a Section 10 HCP involving a single tract of land. Avoidance of all CSS occupied by gnatcatchers not only results in a diminution of development areas but also may preclude or significantly increase the cost of roads and other infrastructure facilities serving future development areas that do not impact CSS but that cannot be developed without such infrastructure. Accordingly, the review of No Take at a subregional level requires an assessment of the degree to which prior land use planning efforts would need to be reversed and revised to achieve a No Take scenario.

As reviewed in Chapter 5, one of the unique features of land use planning in central Orange County is the extent to which large-scale land planning programs have been coordinated and fashioned to concentrate development precisely for the purpose of maximizing the contiguity of large-scale open space/habitat systems. In many instances these master-planning efforts have resulted in shifting the location of previously planned and approved land uses in order

to protect significant habitat areas in large, contiguous blocks of regional scale open space. Under the provisions of most of these land use plans, open space areas are transferred to public ownership gradually over time by means of dedication programs that are phased to occur as development occurs. This "phased dedication" approach generally correlates specific development approvals in master-planned areas with specific, geographically defined dedication increments (*e.g.*, see Figure 43). Thus, the land use planning context for a No Take analysis must necessarily involve a review of the implications of eliminating "take" in areas identified for development that in turn constitute the legal prerequisite to finalizing phased dedications of regional open space.

B. The Coastal Subarea - Implications of the "No Take" Alternative for Reserve Design and Connectivity

- Status of Public Acquisition and Dedication Programs in the Coastal Subarea

Significant portions of the coastal planning area that contain substantial CSS habitat occupied by target species (in the pre-1993 wildfire conditions) have already been conveyed into public ownership or, at a minimum, have recorded Offers of Dedication which can be accepted by local government. These areas, depicted on Figure 37, include:

- The Aliso Greenbelt
- Laguna Hills areas
- Sycamore Hills
- Laurel Canyon
- Laguna Canyon Ridge and portions of Laguna Canyon
- One portion of the Irvine Coast LCP dedication area
- Crystal Cove State Park
- Los Trancos Canyon
- Buck Gully
- Upper Newport Bay open space areas including the West Bay dedication area

However, significant portions of the Coastal subarea - three increments of the Irvine Coast Local Coastal Program dedication areas and several increments of the City of Irvine GPA 16 dedication areas - are subject to phased dedication requirements relating to future development activities (see Figures 36, 43 and 47). The Irvine Coast and City of Irvine phased development/ dedication programs are the product of extensive previous planning efforts. As

reviewed in Chapter 5, over a period of 15 years of coastal planning dating from the passage of Proposition 20, Irvine Coast development areas were concentrated in one portion of the planning area in order to maximize contiguous habitat in the vast majority of the LCP planning area (see Figure 41). In a similar manner, the CSS habitat located in areas to be dedicated pursuant to the 1988 City of Irvine GPA 16 land use plan resulted from a citywide assessment of development/open space relationships. As in the case of the Irvine Coast Local Coastal Program, the City of Irvine GPA 16 action concentrated development in order to increase and maximize contiguous habitat/open space resources (see Figures 47 and 49). Each of these two major land use plans employs a phased development/dedication program to provide for the eventual transfer of regional scale open space/habitat from private to public ownership as development proceeds over time.

-- Implications of a No Take Alternative for the Irvine Coast LCP Phased Dedication Program.

Under the terms of the Irvine Coast LCP phased dedication program (see Appendix 19), specific open space dedication areas are linked to specific intensities of both residential and tourist commercial development (*e.g.*, specified numbers of housing and visitor-serving units). As depicted in Figure 16, avoidance of all occupied CSS habitat in the tourist commercial and residential areas would result in reduced development and the resultant inability to attain the levels of development that are defined as dedication thresholds in the recorded Irvine Coast Offer of Dedication. A No Take Alternative would necessarily preclude development that is a legal prerequisite to finalizing open space dedications for Phases II and IV, and potentially a portion of Phase III, of the Irvine Coast open space dedication program. Additionally, in the Irvine Coast LCP area, a No Take approach would eliminate development on the top of Pelican Hill in Planning Area 1C; this would result in the elimination of the "habitat patches" connectivity "bridge" that was incorporated into the project design during the EIR review process and the NCCP interim take permit (to provide for habitat protection and restoration on the frontal slopes of Pelican Hill), measures that were not required in the approved LCP (see Figures 44 and 45).

A No Take Alternative would also result in the deletion of significant "connectivity" commitments within the Irvine Coast LCP area presently proposed by the NCCP/HCP (see Figures 22 and 54) because the landowner would have no incentive to commit such lands in the absence of the ability to proceed with development. Thus, not only would key elements of the Coastal subarea reserve fail to be dedicated to public ownership under pre-NCCP dedication

commitments but several additional Special Linkage Areas proposed as a result of NCCP planning would not be finalized.

Unless public acquisition funds at fair market value are assured as an alternative means of protecting these dedication lands, the failure to complete the Irvine Coast dedications would result in the deletion of the areas depicted on Figure 67 from the publicly owned and managed NCCP reserve. Although CSS areas located on these lands and occupied by gnatcatchers could not be impacted unless authorized under the FESA, the lands would not be part of the publicly owned reserve and thus would not be included in the NCCP "interim use" Adaptive Management Program (see Section 7.3F for a review of the significance of the "interim use" management commitments). Consequently, the landowner would be entitled to use its land for purposes such as grazing with attendant impacts on CSS habitat (the "interim use" provisions of the NCCP/HCP provide for a grazing management plan - see Shady Canyon EIR discussion of grazing impacts). The inability to assure public management of these future areas as part of the NCCP Reserve System would remove many areas from the Adaptive Management Program considered essential under the NCCP Conservation Guidelines.

-- Implications of a No Take Alternative for the City of Irvine GPA 16 Phased Dedication Program

With regard to the City of Irvine GPA 16 open space dedication program, specific development areas in the vicinity of Shady and Bommer Canyons are linked with dedications of CSS habitat considered to be vital to Coastal subarea reserve design (see Figures 47, 48 and 50). These City of Irvine open space dedication areas have been determined to be essential to reserve design, to wildfire refugio functions and to connectivity between the large-scale Laguna Canyon coastal area to the south and the smaller populations of target species in the Upper Newport Bay area. Under the City of Irvine/Irvine Company "Memorandum of Understanding Implementing Initiative Resolution 88-1," specific dedication areas are linked with specific types and intensities of development. Hence, as depicted in Figure 51, if occupied CSS were to be avoided entirely in planning areas J, K, L and M under the No Take Alternative, the open space dedication areas identified within each of those planning areas and correlated with specific development areas would not be conveyed into public ownership. (The Shady Canyon project, recently approved by the City of Irvine, relies on the NCCP program for mitigation of impacts to gnatcatcher habitat - in turn the Planning Area K dedication is keyed to development in the Shady Canyon project area.)

Finally, concurrent with the NCCP planning process, The Irvine Company proposed significant revisions to the Shady Canyon road system necessary to serve development levels allowed by GPA 16 (deletions and sizing reductions for the three major arterials have been finalized through the City of Irvine and County of Orange Circulation element/MPAH amendments). The land use plan recently approved by the City of Irvine provides the following benefits for the NCCP reserve and the target species: (a) considerable reduction in development densities (from 3,000 units to 400 units) which in turn allows for the elimination of major arterial roads (the Lake Forest and Bonita Canyon extensions and Sand Canyon Avenue) that would have had major landform alteration and land use impacts on significant portions of the area proposed for inclusion in the NCCP Coastal subarea reserve design (see Figure 31); and (b) the inclusion of a golf course which helps assure the protection of an important movement corridor for target species and coyotes, reduces CSS impacts that would otherwise have occurred under a 3,000-unit development alternative and provides an irrigated landscape buffer to enhance the refugia function of the Sand Canyon Reservoir area habitat in the event of a future major wildfire in the San Joaquin Hills (see Figure 52). A No Take Alternative would preclude most development in the Shady Canyon area, leaving the future ownership and habitat protection commitment of both the Special Linkage Area and Dedication Area K in doubt (see Figure 50).

Absent public or other acquisition of all occupied CSS habitat located in planning areas K, M and L of the City of Irvine at fair market value, development precluded under a No Take Alternative would lead to the result that corresponding dedications would not occur in these planning areas; as a result, habitat areas essential to the long-term survival of the gnatcatcher would not be transferred to public ownership under the No Take scenario (see Figure 67). In turn, development pressures would be increased on non-CSS habitat areas (including current grasslands and oak woodlands, along with agricultural areas with potential for restoration to CSS such as the areas around Quail Hill) and on CSS habitat not occupied by gnatcatchers but occupied by other NCCP Identified Species.

-- Implications of a No Take Alternative for the Connectivity Linkage between the San Joaquin Hills and Upper Newport Bay Proposed by the NCCP/HCP

The NCCP/HCP proposes a series of modifications of allowable development areas on development sites located between the San Joaquin Hills and Upper Newport Bay. The NCCP objective of these proposed land use modifications is to build on the mitigation conditions of the Section 7 consultation for the SJHTC and the Irvine Coast/GPA 16 open space

commitments to assure habitat connectivity and coyote movement between the portions of the reserve in the San Joaquin Hills/Irvine Coast areas and Upper Newport Bay. Much of this connectivity area is land that is not occupied by gnatcatchers and, as a result, development would not be prohibited under a No Take Alternative. These commitments are not part of any pre-existing open space commitments by the landowner and thus would require the voluntary cooperation of the landowner. The No Take Alternative cannot assure that such cooperation would be obtained because there would be of no benefit to the landowner.

-- Implications of a No Take Alternative for the Pacific Pocket Mouse in the Coastal Subarea

The NCCP/HCP proposes proactive measures aimed at enhancing and better securing the only known existing Pacific pocket mouse population in the subregion and the long-term prospects for this species' existence in the subregion. The "No Take" Alternative would not necessarily preclude development of some portion of the Headlands, although development of the gnatcatcher occupied CSS and the approximately four acres occupied by the Pacific pocket mouse would be precluded. In addition, the No Take Alternative would not be likely to preserve as much potentially suitable pocket mouse habitat as the proposed project. A reduction in the amount of potentially suitable habitat preserved in the subregion could reduce the potential to expand the species within the subregion. The No Take Alternative would not produce proactive measures aimed at enhancing and securing the existing population since such measures must be conducted with the consent and cooperation of the landowner.

-- Conclusion - The Implications of the No Take Alternative for Long-Term Public Ownership of Habitat Areas Essential to the Coastal Subarea Reserve Design.

Assuming the absence of major public funding commitments to assure the acquisition of these lands, the "cumulative impact" of the loss of dedication protection and conveyance into public ownership/ management of the Irvine Coast Local Coastal Program and City of Irvine San Joaquin Hills dedication areas reviewed above would have major impacts on reserve design and connectivity in the Coastal subarea. Due to the restrictions on development in excess of the already limited development envelopes resulting from the Irvine Coast LCP and City of Irvine GPA planning processes, considerable pressure would be exerted to develop in adjoining resource areas that are not occupied CSS but which contain significant habitat values and contribute to the bio-diversity of the subarea. Finally, extremely important habitat connectivity

features of the NCCP/HCP would not be incorporated into the development approvals. Therefore, the No Take Alternative would not be able to assure attainment of the project objectives stated in Chapter 1 and is environmentally inferior to the Proposed Project in this regard.

C. **The Central Planning Subarea - No Take Alternative Implications for Reserve Design and Connectivity.**

-- **Implications of a No Take Alternative for the City of Irvine GPA 16 Phased Dedication Program.**

Several portions of the City of Irvine GPA 16 open space dedication program applicable to Limestone Canyon are keyed to development areas that would not involve any take of target species and thus would not be affected by a No Take Alternative. The development/dedication areas that would not be able to proceed under a No Take Alternative comprise the Planning Areas "A" and "B" dedication areas along Lomas Ridge. These two areas provide critical NCCP habitat connections along the frontal slopes of Lomas Ridge (see Figure 47). These two portions of the proposed reserve design for the Lomas Ridge area would not be conveyed into public ownership under the No Take Alternative because threshold levels of development entitlement in these areas required to trigger corresponding open space dedications (pursuant to the GPA 16 phased dedication program) would not be reached.

In contrast, the NCCP reserve design proposed for these two areas would assure the commitment to NCCP management, and ultimate public ownership of the occupied CSS habitat located in City of Irvine GPA 16 Implementation Districts A and B, including areas presently identified in GPA 16 for future dedication. Significant additional large-scale areas presently identified for development are proposed to be committed to open space protection through the NCCP reserve design contain significant populations of NCCP target species (see Figure 15). Under the No Take Alternative, the critical habitat areas along the frontal slopes of Lomas Ridge provided for through pre-NCCP planning and the additional areas containing major target species populations included in the NCCP reserve design, would not be assured of conveyance into public ownership and could be used for grazing and orchard agricultural uses by the landowner (see Figure 68). Likewise, in contrast with the Proposed Project, these areas would not be committed to "interim use" management (see Section 7.3.3 C).

-- Implications of a No Take Alternative for the East Orange General Plan Area Phased Dedication Program.

The 1989 GPA for the East Orange Area encompassed 10,000 acres of land located within the "sphere of influence" of the City of Orange and resulted in major, consolidated open space areas along Lomas Ridge and Limestone Canyon and significant open space areas in the vicinity of the western end of Irvine Lake. Each of the phased dedication areas (see Figure 59) is linked with development areas that will impact occupied CSS. The failure to assure the dedication of the East Orange GPA open space areas would affect the eastern portion of Limestone Canyon, major portions of Lomas Ridge and areas along the southern edge of Irvine Lake, all of which are areas presently included in the NCCP reserve design (see Figures 15 and 57).

Protection of gnatcatcher habitat under a No Take Alternative would likely shift development pressure to grasslands and oak woodland habitats that are not protected by the gnatcatcher listing (see the EOGPA final EIR habitat maps showing the location of non-CSS habitat areas). As an example, much of Limestone Canyon is not CSS habitat and at the same time is developable (see Figure 58 depicting a potential development area in Limestone Canyon). Areas with far more difficult terrain have been developed in the Anaheim Hills. Shifting development pressures into non-CSS areas would undermine the bio-diversity goals of the NCCP Conservation Guidelines. Additionally, most of the CSS in Limestone Canyon is occupied by cactus wrens rather than gnatcatchers (see Figures 7 and 8) and thus would not be protected under the No Take Alternative. Thus, conservation of the habitat of the two other NCCP target species would be significantly diminished if much of Limestone Canyon and other non-gnatcatcher habitat areas within the EOGPA were to be developed under the No Take Alternative.

The deletion of the phased dedication areas of the East Orange General Plan from public ownership within the proposed Central subarea reserve would basically undermine the viability of the entire Central subarea reserve. Limestone Canyon, Lomas Ridge and the areas along the southern border of Irvine Lake provide habitat for NCCP target species and essential connectivity functions between southern Orange County and the northern Irvine Ranch areas of Fremont Canyon, Blind Canyon and Weir Canyon extending to the Santa Ana River corridor (see Figures 15 and 38). Moreover, a set of land use plan modifications worked out through the NCCP planning process to strengthen the connectivity functions provided for by EOGPA open space commitments would not be feasible if development of occupied CSS

habitat in the EOGPA were not allowed to proceed under the No Take Alternative because such lost development opportunities would need to be relocated to the remaining EOGP lands in addition to development proposed to be relocated as a result of NCCP/HCP reserve recommendations.

Given the extensive planning efforts that were involved in the preparation and approval of the East Orange General Plan (including substantial plan modifications and a formal agreement between Sea and Sage Audubon and The Irvine Company addressing major environmental concerns), the No Take Alternative would essentially necessitate a complete re-consideration of the entire East Orange General Plan. Particularly in the context of the goals of the East Orange plan to protect major stands of oaks and raptor habitat (see Figure 73 and Appendix 20), avoidance of occupied CSS habitat would increase development pressures on the oak and grasslands resources that are not protected under the FESA. This pressure on oak and grasslands resources would undermine important planning goals of the NCCP Conservation Guidelines, namely the inclusion of habitat diversity and contiguity of large-scale habitat areas in overall reserve design.

Even if a re-consideration of the entire East Orange General Plan were to be deemed technically feasible, no planning for the Central subarea reserve, including adaptive management actions such as fire management planning and habitat restoration could be undertaken until the total planning process were completed. In light of the current state of habitat conditions for NCCP target species, along with the potential for wildfire impacts and continued decline of habitat value inherent in the absence of adaptive management, the No Take Alternative would result in existing conditions gradually deteriorating and incrementally reducing viability of gnatcatchers.

-- Implications of a No Take Alternative for the Mountain Park Phased Dedication Program.

The City of Anaheim approved the Mountain Park project on condition that Weir Canyon and Windy Ridge (see Figures 63 and 65) are to be dedicated. Development entitlements were established as a pre-condition to the dedication of these areas through the City of Anaheim/Irvine Company development agreement. If development entitlements provided for in the Mountain Park Plan were lost through avoidance of occupied CSS, the inability to carry out corresponding phased open space dedications would remove from future public ownership the areas proposed in the NCCP reserve designed to assure connectivity between Irvine

Regional Park and the Limestone Regional Park dedication area at one end of the inland planning area and the Cleveland National Forest, Santa Ana River corridor, Chino Hills State Park regional open space to the north (see Figure 62 and the Shell/MWD HCP summary in Appendix 18). In addition to important connectivity functions, the Weir Canyon dedication area also contains significant populations of NCCP target species and habitat important to maintaining regional bio-diversity (particularly oak woodlands - Figure 65).

As in the case of the East Orange General Plan area, avoidance of occupied CSS habitat would increase development pressure on oak, grasslands and chaparral habitat within Weir Canyon and on Windy Ridge. Apart from its development potential, Weir Canyon has regionally significant sand and gravel deposits of considerable economic value, thereby creating an economic incentive for habitat conversion should the No Take Alternative disrupt the Mountain Park dedication program. The oak woodlands resources of Weir Canyon are considered to be of regional significance while the Tecate Cypress areas within the Windy Ridge dedication area are also of regional significance. The loss of commitment of such habitat areas to an NCCP Reserve System would have adverse effects on bio-diversity/ecosystem goals of the NCCP comparable in scale and significance to the implications of the No Take Alternative for East Orange reviewed above.

7.2.3 Analysis of the No Project Alternative - Implications for Reserve Design and Connectivity

A. Comparison of Habitat "Reserve Design" Under The "No Project" Alternative and the NCCP Planning Alternative

Existing and committed open space within the subregion would provide more than 34,000 acres that could be included in a permanent NCCP/HCP habitat reserve. The existing and committed open space could theoretically provide the core of a permanent CSS habitat Reserve System under the No Project Alternative, as well as under the NCCP Subregional Planning program. Additional open space dedications and acquisitions could provide additional acreage as individual projects were processed. However, due to the necessarily disjointed, incremental nature of Section 7 and 10 reviews in an area the size of Orange County occurring over a very long time period (30-50 years), the ability to assure the ultimate creation and long-term management of a viable CSS Reserve System would be significantly reduced under the No Project Alternative when compared with the recommended NCCP reserve design

and management program (see the EA for the Special 4(d) Rule for the gnatcatcher discussion of the No Project Alternative - Appendix 4).

As noted above, about 65,000 acres out of the remaining 104,000 acres of wildlands already are designated as either permanent /committed open space or included within the federal boundaries of the National Forest. The remaining undeveloped lands, totaling about 39,000 acres, include approximately 9,500 acres owned by The Irvine Company that have not been master planned (the North Ranch Policy Plan Area) and about 29,500 acres that have been designated for urban uses as part of local general plans. The 39,000 acres of non-open space lands include a significant portion of target species sightings and CSS habitat within the Central and Coastal NCCP Subregion.

A significant percentage of the cactus wren sightings occurred outside the designated open space areas, in areas either pre-NCCP designated for urban development (see Figures 15 and 60) and on federally owned military lands. Assuming that a significant percentage of incidental take is allowed under the case-by-case approach to incidental take under the "No Project Alternative," this alternative would likely result in the loss of a significant percentage of the gnatcatcher and cactus wren populations located outside the boundaries of the areas currently designated as protected open space under existing local government land use plans. As a consequence, loss of CSS habitat under the No Project Alternative would at least be comparable to take proposed under the NCCP/HCP, and possibly greater.

As development proceeds in the subregion, CSS habitat would continue to be fragmented and lost (see Chapter 3 review of the No Project Alternative analysis in the EA for the 4(d) rule for the gnatcatchers). Project-by-project review and approval of future development would result in piecemeal, fragmented efforts unlikely to result in the creation of a permanent reserve capable of providing long-term protection of CSS and the target species. FESA review would be limited to the protection of listed species, such as the gnatcatcher, and would not include other target species such as the cactus wren whose habitat is more extensive than that of the gnatcatcher in many areas of this subregion (*e.g.*, in the East Orange General Plan area). Due to the 30-50 year time frame for build-out of the lands in the Central and Coastal Subregion, the uncertainties of development timing and location would create correspondingly severe uncertainties in identifying priority lands that are sufficiently contiguous and manageable to be included in a Reserve System. Moreover, the acquisition of priority lands not obtainable through Section 7 and Section 10 processes would be dependent on the generosity of

“participating landowners” for land dedications or financial contributions, and reliance on increasingly scarce local State/federal funding for land acquisitions.

In conclusion, under a No Project Alternative scenario, the inherently disjointed nature of incremental Section 7 and Section 10 case-by-case review of projects in a subregion the size of central Orange County, over a long time period, makes it highly unlikely that a large scale, contiguous Reserve System could be assembled in a manner comparable to the NCCP/HCP reserve design.

B. Assurances of Connectivity and Habitat Diversity under the No Project Alternative in Comparison with the NCCP Alternative

-- Connectivity

The NCCP Conservation Guidelines place strong emphasis on assuring connectivity between major populations of target species and on providing for habitat diversity (*i.e.* non-CSS habitat types) within proposed reserves. Carrying out these reserve design “connectivity” criteria often involves the protection of non-CSS habitat, in the case of “connectivity” features of the proposed Central and Coastal reserves such as the connectivity areas involving non-gnatcatcher habitat added by the NCCP/HCP to the EOGP pre-NCCP open space commitments (see Maps 20, 22, 25, 60, 61, 67 and 68). Under the No Project Alternative, such non-gnatcatcher habitat would be committed only if the landowner voluntarily agreed to protect the habitat of unlisted species.

-- Habitat Diversity

The NCCP/HCP, necessarily involves non-CSS habitat with regard to the Conservation Guidelines' emphasis on “habitat diversity” within reserves. Because FESA Section 9 protections apply only to habitat essential to the breeding, feeding and sheltering of listed species, neither the habitat of unlisted NCCP CSS target species nor other habitat types (*e.g.*, oak woodlands) can be assured or protection under the No Project Alternative. (The habitat of unlisted species would only be protected to the extent that landowners voluntarily decided to address unlisted species in incrementally prepared Section 10 HCPs.)

For example, since the habitat of the cactus wren is by no means coterminous with that of the gnatcatcher, the cactus wren CSS habitat included within the proposed reserve could not be

protected under Section 7 or 10 ESA review of gnatcatcher incidental take (see Figures 7 and 8). likewise, in the case of the EOGP area, much of the oak woodlands area of Limestone Canyon is included in the reserve design as a result of cactus wren use of adjoining CSS areas but would not be included if the gnatcatcher were the sole focus under the No Project Alternative. Similarly, the Proposed Project likely protects potentially, suitable but unoccupied habitat for the Pacific pocket mouse included within the Coastal subarea reserve which would not necessarily be protected under Section 7 or 10 of FESA and which may be used to attempt to expand the current range of the species in the subregion. As a consequence, both the diversity of CSS habitat itself and the diversity resulting from the inclusion of other habitat types provided for by the proposed Central and Coastal Subareas NCCP reserve designs could not be assured under the No Project, incremental Section 7 and 10 ESA review scenario. Finally, because the North Ranch Policy Plan elevations are generally above that of preferred gnatcatcher habitat (Figure 17), the No Project Alternative would have no regulatory basis for prescribing a conservation planning process for this area.

7.2.4 Summary Comparison of the Proposed Project with the No Take and No Project Alternatives for Purposes of Consistency with the NCCP Tenets of Reserve Design

As reviewed in Chapter 3, the No Take Alternative can be used as the “functional baseline” for comparing the Proposed Project, the No Take Alternative and the No Project Alternative in terms of assessing relative and absolute consistency of the three alternatives with the NCCP Tenets of Reserve Design (a comparison of the Proposed Project with site-specific “alternative reserve design configurations” was previously reviewed in Chapter 5).

A. Comparison of the No Take and Proposed Project Alternatives

Under the No Take Alternative, all existing CSS occupied by gnatcatchers and habitat occupied by other listed species within the subregion is preserved as is. However, because the No Take Alternative relies on regulatory authority derived from the listing of the gnatcatcher and the other six listed species identified at pp. 3-13 and 3-14, the habitat of other NCCP target species and additional unlisted NCCP Identified Species is not protected. Since the habitat of the cactus wren and the whiptail lizard differ in many significant areas from that of the gnatcatcher (*e.g.*, Limestone Canyon), the habitat of these species would not be assured of long term protection. Consequently, the habitat protected under the No Take Alternative, being limited to that occupied by a much smaller set of “listed” species, covers a smaller geographic

area than that which would be protected under the Proposed Project. As a result the No Take Alternative would not protect the CSS *habitat system* to the same extent as the Proposed Project and would not attain the natural communities/habitat system project purposes set forth in Chapter 1. Without the protections of the Proposed Project the non-gnatcatcher target species and non-listed NCCP Identified Species would be exposed to significant adverse environmental impacts.

Likewise, the NCCP Conservation Guidelines goals of assuring bio-diversity and the habitat mosaic characteristic of historic CSS habitat would not be attained under the No Take Alternative. To the contrary, the absolute prohibitions on take under the No Take Alternative would increase development pressure on non-gnatcatcher habitat in order to offset development opportunities lost under the No Take Alternative.

Finally, in several significant portions of the Central and Coastal subareas, the No Take Alternative would limit development to the extent that phased dedication programs could not be implemented. As shown in Figures 67 and 68, the inability to assure ultimate long-term public ownership or habitat protection, would limit the ability to formulate a Reserve System meeting the requirements of the NCCP Conservation Guidelines tenets of reserve design.

Thus, the biological consequences of the No Take Alternative may be summarized as follows:

- Development is shifted from CSS areas subject to the No Take restrictions to other CSS and non-CSS habitat areas that would be protected under the Proposed Project
- CSS occupied by the gnatcatcher (and the other six listed Identified Species to the extent that they are supported by habitat within the subregion) becomes the de facto Reserve System with the following environmental consequences:
 - The “reserve” design is essentially the result of the particular areas of CSS habitat occupied by the gnatcatcher (or habitat supporting any of the other six listed Identified Species) rather than a reserve design consciously formulated in terms of manageability and the specific tenets of reserve design of the NCCP Conservation Guidelines.
 - The urban/wildlands edge is likely greatly increased with interdigitated urban development occurring in non-gnatcatcher, non-listed species habitat areas

(e.g., cactus wren CSS, oak woodlands, chaparral, grasslands) and other areas not occupied by other listed species.

- The resultant “reserve” is much more fragmented than that of the Proposed Project.
- The resultant “reserve” is far less diverse than the Proposed Project both in terms of CSS habitat and in terms of non-CSS habitat.

With regard to NCCP target and Identified Species other than the gnatcatcher, the inability of the No Project Alternative to provide habitat protection for such species in any geographically comprehensive manner would inhibit the assemblage of a Reserve System comparable to that of the Proposed Project. Although incremental Section 10 HCPs could be prepared for unlisted, as well as listed species, there is no assurance that all landowners would desire to do so. The reason for this is that Section 10 HCPs are voluntary and are mostly at the discretion of the landowner regarding timing and geographic scope of the planning area to be addressed by any particular HCP. Since Section 7 processes do not include assurance provisions for unlisted species, any Section 7 actions would be expected to involve a more limited geographic area than the Proposed Project.

The broad multi-species and geographic scope of the Proposed Project derives from the concurrent involvement of the NCCP/HCP “*participating landowners*,” with the attendant subregional geographic scale of plan preparation. Absent such a broad species and geographic scope, it is doubtful that major commitments of cohesive units of land would result from individual Section 7 and 10 processes. Likewise, early commitments such as those provided for the Pacific pocket mouse on the Headlands property and attendant proactive measures for the pocket mouse would not be initiated as quickly since landowner cooperation is required to provide for the comprehensive resolution of sensitive species issues for this “conditionally covered species” pursuant to the Proposed Project. A corollary effect would also be an increase in development pressure on non-gnatcatcher CSS areas and on bio-diversity habitat that would be protected under the Proposed Project alternative but would have no FESA/CESA regulatory basis for protection under the No Project Alternative. Thus, in comparison with the Proposed Project, the No Project Alternative would not attain the natural communities/habitat system protection goals stated in Chapter 1 and would be unlikely to comply with the NCCP Conservation Guidelines tenets of reserve design.

Finally, the uncertainty regarding ultimate subarea reserve boundaries inherent in the incremental, long-term review process of the No Project Alternative, means that a management program cannot be assembled on a comprehensive basis. This factor is reviewed at length in the following Section 7.3 but is referenced here because the uncertainty of comprehensive reserve management derives from the uncertainty of reserve design timing and ultimate configuration.

According to the EA for the special 4(d) Rule:

Coastal Sage Scrub

The No Project Alternative would result in further loss and fragmentation of habitat as projects continue to develop habitat in southern California. There would be less incentive for projects to participate in the NCCP Program, since they would still be required to obtain a Section 10(a) permit (or conduct a Section 7 consultation, as appropriate) for any action that might affect gnatcatchers.

As development continues to occur in the Southern California area, coastal sage scrub would continue to be fragmented and lost. Coastal sage scrub impacts would continue to be addressed on a project by project basis. Research on coastal sage scrub management and restoration would probably not be initiated, since no one project could justify such an expense. Biodiversity within the CSS ecosystem would incur substantial losses (CDFG et al, 1992). With no coordinated regional NCCP planning process to preserve CSS, the survival of the gnatcatcher could be further jeopardized and may require consideration by the Service for listing as an endangered species.

Other Natural Habitats

Other habitat types would continue to diminish due to piecemeal losses from individual projects. The requirements of CEQA would continue to apply. The NCCP program would proceed but without being done in conjunction with other important environmental requirements (i.e., ESA take prohibitions). The indirect protection provided to some other habitats that the NCCP effort offers would likely be less effective. Comprehensive, regional planning would receive less effort,

diluting efforts that may conserve some other habitat types known to be associated with CSS.

Coastal California Gnatcatchers

The No Action Alternative would mean that the Service takes no action; the special rule would not be finalized. Take of coastal sage scrub and the coastal California gnatcatcher would be prohibited by Section 9 of the ESA. Projects that needed to proceed with development plans that impacted CSS would be required to address the criteria included Section 10(a)(1)(B) or, if appropriate, initiate a Section 7 consultation with the Service. . . . As required under the 1991 MOU with CDFG, the Service would continue to support the NCCP Program, but not with federal law, through the ESA.

Conservation programs would be disjointed, resulting in a diminished regional effort. A major concern to the long-term conservation of the gnatcatcher, regional habitat conservation planning, would be effected (sic - affected) by this action. Less incentive would be available for regional efforts when each project would require separate take authority.

Other Species of Plants and Wildlife

Similar to the effects to other habitat types, other species of plants and wildlife would continue to be subject to piecemeal losses. With less incentive for regional conservation efforts, other species of plants and wildlife will continue to decline. Conservation of these species would be subject to CEQA requirements and any attending mitigation.

B. Conclusion Regarding the Environmentally Preferred Project for Purposes of Consistency with the NCCP Tenets of Reserve Design

For the reasons set forth in this Section 7.2, the Proposed Project is determined to be the environmentally preferred project for purposes of assuring consistency with the NCCP Conservation Guidelines tenets of reserve design.

SECTION 7.3 MITIGATION PROVIDED BY THE NCCP/HCP ADAPTIVE MANAGEMENT PROGRAM

7.3.1 Biological Functions of Adaptive Management under the NCCP Conservation Guidelines

A. Relationship of Adaptive Management to Maintaining Long-Term Net Value of the Subregional CSS Habitat for Target Species

The NCCP Conservation Guidelines recommend that an “adaptive management” regime should be implemented to manage biological resources within the subregion. As used in the 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 of occupied CSS within the subregion. The NCCP Conservation 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 bio-diversity, (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)

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.

B. Mitigation Functions of the Adaptive Management Program

The CSS and other habitats included in the subregional Reserve System are proposed by the NCCP/HCP to be managed in accordance with the “adaptive management” concept set forth in the NCCP Conservation Guidelines. Under the Central and Coastal NCCP, the specific reserve management programs and policies are intended to guide and assure the long-term implementation of the subregional program for management of the Reserve System.

In combination with actions taken to create the Reserve System, the NCCP/HCP proposes that the Adaptive Management Program serves as mitigation for incidental take by landowners who have contributed significant lands or funding for the creation and ongoing management of the Reserve System. 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 are intended by the NCCP/HCP to 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 is consistent with the requirements of the Special Section 4(d) Rule.

Further, by including habitat restoration, enhancement and land acquisition functions as integral features of the Adaptive Management Program, the NCCP/HCP proposes that “non-participating landowners” would have the option of mitigating impacts on occupied CSS outside the Reserve System by paying mitigation fees to the NCCP management program as an alternative to individual FESA Section 7 or Section 10 and CESA Section 2081/2084 processes.

7.3.2 Overview of the Main Elements of the NCCP/HCP Reserve System Adaptive Management Program and Approach to Analysis of the Environmental Consequences of the Proposed Adaptive Management Program

The following Reserve System management elements are proposed by the NCCP as mitigation measures intended to compensate for take by maintaining the net habitat value of the subregion for NCCP target/identified species:

- 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 proposed to be 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*”

Each of the above management elements is intended to serve as mitigation measures for the impacts of proposed incidental take by contributing to the maintenance of the overall net long-term habitat value of the subregion.

It is important to note that the emphasis in the NCCP Conservation Guidelines is on maintaining "long-term net habitat value." When assessing the effectiveness of adaptive management of the NCCP/HCP Reserve System, the totality of the program must be evaluated in relation to the No Project and No Take Alternatives set forth in Chapter 3. The standards of Section 10(a) and of the NCCP Conservation Guidelines both take a long-term perspective. The No Project and No Take Alternatives indicate what would happen to net habitat value on a subregional basis without the Proposed Project. For instance, the significance of the NCCP/HCP fire management measures must be related to circumstances that are likely to exist - and would directly affect - long-term net habitat value in the absence of the NCCP fire management program under the No Project and No Take Alternatives.

The following subsections review and assess the extent to which each of the adaptive management measures furthers the maintenance of overall, long-term net habitat value within the subregion and thereby mitigates the impacts of incidental take on the part of "*participating landowners*." Specific mitigation measures necessary to carry out each of the above Adaptive Management Program elements are set forth in each subsection below.

7.3.3 Analysis of the Environmental Consequences of the Adaptive Management Program Proposed by the NCCP/HCP

A. Habitat Management Programs

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 is proposed to 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.

The data proposed to be collected through the monitoring program would be analyzed and used as the basis for evaluating and guiding reserve management. Data from "active management" efforts will be analyzed to assess the effectiveness of the management effort and will guide decisions on future management efforts. 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. Any groups of relocated Pacific pocket mice or newly discovered populations of any listed species will receive special monitoring attention in the early years of the Adaptive Management Program to assist with the conservation of listed species.

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.

Due to the level of detail of the monitoring program, the Mitigation Measures necessary to carry it out are set forth in Appendix 15 "Implementation and Mitigation Monitoring Program" which addresses the monitoring functions identified in the NCCP Conservation Guidelines, the Section 10(a) monitoring requirements and the CEQA requirements for a mitigation monitoring program.

-- Conclusion Regarding Consistency with the NCCP Conservation Guidelines and Mitigation Functions

The comprehensive nature of the proposed monitoring program and the manner in which it is designed to provide regular feedback for adaptive management purposes, leads to the conclusion that the program meets the requirements of the NCCP Conservation Guidelines and contributes significantly toward maintaining net habitat value of CSS habitat for target/identified species by providing field information important to ongoing evaluation of NCCP habitat management activities.

Control and Management of Invasive Plant species and Invasive and Pest Vertebrate Species

-- Control and Eradication of Invasive Plant Species

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. since invasive plant species have the potential to degrade habitat quality, the management actions proposed by the NCCP/HCP to control invasive plant species would be an important factor in maintaining overall long-term habitat value within the subregion. These activities 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, ridgetops, 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 Santa Margarita 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 The Irvine Company and TNC.

Cardoon control will be undertaken in conjunction with specific restoration/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. An on-going cardoon control effort will be established, 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.), pampas grass (*Cortaderia* 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 mikanooides*), 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*).

-- Conclusion Regarding Consistency with the NCCP Conservation Guidelines and Mitigation Functions

Eradication of existing infestations of these species in the reserve will be performed as funds and resources become available. Based on several years involvement in preparing stewardship recommendations for much of the area proposed to be included in the NCCP/HCP Reserve System, The Nature Conservancy, in a comment on the Screencheck NCCP/HCP document, indicated that in their view the eradication of invasive plant species is a higher priority than the creation of new CSS habitat through restoration actions. Given the extensive Mitigation Measures addressing eradication of invasive plant species based on extensive field experience including that of The Nature Conservancy, it is determined that these NCCP/HCP management measures are consistent with the NCCP Conservation Guidelines and will make a significant contribution toward maintaining the net habitat value of the subregion by diminishing the impacts of invasive plant species on CSS habitat and grasslands habitat.

-- 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." Accordingly, adaptive management actions proposed by the NCCP/HCP to control these species would contribute significantly to maintaining overall net habitat value within the subregion on a long-term basis.

This group of vertebrate pests includes cowbirds (*Molothrus ater*), feral dogs and cats, 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 and, along with domestic cats, have the ability to seriously affect the Pacific pocket mouse. 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 NCCP/HCP states that 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. 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 refuge manager may geographically redirect existing efforts, if monitoring indicates redirection is warranted.

The NCCP/HCP proposes that 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 will require appropriate mitigation in the form of cowbird controls.

The NCCP/HCP also proposes that reserve owners/managers should, to the extent that NCCP funds are made available, 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, 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.

The NCCP/HCP further proposes that 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/Identified Species and or on listed species dependent upon or associated with CSS or "covered habitats." s 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, unlisted species dependent upon or associated with CSS or "covered habitats"), 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 bio-diversity within the overall Reserve System. The NCCP/HCP proposes that 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.

-- Conclusion Regarding Consistency with the NCCP Conservation Guidelines and Mitigation Functions

With regard to the proposed Mitigation Measures addressing the management of invasive and pest vertebrate species, these measures constitute a thorough and comprehensive program based on extensive field experience. Therefore, it is determined that these NCCP/HCP Management Measures are consistent with the NCCP Conservation Guidelines and contribute toward preserving the net habitat value for target/identified species of subregional CSS habitat by diminishing impacts on NCCP Identified species.

MITIGATION MEASURES - INVASIVE SPECIES

-- Management of Invasive Plant Species

- Eradication of existing infestations of the species reviewed in this subsection found within the reserve 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.
- 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.

- Local governments participating in the NCCP/HCP will address prohibitions on planting and cultivation of the species listed above in fuel modification zones and community open space areas adjacent to the Reserve System as part of the fuel modification regulations for the NCCP program.

-- Management of Invasive and Pest Vertebrate Species

The following policies will guide management of these vertebrate pest species:

- 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 by recording initial pest species densities (as an index by capture effort) and any changes to that index as control efforts proceed.
- 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 refuge manager may geographically redirect existing efforts, if monitoring indicates redirection is warranted.
- 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 will require appropriate mitigation in the form of cowbird controls.
- 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.

- 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/Identified Species and/or any listed species dependent upon or associated with CSS and “covered habitats.” 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, unlisted species dependent upon or associated with CSS and covered habitats), 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 bio-diversity 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. NCCP/HCP funds will not be used for control of vertebrate species that do not directly affect the CSS ecosystem.

Fire/Management Program

The subregional NCCP/HCP plan addresses short-term and long-term fire management issues related to implementing an effective subregional CSS management program. This section reviews the environmental significance of fire management in relation to maintaining the habitat value of CSS and assesses the actions and programs proposed by the NCCP/HCP to be formulated early during implementation of the subregional NCCP/HCP plan.

-- Importance of Fire Management to the CSS Management Program

Coastal sage scrub is a fire-dependent and fire adapted community. 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.)

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% of the CSS in the Coastal Subarea, fueled in significant part by the man-aided buildup of vegetation/fuel in Laguna Canyon and adjoining portions of the coastal hills. 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 ridgelines 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.

-- Importance of the NCCP Fire Management Program to the Management of Oak Woodlands Resources within the Reserve System

According to the California Board of Forestry draft "1995 Fire Plan:"

Exclusion of fire in California's Mediterranean climate has significantly altered the ecosystem and the post-European California Wildland Fire Protection System costs and losses from major fires. fire exclusion has increased: (1) the periods between fire frequencies, (2) the volumes of fuel per acre, (3) the fire intensities, (4) the fire damages and loss (5) difficulties of fire suppression, and (6) the total taxpayer costs and losses (draft Fire plan. 11/15/95, at p. 8)

Although oak woodlands are generally fire resistant (*i.e.*, mature oaks generally survive wildfire absent excessive fuel loads), the growth of under story plants, allowing a fire ladder to reach the canopy of oaks or other forms of excessive fuel loads may lead to losses of mature trees due to wildfires (see "Oak Woodland Preservation and Planning." Nancy Hardesty, 1991).

The Oak Woodlands Restoration Report cited in Chapter 8 echoes the above-quoted findings of the California Board of Forestry draft 1995 Fire plan as applied to the particular circumstances of oak woodlands in Limestone Canyon:

“The landowner wishes to develop and implement a prescribed fire program for Limestone Canyon and the surrounding areas. The objective is to restore the health of existing oak and sycamore woodlands to conditions similar to those prior to the arrival of the first Spanish missionaries. The suppression of fire over the last 200 years has severely diminished the capability of existing woodlands to regenerate. Fuel loads often build up over several decades, allowing woodlands to become decadent and sterile. As a result, wildlife populations and species diversity decrease. When fire does occur, it is often of such destructive power and high intensity that more harm is brought to the ecosystem than good. An achievable means for revitalizing many of the areas throughout Limestone Canyon is through the use of controlled low-intensity ground fires. These fires will be integrated with the NCCP Fire Protection plan Element and the Orange County Fire Authority. With the landowner’s support, the first implementation phase of such a program is roughly scheduled for Spring 1998. (“Oak Woodlands Restoration,” at p. 61)

Given the experience with the 1993 Laguna Hills wildfires and the role of fire management in the overall Adaptive Management Program for the habitat mosaics comprising the Central and Coastal subarea reserves, there appears to be ample evidence that fire management is an essential element of an Adaptive Management Program for oak woodlands habitats, which will result in a significant improvement in long-term habitat values for Reserve System oak woodlands and species dependent upon or associated with oak woodlands. Likewise, fire management will contribute to the protection of oak woodlands from non-natural loss due to wildfires (thereby protecting existing values) and to the regeneration of oak woodlands enhancing habitat values that will contribute to the well-being of species dependent upon or associated with oak woodlands pursuant to the “covered habitat” provisions of the Implementation Agreement.

-- 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.
- Due to last minute permit problems, prescribed burns were frequently canceled.

-- Assessment of the Mitigation Functions of the Proposed Fire Management Policies and Programs

The Orange County Task Force recommended several steps to be followed in preparing a long-term pre-suppression fire management program (see Appendix 10). 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. The Orange County Task Force further recommended that, on the basis of the "Wildland Fire Management Model" and other sources of information, a program be developed for preparation and implementation of a long-term fire management plan for large-scale wildlands.

NCCP fire management policies and programs were also derived from other sources of information. Lessons learned from the 1993 wildfires were reflected in an important policy document prepared for Chino Hills State Park as an integral component of the Shell/MWD 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, MWD 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 were incorporated into the NCCP/HCP fire management policies and programs.

The final source document for the NCCP/HCP fire management program 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 MWD and represents what is considered by many to be 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.

Based on the above sources of information, the NCCP/HCP proposes a subregional fire management program consisting of both short-term and long-term elements. The short-term and long-term fire management programs include both specific management policies and specific planning/implementation actions detailed in the "Fire Management Mitigation Measures set forth below. The short-term fire suppression programs are intended to provide quick response times to minimize the spread of wild fires, to define sensitive habitat areas that are priorities for protection and to prescribe fire-fighting techniques that minimize direct

impacts on habitat areas and on soil resources. Long-term fire management mitigation measures are intended to reduce wildfire fuel loads and to bring about a fire regime that furthers natural CSS habitat succession. These mitigation measures provide for management actions that cannot be carried out to any significant extent under the "No Project" and "No Take" alternatives because a comprehensive fire management program cannot be effectively planned without a specific reserve design and the commitment of landowners to "interim management" as reviewed in Subsection "C" below. Likewise, due to the absence of a defined Reserve System at the outset, the "Programmatic Alternative" is not capable of such fire management planning and implementation until the Reserve System is defined through specific dedication or acquisition commitments.

Regarding the mitigation contributions of short-term fire management planning, the NCCP/HCP fire management program addresses two critical aspects of CSS species and habitat survival. First, populations of target species have already been impacted by the October 1993 wildfires in the Coastal subarea. Near-term fire suppression planning and implementation for the Coastal subarea is essential to species survival because another major wildfire in the near-term could impact target species populations just as they are recovering from the impacts of the October 1993 wildfire. Second, repeated fires have been shown, in the case of Chino Hills State Park, to result in habitat conversion as invasive species take over habitat areas. A near-term fire or fires in the Coastal subarea, following on the heels of the October 1993 wildfires, could have serious impacts on the survival of CSS habitat and potentially result in habitat conversion (recent rainfall levels have accelerated the pace of post-fire vegetation with corresponding increases in vegetation "fuel loads"). The area-specific fire suppression plans provided for in the Mitigation Measures will assure rapid response for areas of high habitat value, while prescribing fire suppression techniques designed to minimize the impacts of fire suppression actions on sensitive habitat. (Due to the impacts of the 1993 wildfires, long-term fire management is likely to be deferred in the Coastal subarea except for selective prescribed burns.)

With regard to the Central subarea, major populations of target species are located in relatively close proximity to urbanized development areas (*i.e.* along the frontal slopes of Lomas Ridge) and thus threatened with non-natural fire causes. In light of the extensive land areas providing connectivity from the Lomas Ridge frontal slopes through Weir Canyon to the Cleveland National Forest, a major wildfire could effectively interdict the "connectivity" functions of the proposed reserve design. Both short-term and long-term NCCP/HCP fire management measures will contribute significantly to the protection of concentrations of target species and

associated habitat. Short-term fire suppression plans will protect habitat in the same manner as described above for the coastal subarea while long-term fire management planning will define a phased prescribed burn program to reduce wild fire fuel loads and emulate the natural fire regime of CSS habitat.

-- Conclusions Regarding Consistency with the NCCP Conservation Guidelines/Mitigation Functions

It has been determined that the proposed Fire Management Mitigation Measures set forth below comprise a thorough and comprehensive habitat protection-oriented fire management program based in extensive studies by the County of Orange and infield experience by numerous public agencies. These measures promote the maintenance of net habitat value by (a) protecting populations of CSS Target/Identified species (b) protecting habitat from fire and from fire suppression impacts (c) protecting wildfire refugia (d) preventing habitat conversion due to excessive fire frequencies and (e) fostering CSS habitat regeneration by emulating a natural CSS fire regime. These mitigation measures are determined to provide important adaptive management measures that are consistent with the NCCP Conservation Guidelines and that contribute to maintaining net habitat value of significant CSS on a subregional basis, including in relation to scenarios under the three alternatives examined in Chapter 3. It has also been determined that, in light of the short and long-term threat to species populations and CSS engendered by wildfires such as those which occurred regionally in 1993, these mitigation measures may well constitute the most significant management contribution of the NCCP/HCP Adaptive Management Program to protection both NCCP Target/Identified Species and the habitat areas on which they depend.

MITIGATION MEASURES - FIRE MANAGEMENT

- 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 habitat reserve and connectivity areas and are intended to minimize the direct and

indirect effects of fire-fighting measures on sensitive habitat areas prior to completion of a long-term fire management plan:

- 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
- 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.
- 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.
- To the extent practicable, ground tactical operations will use natural features such as ridge lines, as well as roads and firebreaks for containment lines.
- 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.
- To the extent practicable, proper grading techniques and erosion control methods will be used to minimize soil erosion on fire roads.
- 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.
- 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 any fire season "step-up plan."

-- Short-term Fire Suppression Planning and Implementation

The Orange County Fire Authority, in cooperation with CDF and in consultation with the NCCP/HCP management entity, will prepare a short-term fire suppression program (for review and approval as provided for in the final Implementation Agreement) that will include the following elements:

-- Defining Fire Suppression Compartments that Encompass Major Populations of Target Species

- Delineation of 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.
- Identification of urban development fuel modification zone criteria which achieve effective fire protection for urban development while minimizing impacts on CSS habitat.

This program element 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 Matthews 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 Matthews 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."
- "Fuel Break Management Recommendations" for each Fuel Management Unit will be prepared 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 two small areas adjacent to Emerald Bay and Top of the World in the City of Laguna Beach).
- Fuel modification zones shall be located immediately adjacent to the Reserve System, separating the Reserve System from the nearest urban uses. Although fuel modification zones are not proposed within the Reserve System, a brief discussion of the importance of such zones is appropriate.
- 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 Goals and Policies

Long-Term Fire Management Goals

The long-term component of the subregional fire management program will address fire management in a manner designed to achieve the following adaptive management goals:

- 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
- Optimal fire frequencies shall be established for prescribed burns in relation to optimal fire regimes for CSS plant species (by creating a subarea habitat mosaic of several stages of CSS plant succession) and in relation to potential adverse erosion impacts from such burns.

Long-Term Fire Management Policies

The policies and assumptions that will guide the preparation of the long-term fire management program are:

- The fire management program will be pro-active, focusing on pre-suppression fire management activities.
- 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. If 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 (spring burns may enhance restoration efforts by reducing invasive species presence).
- Prescribed burns should be conducted "in season" for CSS plants, *i.e.*, at a time when plants can most effectively recover from a burn.
- The fire management program must be acceptable to CDF so that state funding can be utilized.
- 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.
- Fire Management Programs Directed Toward Carrying out the Long-Term Fire Management Policies

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.

-- Long-term Fire Management Planning and Implementation

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
- monitoring and integration into the reserve adaptive management regime

-- The Wildland Fire Management Model

The 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, including criteria for assessing measures for creating a mosaic of CSS succession over time;
- 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: (a) address long-term fire management issues such as the timing and location of prescriptive burns on a regularly scheduled cycle; (b) summarize and describe available fire management techniques, and (c) recommend implementation measures. The latter may include, but are 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 and shall be reviewed as provided for in the final Implementation Agreement;

B. Management of Non-Habitat Uses Within the Reserve

Function of NCCP/HCP Adaptive Management Policies Applicable to “Non-Habitat Uses”

The previous section has reviewed the adaptive management of measures proposed by the NCCP/HCP to address the management of the reserve habitat systems: (a) through comprehensive monitoring, enhancement/restoration of CSS habitat; (b) through eradication of invasive plant species impacting CSS habitat, controlling and reducing populations of predators that adversely impact NCCP target/identified species; and (c) providing for a comprehensive short-term and long-term fire management program to protect species populations and habitat. This section reviews the NCCP/HCP Adaptive Management Program for addressing “non-habitat uses” such as recreational uses and infrastructure maintenance, construction and operation activities (*i.e.*, water supply lines, water reservoirs, utility lines, roads) which will take place within the Reserve System.

The mitigation measures offsetting the impacts of “non-habitat uses” on CSS habitat within the Reserve System are reviewed in Section 7.5 (*i.e.*, mitigation of *participating landowner* impacts within and outside the Reserve System through the contribution of lands and funds to the Reserve System). In this section, the purpose of environmental review is to assess the adaptive management measures that are designed to “minimize” the impacts of allowable uses within the Reserve System that will be permitted as a result of mitigation measures provided by *participating landowners*. In this sense, the environmental review of the Adaptive Management Program for “non-habitat uses” within the Reserve System focuses on the management measures designed to assure that allowed non-habitat uses are carried out in a manner consistent with the goal of maintaining net habitat value within the Reserve System, to the maximum extent practicable. Hence, this section reviews only the minimization elements contributed by the NCCP Adaptive Management Program of existing and allowed uses within the Central and Coastal reserves whose impacts are mitigated primarily through the creation and funding of the Reserve System. In other words, the Adaptive Management Program provides for supplemental mitigation/minimization measures but is not the primary mitigation for the impacts of such uses.

Some of the uses allowed within the Reserve System could be located elsewhere but are considered highly desirable by society. These uses comprise recreational uses, both existing and new uses. Given its proximity to several million residents of urbanized areas in the Southern California region, the NCCP/HCP considers the opportunities for passive recreational use and public education regarding habitat systems to be a significant element of the overall NCCP implementation program. Because these uses also present the potential for adverse impacts on species and habitats, recreational use must be adaptively managed.

Other uses proposed within the Reserve System - primarily infrastructure (e.g., utility lines, roads, water reservoirs) are essential to serve present and future urban development outside the Reserve System. The need for such facilities on a regional basis was acknowledged in the EA for the 4(d) Rule. The specific need for such facilities has been reviewed environmentally in a series of master plan and project specific EIRs (see Chapter 9, Section 9.3), in the Regional Mobility Plan component of the South Coast Air Quality Management Plan (e.g., see Draft Regional Comprehensive Plan, SCAG, December 1993). Additionally, although not considered part of the Reserve System, the ETC/FTC segment and the SJHTC have been reviewed for FESA purposes in conjunction with Section 7 consultations for these facilities (see Appendix 8). Some previously approved arterial roads that would have been located within the Reserve System have recently been deleted from the County master Plan of Arterial Highways, in significant part as a result of the NCCP planning process (see Environmental Agency Report on "Revisions to the Text and Master Plan of Arterial Highways" dated June 27, 1995 and approved by the County Board of Supervisors on August 1, 1995). The remaining infrastructure facilities proposed to be located within the reserve have been determined to continue to be necessary for planned urban development as reviewed in the Master Plan EIRs summarized in Appendix 24.

Given the scale and timing of infrastructure facility planning, the precise location and extent of CSS impacts within the reserves cannot be known at this time. Accordingly, the NCCP/HCP in most instances provides total acreage allowances for take of CSS habitat within the reserve and then provides, through the Adaptive Management Program, for a set of impact minimization policies designed to reduce impacts within the reserve consistent with successful implementation of the infrastructure projects. Since these policies derive from the NCCP/HCP reserve management goals and are to be carried out through reserve management, these "non-habitat use" measures are properly considered to be part of the Reserve System Adaptive Management Program. It is this "minimization of impacts" process - both for operation,

maintenance and repair of existing uses and for construction, operation, maintenance and repair of new uses - that will be reviewed in this Section of the EIR/EIS.

***Summary of Permitted Uses Within the
NCCP/HCP Reserve System***

Before reviewing the specific elements of the Adaptive Management Program for “non-habitat uses,” it is helpful to summarize the “non-habitat uses” proposed by the NCCP/HCP to be allowed within the NCCP/HCP Reserve System. The proposed permitted uses are summarized as follows:

- recreation and public access, consistent with the policies contained in the Adaptive Management Program, including:
 - passive recreation activities such as nature interpretation and picnicking,
 - hiking, mountain biking and equestrian activities, only on designated trails,
 - camping, only in designated locations,
 - continued operation of pre-existing park facilities, including active recreation facilities within the developed portions of parks included within the reserve,
 - existing and new park administrative 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;
- necessary public and quasi-public infrastructure facilities and related operation and maintenance activities:
 - operation and maintenance of existing facilities,
 - construction of new public/quasi-public infrastructure facilities,

- construction of new utility and water district facilities, including water lines, pumping and storage facilities and transmission lines, and
- ongoing operations and maintenance activities related to the above facilities.

Public Access and Recreation Management Measures

Permitted public access and recreation uses, along with prescribed responsibilities for management of lands available for public access are set forth in the NCCP/HCP recreation and access policies of the NCCP/HCP and under the Mitigation Measures for this section. These policies and programs are to be implemented by the public agency owners/managers for their respective ownerships.

-- NCCP/HCP Access and Recreational Use Assumptions

According to the NCCP/HCP, the recommended subregional Reserve System has been formulated with the understanding that public access and passive recreational uses would be permitted within the permanent Reserve System. It was understood from the outset of planning for CSS and the target species that much of the public lands now recommended for inclusion in the permanent habitat reserve were originally acquired specifically for recreational purposes. It was also determined during formulation of the subregional NCCP plan that there are very few areas within the designated habitat Reserve System where the biological resources are so sensitive that no public use or access would be appropriate. The areas within the subregional Reserve System where the NCCP/HCP indicates that public access and recreation would not be appropriate are identified in Figure 26.

-- Consistency with Related Recreation Programs

The public access and recreation policies, set forth under "Mitigation Measures" below, have been formulated by the NCCP/HCP 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 by the NCCP/HCP for purposes of consistency include 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 (see Figure 20);
- the California Coastal Act of 1976 and the certified Local Coastal Programs for the Irvine Coast and the cities of Newport Beach, Laguna Beach, Dana Point, Laguna Niguel, and San Juan Capistrano;
- the approved Land Use Plan and Newport Beach/The Irvine Company development agreement for Upper Newport Bay;
- the NCCP Conservation Guidelines;
- the NCCP Act of 1991;
- County of Orange General Development Plans (GDPs) and Resource Management Plans (RMPs) for Upper Newport Bay Regional Park, Laguna Coast Regional Park, William R. Mason Regional Park, Aliso & Wood Canyons Regional Park, Talbert Nature Preserve, Santiago Oaks Regional Park and Irvine Regional Park;
- the California Endangered Species Act; and
- the Federal Endangered Species Act.

-- Projected CSS Impacts Resulting from Future County Park Facility Construction

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 gnatcatcher sites within the Reserve System. The loss of habitat and take of species associated with the development of future recreational facilities located within the reserve is considered authorized take and mitigated under the NCCP/HCP.

-- Conclusions Regarding Consistency with the NCCP Conservation Guidelines/Mitigation Function

The proposed Mitigation/Minimization Measures constitute a thorough and comprehensive set of policies and management measures directed toward protection of CSS habitat as the highest priority. The NCCP/HCP also specifically identifies those areas which are not appropriate for any form of public access. Therefore, it is determined that the proposed Mitigation Measures provide significant protection for NCCP target species and associated habitat and that such protection minimizes the likelihood of significant adverse impacts from public access and recreation activities within the Reserve System. As a result, the MITIGATION MEASURES are consistent with the NCCP Conservation Guidelines and contribute significantly toward maintaining net habitat value within the subregion by preventing/reducing recreational impacts that would occur in the absence of the NCCP/HCP Adaptive Management Program.

MITIGATION/MINIMIZATION MEASURES - MANAGEMENT OF PUBLIC ACCESS AND RECREATIONAL USES WITHIN THE NCCP/HCP RESERVE SYSTEM

Public Access and Recreation Policies

The following access and recreational use policies are intended to define recreational uses compatible with CSS protection and management and to provide for management and monitoring of such uses for habitat protection purposes:

1. Public access and "passive" recreational uses shall be permitted where appropriate 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 designated areas pursuant to adopted RMPs;
 - 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 adopted RMPs;
 - concession facilities supporting the above uses; and
 - other forms of public access and recreation determined by adopted RMPs 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 shown in Figure 26 due to the potential 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. The Figure 26 designations shall be amended as necessary as a part of the adaptive management approach to implementing the NCCP/HCP and existing and future RMPs.
4. Public access shall be carefully monitored by the respective reserve owner/managers consistent with the protocols established by the reserve implementation program 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 and/or where it is necessary to minimize impacts to sensitive habitat or where it would jeopardize biological research activities.

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 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 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 local government and state 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 significant 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 park and recreation facilities are included within the permanent habitat reserve:
 - Crystal Cove State Park (including the Crystal Cove State Park Plan as approved by the Coastal Commission);
 - Laguna Coast Wilderness Park;
 - Aliso and Wood Canyon Regional Park;
 - Talbert Nature Preserve
 - Upper Newport Bay Regional Park
 - Irvine Regional Park;
 - Peter's Canyon Regional Park;
 - Santiago Oaks Regional Park;
 - Weir Canyon Wilderness Park;
 - 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 Bowerman Landfill area proposed 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. The 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 General Plan policies and these policies, the conflict shall be resolved in favor of the NCCP/HCP recreation policy and the Recreation Element or RMP shall be amended through appropriate County action.
11. The following recreation uses shall be prohibited within the Central and Coastal reserves:
 - 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, entry areas, administrative facilities);
 - 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 determined to create significant harm to target species or sensitive natural habitat resources.
12. The County 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).

C. 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 proposed 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 this Section 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.

D. 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 this Section, 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 this Section.
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.

E. Preparation of Recreational Management Programs by EMA HBP

Consistent with the terms of Section 5.3.2 of the Implementation Agreement and the provisions set forth in this section, Recreational Management Programs shall be prepared by EMA HBP and submitted for review and approval to the CDFG and USFWS. The management program shall consist of a Resource Management Plan (RMP) for each County park located within the proposed habitat Reserve System. County approved RMPs already are available for some parks and are under preparation for others. These management programs 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. CDFG and USFWS review and approval of the RMP, including the process for resolving potential disagreements over program content, shall be conducted in accordance with the terms of Section 5.3.2 of the Implementation Agreement.

Management of Existing Uses, New Public Facilities Infrastructure Uses Permitted within the Reserve

Existing Facilities Allowed 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 (acreages are approximate) include:

- approximately 575 acres of agriculture, including orchards and row crops, more than 84% of which is located in the Central Subarea along the frontal portions of the Lomas de Santiago;
- approximately 8,660 acres of cattle grazing within the Central Subarea and 1,880 acres of grazing in the Coastal Subarea, all on The Irvine Company lands;
- the Frank R. Bowerman Landfill and Santiago Canyon Landfill, located in the Central Subarea and designated as a Special Linkage;

- a sand and gravel extraction operation, located in Santiago Creek west of Irvine Lake, operating under a Special Use Permit;
- a sand/gravel/asphalt batch plant operation located north of Rattlesnake Reservoir on approximately five acres;
- 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 and Crystal Cove State Park. 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;
- landfill and gas recovery operations in the Santiago, Bowerman and Coyote Canyon landfills including borrow sites, groundwater monitoring wells, interim access roads and maintenance facilities; and
- reservoirs and concessions for recreational uses.

Several of these existing uses will eventually be terminated.

-- New Uses Allowed within the Reserve

Certain public infrastructure necessary for public health and safety or economic reasons will be permitted within the subregional Reserve System. These facilities include:

- utility access roads, local roads, fire access roads, arterial roads and associated interchanges;
- water lines and reservoirs and associated facilities (e.g., pump stations, pressure control facilities, and access roads), and water storage and treatment facilities;
- sewer lines and pump/pressure regulator stations;
- electric, telephone, cable televisions, and natural gas facilities;
- storm drain and flood control facilities; and
- recreation facilities.

The policies set forth below under "Mitigation Measures" will guide the siting, construction, and operation of permitted infrastructure, both existing and proposed, within the subregional habitat reserve. Existing infrastructure facilities/corridors and infrastructure allowed by current general plans located within the Reserve System are illustrated in Figure 46. According to the NCCP/HCP, it is necessary to describe future permitted infrastructure facility siting conceptually because precise locations cannot be provided at this time (infrastructure locations shown on Figure 28 are generalized forecasts). Therefore, the policies set forth under "Mitigation Measures" allow flexibility in locating planned infrastructure within the Reserve System subject to the specific siting and other policies of this Section intended to minimize the impacts of allowed infrastructure.

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. According to the NCCP/HCP, as long as the amended infrastructure plans do not result in conversion of CSS habitat beyond that described and permitted by the NCCP/HCP, no amendment of the NCCP/HCP will be necessary for purposes of constructing infrastructure facilities.

The estimated amount and location of CSS and other wildlands that will be disturbed is given below. The estimated loss of CSS and take of target species associated with these planned facilities are addressed in the "Significant Impacts/Incidental Take" section of this EIR/EIS. Estimates of disturbance acreage and location are conceptual, but believed to be 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.

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). All of the biological impacts of the proposed 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 UCI LRDP and in compliance with the County's Master Plan of Arterial Highways. The proposed extension could permanently impact approximately three acres of occupied CSS habitat containing two Gnatcatcher sites.

In addition, portions of the UCI NCCP 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. 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.

- 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 adjacent to the Frank Bowerman Landfill facility (Figure 28) 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.

- 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 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.

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.

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.

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 managing entity 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 managing entity, 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 five 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.

-- Conclusions Regarding Consistency of the Infrastructure Siting and Operations Policies with the NCCP Conservation Guidelines

As reviewed previously, incidental take of CSS habitat proposed for existing and new infrastructure facilities is included in the impacts summary set forth in Chapter 6. The primary mitigation for such impacts is reviewed in Section 7.5.

With regard to the contribution of the NCCP Adaptive Management Program policies to minimization/mitigation of impacts of existing use operations and the construction/operation of new infrastructure uses inside the Reserve System, the NCCP adaptive management "Mitigation/Minimization" measures comprise an extensive program for limiting impacts of allowed facility operation and construction on habitat functions of the Reserve System. The

scope of operations, maintenance and repair activities is defined and procedures are established for addressing impacts resulting from such activities. Policies are also defined for the involvement of the particular reserve manager/owner in the review of plans for new construction, for the location of facilities in relation to sensitive resources and for construction-related actions to minimize impacts. Procedures and policies are also specified for emergency actions. Taken together, the Adaptive Management Program addresses infrastructure facility activities that have the potential to impact habitat value within the Reserve System and provides for policies and procedures that will minimize the impacts of such activities on overall net habitat value to the maximum extent practicable. Therefore, the Adaptive Management Program measures for existing and allowed infrastructure facilities within the Reserve System minimizes impacts on the net habitat value of the Reserve System and, in that manner, helps contribute to maintaining the long-term net habitat value of the Reserve System consistent with the NCCP Conservation Guidelines.

MINIMIZATION/MITIGATION MEASURES - EXISTING USE POLICIES

During “interim management” and after designated public and private lands are incorporated within the Reserve System, existing uses will continue to operate 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:

- existing uses shall be "permitted uses" within the Reserve System;
- existing uses shall be permitted to operate in accordance with any existing special conditions or as they have operated historically;
- 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;
- 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;
- 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;
 - existing Uses shall be terminated when the Special Use Permit (including any extensions) or other applicable approval expires, or when the operation is complete;
 - all restoration activities for terminated uses shall be conducted consistent with the provisions contained in the conditional use permit;
 - 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 by more than 10% without the approval of the existing use operator;
- the emergency procedures identified for Infrastructure below shall also apply to emergencies related to existing uses;

MINIMIZATION/MITIGATION MEASURES - NEW USES - INFRASTRUCTURE SITING AND OPERATION POLICIES

The policies and procedures specified in this section are intended to allow flexibility in locating planned infrastructure within the Reserve System while at the same time minimizing impacts on reserve resources in order to maintain net habitat value:

1. Operation and maintenance of existing and future infrastructure facilities is a permitted use within the Reserve System and, as described in the NCCP/HCP, are included as authorized incidental take under this NCCP/HCP.
2. Infrastructure facilities included in Figures 27 and 28 (or comparable facilities) shall be treated as permitted uses in the subregional Reserve System, subject to the specific policies set forth in Chapter 5 of the NCCP/HCP and herein.
3. To the extent feasible, siting of new infrastructure within the Reserve System shall minimize impacts to CSS, other habitat, and target species.
4. The loss of habitat and take of species associated with the new infrastructure facilities sited within the Reserve System, as identified in the NCCP/HCP, are considered authorized incidental take and is mitigated under the 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.

Activities Constituting "Operation and Maintenance"

Operation and maintenance (O/M) activities for existing and proposed facilities permitted within facility easements 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, other ongoing operations within landfills;
- 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.

Operations and Maintenance Policies

1. Operations and maintenance activities for existing and new facilities 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 through the use 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;
 - incidental take that results from operations/maintenance activities will be considered authorized, and will not be considered new take. Mitigation shall be satisfied by revegetating 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 to 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 utility 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 their 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 managing entity 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 of the gnatcatcher.

Policies Governing Construction of New Facilities

Consistent with the incidental take identified in this Chapter, and as specified in individual Section 10(a)/Section 2835-2081 approvals issued to project proponents pursuant to the Implementation Agreement, construction of new infrastructure and expansion of existing infrastructure shall be permitted 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 the project sponsor's Section 10(a) permit/Section 2835/2081 approval, assure that such activities conform to the NCCP/HCP. It is intended that coordination with the reserve owner/manager will occur concurrent with normal project review procedures and that no additional time or costs will be required.

-- Specific Policies

1. 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 managing entity 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.
2. 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.
3. To the extent feasible, infrastructure will be located 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.
4. Access roads for permitted facilities will be routed as feasible to minimize disturbance and impacts to sensitive resources. This will generally mean that the shortest feasible route will be used. Taking into account specific slope or safety circumstances, the cleared roadbed will be the minimum width capable of providing access in a cost-effective manner consistent with the slope and safety considerations. Paved travel ways, if necessary, will not exceed 12 feet in width. Necessary erosion control measures and/or drainage pipes will be included.
5. 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 managing entity, the proposing agency, or an independent consultant acceptable to the reserve owner/manager.
6. 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 five years following completion of revegetation.

7. Consistent with Policy 6 above, 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 or eliminate sedimentation.

Emergency Procedures and Policies

1. 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.
2. 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 by the project proponent in accordance with the standards and requirements included in this chapter;
 - revegetation shall be limited to the area determined to be disturbed;
 - 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; and

- under no circumstances shall the action of the managing entity or biologist delay necessary emergency repairs.

F. Interim Management Policies

-- Significance of Interim Management

Although the entire permanent habitat Reserve System is designated as a part of the Proposed Project, 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 37,000-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 22,000 acres, will be assembled over time through phased dedications, donations and acquisitions. It may require 25 years or more to transfer all of the lands designated for inclusion to the permanent reserve. Therefore, the NCCP/HCP has concluded that, to the extent feasible, it will assure that lands designated reserve lands are maintained in their existing conditions and not allowed to become significantly degraded pending their addition to the reserve. Further, as reviewed in Subsection "A" and in this section, NCCP adaptive management actions under the interim management program are expected to increase net CSS habitat value over the long term.

The period of time following the effective date of the Implementation Agreement and complete assemblage designated parcels of land as part of the Reserve System, is by the NCCP/HCP defined as the "interim management period." The "*participating landowners*" will, if the NCCP/HCP is approved and the Implementation Agreement becomes effective, commit to allow all of the management actions set forth under the NCCP/HCP Adaptive Management Program on such "interim management lands" except the creation of new CSS habitat. As a consequence, from the outset almost all of the positive contributions of the NCCP/HCP Adaptive Management Program would be implemented throughout the entire subregional Reserve System. This means that improvements in the net habitat value of reserve lands would occur in advance of much of the "incidental take" on lands designated for development and would, in effect, serve as advance mitigation. The contributions of monitoring, invasive species control/eradication and fire management to increasing net habitat value within the reserves have been reviewed in Subsection "A" above.

-- Significance of Grazing Management Element of the Interim Management Program for Oak Woodlands Habitat Values

In addition, the Interim Management Policies of the NCCP/HCP (see Mitigation Measures) require the review and approval of a grazing management plan. The EOGP FEIR reviews the relationship of grazing management to the long-term regeneration process for oak woodlands as follows:

“The habitat value of the [oak] groves preserved within the EOGP boundaries would be enhanced through procedures designed to reduce the past impacts caused by long-term cattle grazing. Improvement of local soil conditions would improve oak health by allowing better infiltration of water and nutrients, and would allow natural regeneration to occur at higher levels than presently found. The proposed improvement procedures are outlined below. Because the Limestone dedication area is very high quality at the present time, improvements to existing oak resources are expected to be relatively minor; however, improvement following management can be expected in the EOGP area.

“Although the improvement in existing [emphasis added] oak woodland health is expected to be relatively minor, implementation of the oak woodlands soils management programs will have long-term resource benefits [emphasis added]. It is important to recognize that presently existing adverse conditions such as erosion resulting from soil compaction and loss of ground cover from cattle grazing will continue to degrade the woodlands through root exposure, root crown suffocation, and loss of topsoil long after cattle removal is complete, thereby potentially impacting the long-term regeneration process for oak woodlands. The soil improvement measures [required by the FEIR] will correct these adverse conditions and help to assure the long-term regeneration of oak woodlands.” (EOGP FEIR, at pp. 5-83 to 5-84).

According to The Nature Conservancy report on “Oak Woodland Restoration” cited in Chapter 8:

“Areas subject to past cattle grazing still show signs of soil compaction and under story disturbance. Throughout Limestone Canyon, natural oak regeneration has been inhibited by disturbed soil conditions, preventing acorn sprouting. Many

stands which have been intensely grazed have limited number of seedlings and saplings; this limits the age diversity of the woodland. In addition, these heavily grazed areas frequently have reduced habitat value due to the lack of important under story species. These species have been directly removed by cattle and/or wildlife or are unable to regenerate in compacted soil conditions.” (“Oak Woodland Restoration” - prepared by Integrated Urban Forestry, June 1995 for The Irvine Company, The Nature Conservancy and The California Department of Forestry, p. 50)

The Mountain Park FEIR reaches the same conclusions regarding the impacts of cattle grazing on long-term oak woodlands regeneration:

“Oak habitat in both canyons [Gypsum Canyon and Weir Canyon] have been altered by cattle grazing. A combination of soil compaction and grazing pressure combine to severely limit the number of oak seedlings present throughout the lower portions of Gypsum Canyon and all of Weir Canyon. This condition, if continued, would ultimately lead to a lack of natural replacement of oak resources, and loss of oak values as the existing trees become senescent. (Mountain Park FEIR, at p. 4-78)

The Biology appendix for the Shady Canyon project FEIR also reviews the impacts of cattle grazing on woodlands resources and concludes:

“Streambeds throughout the flatter portions of the Shady Canyon site have experienced significant damage due to the site’s long history of cattle grazing (i.e, under story trampling and rapid runoff from overgrazed slopes leading to increased erosion). Removal of cattle form the site is a project benefit that will increase the value of riparian communities for native plants and wildlife when compared to existing conditions.” (Shady Canyon Master Plan - Planning Area 22 - EIR, p. 5.3-34)

Thus, based on certified EIRs incorporated by reference into the NCCP/HCP, it is clear that grazing management and specific oak management measures will contribute significantly to long-term regeneration of oak woodlands. It is also important to note that many of the potential adaptive management measures are conditions of already approved land use plans, thereby providing a funding source for such measures. Additionally, a February 26, 1996 letter

from the Nature Conservancy to The Irvine Company indicates that a \$20,000 donation from another source is available to carry out an oak woodland restoration plan in Weir and/or Limestone Canyons. Accordingly, it is determined that such management measures, required both as a part of prior project approvals and as provided for in the NCCP/HCP, will contribute to reducing impacts on oak woodlands to below a level of significance for CEQA purposes and are adequately addressed for NEPA purposes.

-- Conclusion Regarding the NCCP/HCP Interim Management Program

Therefore, it is determined that the comprehensive scope of the "interim management" measures, together with their broad and early geographic application to designated reserve lands, is consistent with the adaptive management aspects of the NCCP Conservation Guidelines. As a result, these "interim management" measures constitute significant mitigation for the impacts of incidental take resulting from activities on the part of *participating landowners*, both inside and outside the Reserve System.

MITIGATION MEASURES - INTERIM MANAGEMENT POLICIES

During this "interim" period the following management policies shall be implemented in order to protect and enhance net habitat value until such time as interim use lands are dedicated to reserve ownership:

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. However, because of the potential long-term impacts of grazing on biological resources within the Reserve System, a grazing management plan shall be submitted within one year of the creation of the reserve entity. Such plan shall cover grazing activities to be carried out and shall be reviewed and carried out in the manner provided for in Section 5.3.2 of the Implementation Agreement.
4. Other uses and activities existing at the time the NCCP/HCP 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/permits and 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.
5. Landowners and easement holders will permit the non-profit reserve managing 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 proposed to be covered under the NCCP/HCP;
 - 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 the NCCP/HCP; and
 - monitoring of public access and recreational activities.

The non-profit managing 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 set forth previously for existing uses, 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 and the fire management policies in this section.
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 reserve managing entity 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.
9. Oak woodlands avoidance, enhancement and restoration measures provided for in the final EIRs for the East Orange General Plan, Mountain Park General Plan/specific Plan and Shady Canyon projects shall be carried out in accordance with those CEQA documents as the specific projects are implemented.

G. Other Habitat Restoration Measures - Creation of New CSS Habitat

This section assesses that aspect of the NCCP/HCP Adaptive Management Program involving: (1) *restoration* activities focusing on the re-establishment of a wildland habitat type in areas that currently lack a functional habitat type and essentially possess few or no native plant communities and (2) *enhancement* of existing degraded CSS. Restoration activities such as the eradication of invasive plant species, grazing management and other management functions summarized under "Interim Management" have been reviewed previously (*e.g.*, see discussions of Invasive Species Management, Fire Management, Public Access and Recreation Controls). For purposes of this analysis, "*enhancement*," as contrasted with "*re-creation*" of habitat is defined as restoration of habitat value on a degraded site which contains some components of a native community but lacks the density and diversity of native species normally found in a fully functioning example of the habitat type.

-- Factors Involved in Assessing CSS Enhancement and Restoration Potential

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.*, hydroseeding equipment) and suitability of terrain for restoration (ability to use equipment and erosion potential).

According to the NCCP/HCP, restoration of CSS is appropriate where a candidate site's characteristics are consistent with characteristics of sites where coastal scrub is typically found. Coastal sage scrub is typically found where soils are sandy or loamy, well drained, and thin to moderately deep. Coastal scrub is found in a wide variety of topographic situations, including ridgelines, 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 isolated sites (*e.g.*, ridges, south-facing slopes).

-- Habitat Restoration Opportunities

The NCCP/HCP Adaptive Management Program for "habitat creation/habitat enhancement" builds on concepts in The Irvine Company Open Space Reserve Habitat Enhancement and Restoration Plan prepared by The Nature Conservancy (1993). According to the NCCP/HCP and prior Nature Conservancy studies, habitat restoration/enhancement opportunities in the proposed Coastal subarea reserve include several non-wildland areas and a number of degraded sites. Restoration of non-wildland areas would be beneficial 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.

Habitat restoration/enhancement opportunities in the Central Subarea Reserve identified by the NCCP/HCP also include both non-wildland areas and a number of degraded sites. Non-wildland areas needing restoration include the Frank Bowerman landfill, Siphon Reservoir, the old 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 Cieneba-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.

-- Habitat Restoration/Enhancement Priorities

Restoration of the non-wildland areas 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.

According to the NCCP/HCP, restoration and enhancement actions 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 highest 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 subject to "interim management" prior to inclusion within the Reserve System.

According to the NCCP/HCP, the first priority areas within the Reserve System for habitat restoration/enhancement will be restoration of the agricultural and disturbed (non-wildland) areas included within the reserve. 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.

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 System. Restoration/enhancement work will be focused by considering both habitat priorities and restoration and enhancement needs. Under the NCCP/HCP, the first preference for this

type of restoration and enhancement will be CSS occupied by one or more target species, 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 (five 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 (less than five acres) will be given lower preference due to their limited importance, and large sites (greater than 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.

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, but is not considered essential to the long-term viability of the reserve. 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.

-- Restoration/Enhancement in Conjunction with Potential Pacific Pocket Mouse Translocation Program

The Adaptive Management Program provides a framework for accomplishing translocation of Pacific pocket mice if deemed feasible by the USFWS after additional scientific study and analysis. The Reserve System may include potentially suitable Pacific pocket mouse habitat. The Reserve System provides substantially greater buffering capabilities from impacts detrimental to the species and could allow for the establishment of areas of natural refugium. One of the specific conditions of coverage of the Pacific pocket mouse is that the NCCP/HCP Non-Profit will agree to allow Pacific pocket mice to be relocated onto portions of the Reserve System determined to be suitable for the mice and will provide for related enhancement, restoration, recovery and monitoring activities as part of the Adaptive Management Program.

-- Grasslands Management to Enhance both Native Grasses and Oak Woodlands

As the 1995 "Oak Woodlands Restoration" report indicates, grasslands management is essential to oak woodlands restoration. According to this report, the management prescriptions for "oak and sycamore woodland soils, maintenance and reforestation management activities" comprise:

- 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)

-- Conclusion Regarding Contribution of this Adaptive Management Function to Maintaining Net Habitat Value within the Subregion - Consistency with NCCP Conservation Guidelines/Mitigation Functions

The enhancement and restoration measures incorporated into the NCCP/HCP include a combination of approaches involving enhancement of existing habitat, control of exotic plant/animal species, fire management, grazing management, and funding for restoration/recreation of CSS habitat within the Reserve System. As reviewed in Subsection "A," restoration and enhancement activities within the Reserve System will proceed in part under the Adaptive Management Program funded by "*participating landowners*;" however, additional restoration/enhancement will be funded by the mitigation fees generated by "*non-participating landowners*" that cannot avoid impacts on CSS habitat located outside the reserve that is occupied by the coastal California gnatcatcher and who decide to fund payment of the NCCP/HCP mitigation fee option rather than pursue FESA Section 7 or 10 approvals.

The Nature Conservancy has mapped and ranked enhancement and restoration opportunities within the 17,000-acre portion of the subregional Reserve System that it manages for The Irvine Company on a contractual basis (see Appendix 16). Based on the detailed mapping and rankings compiled by TNC for the 17,000-acre portion of the Reserve System, it is evident that adequate enhancement/restoration opportunities exist within the reserve to offset the take by

non-participating landowner of occupied habitat located outside the Reserve System. The NCCP/HCP provides for funding under the Adaptive Management Program and via the mitigation fees to address the identified restoration opportunities. For those reasons, the enhancement and restoration measures that are a part of the NCCP/HCP constitute significant mitigation, consistent with the provisions of the NCCP Conservation Guidelines concerning the role of restoration and enhancement in maintaining net CSS habitat value within the subregion on a long-term basis.

MITIGATION MEASURES

-- 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 mitigation fees paid by *non-participating landowners* to offset development impacts on occupied habitat 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 NCCP Non-Profit for enhancement/restoration activities on non-CSS habitat within the reserve, provided that such activities would not conflict with the provisions of the NCCP/HCP.

4. Identified enhancement/restoration measures will be implemented as funding becomes available. 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 NCCP Non-Profit 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 one year following the creation of the NCCP Non-Profit, a comprehensive enhancement and restoration plan shall be prepared and submitted to the USFWS and CDFG for review and approval. This plan shall be updated annually by the non-profit management corporation. Enhancement and restoration activities may proceed prior to preparation and approval of this plan.
7. 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 proposed for future inclusion in the reserve subject to "interim" management prior to inclusion within the Reserve System.
8. 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.

9. The first priority for habitat restoration through creation of new CSS habitat will focus on the agricultural and disturbed (non-wildland) areas included within the Reserve System (approval of the landowner is required on "interim management" lands). 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.

10. The second priority will be to restore/enhance degraded wildland areas, especially coastal scrub and "covered habitats" (the latter through coordination with CEQA-required project mitigation measures and implementation of the required grazing management plan). The Nature Conservancy has identified a number of opportunities within the reserve for CSS and oak woodlands restoration/enhancement. 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 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 for CSS enhancement 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 (less than five acres) will be given lower preference due to their limited importance, and large sites (greater than 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 CEQA-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 NCCP Non-Profit.
11. 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.

Preparation and approval of overall enhancement and restoration plans shall be undertaken as provided for in the NCCP/HCP and the Implementation Agreement.

-- Technical Guidelines for Habitat Enhancement and Re-creation 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. Guideline examples of techniques are presented below. 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 operators 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 hydroseeding, 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 and 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 hydro seeded 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: cardoon, black mustard, milk thistle (*Silybum marianum*), Russian thistle, tree tobacco, and fennel.

-- 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. 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, hydro mulching, 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.
- 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.
- 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.
- Cooperation with the Management and Restoration Committee to be convened by CDFG and USFWS for purposes of designing and carrying out multifactorial experiments, when and if that committee is convened and funded to do this experimentation.

SECTION 7.4 ANALYSIS OF THE NO TAKE AND NO PROJECT ALTERNATIVES - LONG-TERM HABITAT MANAGEMENT CONSIDERATIONS

7.4.1 Analysis of the No Take Alternative - Implications for Adaptive Management

The public ownership aspect of the reserve management and connectivity planning have been addressed above in Section 7.2 in the context of the implications of the No Take Alternative for reserve design and connectivity. This section will review the implications of the absence of public/non-profit management of lands vital to the NCCP reserve design in relation to the “adaptive management” component of the NCCP sub-regional plan.

A. Loss of Habitat Enhancement/Restoration Opportunities in Comparison with the Proposed Project

As the Conservation Guidelines indicate, so long as CSS areas essential to reserve design remain in private ownership and no assured funding program is provided for, the long-term dynamics and health of the CSS system will likely suffer the consequences of “benign neglect.” Thus, a No Take Alternative would avoid direct habitat impacts to CSS occupied by gnatcatchers (and the other six federally listed Identified Species) but yield a system that would very likely either not be self-sustaining or would manifest characteristics of habitat decline and loss of diversity.

Under a No Take scenario, significant adverse habitat management consequences would result both on lands subject to dedication requirements and on lands that would not be dedicated due to the prohibitions on development. Areas that will be dedicated even with the No Take Alternative (*i.e.*, dedication increments not affected by the No Take development prohibitions) would be protected as open space but would not be actively managed for habitat enhancement and restoration. Opportunities for habitat enhancement/restoration identified by the NCCP/HCP (relying in significant part on prior stewardship planning by The Nature Conservancy report on habitat enhancement and restoration areas in the Central and Coastal subareas) would not be made available for sustained management. Additionally, such areas would not be subject to the public recreational use management policies of the NCCP.

Areas that would not be dedicated due to the development prohibitions inherent in the No Take Alternative would lose all the foregoing benefits of the NCCP plan and would also not be subject to the habitat benefits resulting from the NCCP “interim management” commitments. Under the NCCP, lands subject to dedication in the future will be committed to NCCP “interim management” as of the date the NCCP Implementation Agreement becomes effective rather than at the time of eventual dedication. Under the NCCP/HCP, these early commitments to “interim management” include:

- monitoring of habitat conditions;
- NCCP invasive plant and animal species control activities;
- short-term and long-term fire management;

- public access management; and
- grazing management.

The benefits of each of the above adaptive management functions that would not occur under the No Take Alternative are reviewed extensively in Section 7.3 of this document. As noted in the Shady Canyon project EIR, control of cattle grazing alone would be a very significant contribution to the health of the CSS system.

B. Potential Loss of CSS Habitat Vitality due to Absence of a Pro-Active Long-Term Fire Management Program

In late October 1993, a series of major wildfires struck many wildland areas of southern California including several areas containing significant CSS resources. Although fire plays a role in CSS re-generation, excessive fire frequencies can have devastating long-term effects on CSS re-generation. According to a TNC report,

Coastal sage scrub is considered to be somewhat fire-tolerant; however, short fire-return cycles quickly convert coastal sage scrub to non-native, annual grassland, as has occurred at Chino Hills State Park and on Camp Pendleton Marine Base.

Due largely to urban expansion along its boundaries, Chino Hills State Park in northern Orange County has suffered four major wildfires in ten years, with the resultant impacts summarized above by TNC. In the case of the Coastal planning subarea, another wildfire or series of wildfires in any way comparable to the experience of Chino Hills State Park so soon after the October 1993 wildfires would potentially have severe impacts for long-term CSS regeneration.

Although the Central planning subarea did not suffer a major wildfire this past year, the vast scale of the planning area and its exposure along a long urban interface could lead to similar wildfires in generally inaccessible terrain. NCCP/HCP adaptive management includes both short and long-term fire prevention measures. As the USFWS has recently observed, controlled burning activities have “decreased from about 20,000 acres a year in Southern California in the mid-1980s to 5,000 to 6,000 acres currently.” Absent NCCP adaptive management planning and implementation for long-term fuel load reduction measures, the Central planning subarea will likely remain exposed to severe wildfire hazards. In turn, a near-

term fire in the Central planning subarea could have significant adverse regional cumulative impacts for target species if fires were to occur prior to the regeneration of CSS in the Coastal planning subarea, thereby leaving overall regional populations exposed to compounded stress potentially resulting from weather and cowbird parasitism impacts.

Regarding near-term fire suppression planning, the Adaptive Management Program of the NCCP subregional plan provides for funding resources to carry out the type of resource-sensitive fire suppression/attack plan recently completed through a collaborative MWD/CDFG/USFWS/CDF effort for the Lake Mathews Reserve (see further discussion in Section 7.3.3A). Since CSS habitat areas may convert to non-CSS, invasive plant species, the Coastal subarea needs special protection to try to assure that another wildfire does not occur as CSS is re-establishing following the 1993 wildfires. Given the extremely heavy rainfall of the 1994-1995 rainy season and resulting rapid increase in revegetation, the hazards of fire recurrence have likely increased. In the Central subarea, the large-scale of the open space systems and fuel load buildup as the result of two years of heavy rainfall in the last three winters combine to accentuate the need for both short-term fire control planning and long-term prescribed burn fuel load management as provided for in the NCCP/HCP. Although fire management planning has been undertaken in Orange County, there would be no institutional mechanism for coordinating fire management and habitat planning due to the absence of the NCCP Adaptive Management Program under the No Take Alternative.

C. Implications of the Loss of Bio-diversity under the No Take Alternative

Five major open space dedication programs, covering a substantial portion of the central Orange County wildlands with significant habitat resources (see Figure 67) would be severely impeded under a No Take Alternative. These areas are:

- the Irvine Coast dedication areas;
- The City of Irvine San Joaquin Hills GPA 16 dedication areas;
- the Lomas Ridge City of Irvine GPA 16 and City of Orange EOGPA dedication areas;
- The City of Orange EPGPA Limestone Canyon dedication areas;
- The City of Anaheim Mountain Park Weir Canyon and Windy Ridge dedication areas;

As can be seen from the summary habitat map at Figure 4 and from a review of the area specific dedication maps set forth in Figure 68, the areas precluded from dedication as a result of the No Take prohibitions on development that would otherwise trigger the dedications contain significant non-CSS habitat. As reviewed in the EA for the 4(d)Rule, development pressures on these areas would be substantial. Dedication areas not converted to development would nonetheless suffer from the absence of public management.

7.4.2 Comparison of Habitat Management Under the No Project and NCCP Subregional Plan Alternatives

Under the No Project Alternative, coordinated, long-term management of CSS habitat and related species - as well as management for other habitat types that could be addressed as part of a NCCP permanent habitat Reserve System - would not be possible. The unpredictable timing and geographically disjointed characteristics inherent in the project-by-project review and approval process over a 30-50-year buildout time frame would severely limit the management options available for the remaining CSS and other habitat communities within the subregion.

As envisioned by the NCCP Conservation Guidelines, the NCCP approach emphasizes “adaptive management.” Simply put, this management concept recognizes that smaller, appropriately managed reserves may have greater likelihood of maintaining CSS bio-diversity than a system of larger unmanaged reserves. Under the adaptive management approach, management must be continuous, flexible and capable of adapting to changing conditions over time. Under the proposed Central and Coastal Subregional reserve management program, “adaptive management” would be implemented continuously on a subregional scale starting at the very outset of NCCP program implementation and extending over the long term. In this way, the NCCP Adaptive Management Program would facilitate natural successional dynamics of the CSS habitat system and would provide management flexibility so that new information and techniques can be assimilated into the reserve management program as the new information or techniques become available. Maintaining natural successional dynamics (*e.g.*, through eradication of invasive plant species, preventing repeated wildfires leading to conversion of CSS and fire management to create a mosaic of CSS plant succession stages) provides long-term habitat viability and, therefore, long-term species viability. Key elements of the NCCP Central and Coastal Subregion Adaptive Management Program include:

- coordinated research and monitoring of the permanent Reserve System;

- active enhancement and restoration of degraded habitat resources within the Reserve System; and
- fire management designed to prevent the adverse effects of fire on sensitive habitats within the reserve and on adjacent urban areas, and possible selective use of fire as a management tool to maintain/enhance certain habitat values.

Under the typical Section 7 and Section 10 processes, specific parcels of land are subject to Section 7 or Section 10 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 lands would actually come under Section 7 or 10 review and, equally significantly, when lands containing CSS habitat would be subject to ESA incidental take processes. Thus, there would be no ability to plan for, much less undertake, short and long-term management actions for lands whose status and commitment to an actual reserve cannot be committed either in terms of geographic location or in terms of timing.

For example, long-term fire management requires the identification and designation of fire management compartments and systematic phasing of fuel load reduction (*e.g.*, through prescribed burns, controlled grazing) over time on a phased basis. Absent a comprehensive fire management program, CSS habitat would degrade over time due to repeated wildfires leading to conversion of CSS habitat (*e.g.*, Chino Hills State Park) and CSS species populations would be subject to loss by catastrophic fire events. Without assurances as to the actual configuration of the reserve - and without assurances that individual landowners will agree to an overall reserve fire management plan - the planning and implementation of a CSS fire management program would be infeasible. Similar factors apply to other adaptive management techniques such as habitat enhancement and restoration which need to be related to the overall reserve design.

Thus, under the No Project Alternative, the absence of certainty regarding reserve design and “connectivity,” combined with the inability to provide the funding and technical/administrative coordination necessary to continuously implement “adaptive management” would result in:

- reduced bio-diversity over time, both within the CSS community and among the other vegetation communities included in the open space areas because of diminished enhancement and restoration;

- long-term loss of habitat vitality due to the lack of fire management (leading either to excessive fire frequency or to lack of properly timed fire necessary for healthy CSS successional plant dynamics); and
- reduced subregional bio-diversity due to diminished protection for others habitats adjacent to CSS which cannot be addressed under FESA protections limited to listed species.

7.4.3 Conclusion: Comparison of the Proposed Project with the No Take and No Project Alternatives for Purposes of Consistency with the Adaptive Management Requirements of the NCCP Conservation Guidelines

A. Comparison of the No Take and Proposed Project Alternatives

Under the No Take Alternative, the geographic scope and range of habitat types addressed would be far less than that of the Proposed Project. As a consequence, any management program would inherently be substantially smaller in scope and considerably less effective than that of the Proposed Project. These environmental consequences, in effect, are inherent in the regulatory scope of the No Take Alternative. The scope of “adaptive management” is constricted by the habitats and geographic areas occupied by the gnatcatcher and the six other listed species, a far smaller land area than the Reserve System of the Proposed Project.

Additionally, due to the absolute prohibition on take under the No Take Alternative, it is doubtful that any funds would be available from private landowners because, unlike the Section 7 and Section 10 approaches which do allow take, the No Take Alternative would have no basis for requiring management funding as part of project mitigation because there would be no impacts (*i.e.*, no “take”) allowed. In essence, there is no regulatory “nexus” for requiring management funding contributions on the part of private landowners and all management activities would have to be funded through public programs. However, constraints on public funding make it unlikely that active management (*e.g.*, comprehensive fire management, invasive species eradication) could be funded. Moreover, even if public funding were available, some management measures could not be conducted, such as the proactive measures directed at the Headlands pocket mouse population, since such measures would still require the consent of the landowner. Such consent would be unlikely with a No Take Alternative since there would be no incentive to the landowner.

Finally, the broad range of assurances provided by the NCCP/HCP Implementation Agreement has served as the primary incentive for NCCP/HCP “*participating landowners*” to allow the use of phased dedication lands for “interim management purposed.” Given the fact that “interim management” involves every element of the NCCP/HCP Adaptive Management Program except enhancement and recreation of CSS habitat, the “interim management” commitments allow the implementation of a comprehensive Adaptive Management Program right from the outset under the Proposed Project. However, because the No Take Alternative is simply prohibitory (*i.e.*, it precludes the use of land), the affected landowners have no incentive to allow any of their lands to be actively managed. The environmental consequence is the “benign neglect” scenario reviewed by the Scientific Review Panel in the NCCP Conservation Guidelines.

For the above reasons, it is determined that, for purposes of consistency with the NCCP Conservation Guidelines, that the No Take Alternative would not be able to met the adaptive management requirements of the NCCP Conservation Guidelines and that the No Take Alternative, from the perspective of long-term comprehensive management of natural communities, would have significant adverse environmental effects.

B. Comparison of the No Project Alternative with the Proposed Project

The No Project Alternative is inherently incremental in nature. Areas to be protected cannot be defined until individual Section 7 consultations and Section 10 habitat conservation plans are finalized. For purposes of timing, Section 7 consultations would not occur until individual landowners propose development activities requiring federal permits or licenses that result in a regulatory linkage between proposed take and the particular activity. Likewise, the timing of Section 10 habitat conservation plans depend totally on the initiative of private landowners whose proposed activities would result in take; moreover, under Section 10, the scope of a habitat conservation plan, both geographic and species coverage, is dependent on decisions made by the private landowner. Due to this incremental, case-by-case characteristic of the No Project Alternative, the timing and geographic scope of the ultimate Reserve System cannot be known until a considerable period of time passes during which the individual Section 7 and Section 10 consultations proceed to their respective conclusions. As a consequence, any management activities proposed for lands subject to the Section 7 and Section 10 actions will be correspondingly limited in timing, geographic scope, substantive content and species coverage.

In contrast, under the Proposed Project, the ultimate boundaries of the Reserve System are known from the outset. This certainty of reserve design allows for a comprehensive approach to adaptive management. Under the Proposed Project, all of the adaptive management elements of the NCCP/HCP, except creation of new CSS habitat, will proceed pursuant to the "interim use" provisions of the NCCP/HCP even on lands that will not actually be dedicated for many years. NCC/HCP short-term and long-term management priorities are proposed to be assessed, both geographically and programmatically, so that the most effective "menu" of management actions can be selected. Such an assessment of comparative management needs is simply not feasible under the No Project Alternative due to the uncertainty of long-term reserve configuration. Moreover, the Proposed Project provides for a comprehensive, large-scale monitoring and evaluation program for continuous feedback to the Adaptive Management Program, in contrast with the inherently more limited scope of monitoring, evaluation and adjustments to the habitat management program(s) under the No Project Alternative.

Specific management actions, such as fire management, must be undertaken on a large geographic scale (*e.g.*, wildfire suppression planning) and over a long time period (*e.g.*, preparation and implementation of a phased prescribed burn on a subregional basis both to reduce "fuel load" for wildfires and to more closely approximate the natural fire regime of CSS habitat) in order to protect long-term CSS habitat value, habitat connectivity and bio-diversity. In contrast, under the No Project Alternative, the uncertainty of ultimate reserve design would severely inhibit wildfire management planning and implementation, particularly with regard to wildfire management sensitive to habitat protection considerations modeled after the MWD Lake Mathews plan (as provided for under the Proposed Project).

Under the No Project scenario other adaptive management actions such as invasive plant species eradication would be limited in geographic scope to those areas actually committed for preservation on a case-by-case basis through the No Project incremental review process. However, many adaptive management actions, such as invasive plant species eradication, cannot be effective if implementation activities are not implemented on adjoining lands. Similar considerations apply to adaptive management activities such as control of recreational use and habitat enhancement.

Long-term management funding would also be less certain under the No Project Alternative than under the Proposed Project. While USFWS could allocate the TCA Section 7 contributions to the reserve program under the No Project Alternative, other funding sources

such as IRWD and MWD would not be secured until Section 7 or Section 10 actions are finalized. In contrast, the full extent of funding available for adaptive management is known at the outset under the Proposed Project.

The NCCP Conservation Guidelines indicate that CSS “net habitat value” could be assured for a Reserve System smaller than the current extent of CSS habitat provided that a comprehensive Adaptive Management Program is undertaken on a reserve-wide basis (see Chapter 8 for a more extensive discussion of “net habitat value”). Because the No Project Alternative is inherently limited in geographic scope, the Adaptive Management Program is similarly constrained as summarized above. Consequently, it is possible that the more limited extent of adaptive management under the No Project Alternative would make it difficult to assure the protection of subregional “net habitat value.” This would lead to difficult decision-making under specific Section 7 and Section 10 actions, and focus greater attention on preserving land as is rather than proceeding with the comprehensive adaptive management strongly encouraged by the NCCP Conservation Guidelines. The result under the No Project scenario could well be a continuation of the current system of “benign neglect” criticized by the NCCP Scientific Review Panel.

C. Conclusion Regarding the Environmentally Preferred Project for Purposes of Consistency with the Adaptive Management Provisions of the NCCP Conservation Guidelines

For the reasons set forth above, the Proposed Project is determined to provide for a program of adaptive management that would be far more comprehensive, and therefore more effective, than that which would take place under the No Take and No Project Alternatives. Moreover, the early implementation of a comprehensive Adaptive Management Program on a reserve-wide basis under the Proposed Project is a program element that cannot be paralleled under either the No Take or No Project Alternatives. Therefore, the Proposed Project is determined to be the preferred project for purposes of assuring consistency of an Adaptive Management Program with the NCCP Conservation Guidelines.

SECTION 7.5 CONCLUSION - MITIGATION (CREATION OF THE RESERVE PLUS IMPLEMENTING ADAPTIVE MANAGEMENT)

7.5.1 Mitigation of Potential Incidental Take on the Part of "*Participating Landowners*"

The mitigation measures intended to address the impacts of incidental take on the part of "*participating landowners*" occurring with regard to CSS habitat identified in the NCCP/HCP and assessed in this EIR/EIS may be summarized as follows:

- funding for the consultant team that assisted in the preparation of the subregional NCCP/HCP - funding provided by The Irvine Company, the Transportation Corridor Agencies, the Metropolitan Water District of Southern California, the Southern California Edison Company, the Irvine Ranch Water District and the County of Orange totals more than \$1,000,000;
- funding for the \$10,600,000 endowment for the Adaptive Management Program determined by CDFG and the USFWS to be adequate to fund the long-term management of the Reserve System, as provided for in the Mitigation Measures and as further outlined in Chapter 4 of the NCCP/HCP (including \$6.6 million from the TCAs, and \$1 million each from the County of Orange, MWD, IRWD, \$400,000 from SCE, \$500,000 from Chandis-Sherman, and \$50,000 from the SCWD).
- prior Irvine Company agreements to dedicate 17,877 acres of lands located within the proposed Reserve System (including 9,698 acres of CSS and 8,179 acres of other wildlands);
- agreement on the part of The Irvine Company to transfer an additional 3,000 acres of lands to the Reserve System (a portion of which, in the East Orange area, is a non-mitigation donation) at no cost to the NCCP implementation program and Special Linkage resource protection commitments as reviewed in this chapter;
- separate funding for supporting biological and planning studies by The Irvine Company and other *participating landowners* (e.g., The Irvine Company funded more than \$400,000 of land stewardship planning by The Nature Conservancy which contributed

significantly to the understanding of current conditions and to the formulation of the Adaptive Management Program);

- Southern California Edison Special Linkage resource protection commitments and commitment to make available the SCE Portola property for acquisition on behalf of the Reserve System as reviewed in the NCCP/HCP analysis of Special Linkages in Chapter 4 of the NCCP/HCP; and
- commitment on the part of the Transportation Corridor Agencies to fund cowbird trapping, construct wildlife corridors, undertake 314 acres of vegetation restoration on side slopes of the three transportation corridors and 318 acres of CSS restoration/preservation and provide habitat management funding within the Reserve System pursuant to USFWS Section 7 consultations.

Section 7 consultations were conducted between the USFWS and FHWA regarding the projected impacts of the SJHTC and the ETC on the federally listed gnatcatcher (see Appendix 8). Because the NCCP/HCP proposes that conversion of gnatcatcher habitat resulting from the construction of the SJHTC and ETC will be covered for purposes of state law by treating the gnatcatcher as an "identified species" pursuant to the NCCP Act/CESA, and because the construction of these transportation corridors is proposed by the NCCP/HCP to be covered under the Implementation Agreement with respect to all NCCP/HCP Target/Identified Species not considered in the individual consultations, the Section 7 mitigation measures/conditions contribute to NCCP/HCP mitigation as summarized below. The total TCA mitigation program for the three corridor projects includes 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
	Re-align ETC at Siphon Reservoir	
	Other	26 wildlife culverts 5 wildlife bridges

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)

The TCAs already have funded \$ 2,775,000 of the total conservation fund package, with the balance to be paid through a phased funding program described in the USFWS biological opinions for the Section 7 consultations. These management program funds are essential for purposes of implementing the NCCP/HCP Adaptive Management Program. 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 Mitigation Measures required as a result of the Section 7 consultations for the Transportation Corridors are set forth in Appendix 8, and all habitat impact measures relating to CSS are incorporated as Mitigation Measures for the NCCP/HCP. The use of TCA funding for long-term NCCP Reserve System management and the addition of revegetated/restored habitat to the NCCP reserves contribute significantly to the overall NCCP/HCP implementation program and are thus considered substantial mitigation for potential ETC/FTC and SJHTC impacts to Identified Species as well as to the gnatcatcher per the Section 7 consultations.

- The County of Orange EMA is contributing to the creation and implementation of the Reserve System and to the long-term Adaptive Management Program through the following actions:
 - compiling and updating the County-wide GIS to assist in long-term monitoring and management of the Reserve System;

- commitment of lands owned/managed by the County Environmental Management Agency, Harbors, Beaches and Parks Department to the permanent habitat Reserve System;
 - ongoing commitments of staff and funding to manage the Reserve System in a manner consistent with the policies and programs set forth in the NCCP/HCP; and
 - acquisition of the SCE property in Portola Hills (99 acres), and potential acquisition of the Orange Unified School District/Serrano Irrigation District ownerships (524 acres) in the general vicinity of Weir Canyon for inclusion in the Central reserve and Santiago Ranch (120 acres), adjacent to Limestone/Whiting Regional Park.
- The California Department of Parks and Recreation has two ongoing CSS restoration programs at Crystal Cove State Park covering 18 acres of parkland which have not been credited for mitigation for any past disturbances of CSS. In recognition of the substantial benefits provided by this new CSS habitat (including a significant increase in gnatcatcher populations and the refugium function performed by coastal shelf CSS during the 1993 wildfires), mitigation credit in the amount of 18 acres is being assigned to Crystal Cove State Park to offset any future impacts from park activities or facilities not provided for in the current Crystal Cove State Park General Plan up to that amount of CSS impact.

7.5.2 Mitigation of Potential Incidental Take on the Part of "*Non-Participating Landowners*"

Proposed mitigation options for incidental take occurring on CSS habitat identified in the NCCP/HCP and reviewed in this EIR/EIS resulting from actions of "*non-participating landowners*" may be summarized as follows:

- provision of measures satisfactory to the applicable regulatory agencies (*e.g.*, compliance with Section 7 or 10 of FESA) to assure the maintenance of net habitat value to offset the impacts of the proposed take; or

- payment of a mitigation fee to the NCCP/HCP management entity to assure the maintenance of net habitat value by means of habitat restoration/enhancement within the Reserve System and/or acquisition of CSS habitat lands to be added to the Reserve System.

7.5.3 Construction-Related Minimization Measures

The NCCP/HCP proposes that certain **construction-related minimization measures** be required to assure that development/construction within areas recommended to be authorized for incidental take of CSS (including allowed uses within the Reserve System) be undertaken in a manner that minimizes impacts on gnatcatchers presently using or in close proximity to the habitat to be converted. These minimization measures would also be expected to benefit other Identified CSS species.

For *participating landowners*, each landowner will comply with the "construction-related minimization measures" as part of compliance with the landowner's individual Section 10(a) permit pursuant to the Implementation Agreement. For *non-participating landowners*, the construction-related minimization measures will be integrated with standard brush-clearance/grading permits at the local government level by signatory local governments as specified in the Implementation Agreement.

Since the construction-related minimization measures are based on measures required in prior gnatcatcher Section 7 consultations and Section 10 HCPs, these measures are determined to constitute significant minimization/mitigation of impacts of uses proposed to be allowed in or near CSS occupied by gnatcatchers.

MINIMIZATION/MITIGATION MEASURES - CONSTRUCTION RELATED IMPACTS

1. To the maximum extent practicable, no grading of CSS habitat that is occupied by nesting gnatcatchers will occur during the breeding season (February 15 through July 15). It is expressly understood that this provision and the remaining provisions of these "construction-related minimization measures," are subject to public health and safety considerations. These considerations include unexpected slope stabilization, erosion control measure and emergency facility repairs. In the event of such public health and safety circumstances, landowners or public agencies/utilities will provide USFWS/CDFG with the maximum practicable notice (or such notice as is specified in

the NCCP/HCP) to allow for capture of gnatcatchers, cactus wrens and any other CSS Identified Species that are not otherwise flushed and will carry out the following measures only to the extent as practicable in the context of the public health and safety considerations.

2. Prior to the commencement of grading operations or other activities involving significant soil disturbance, all areas of CSS habitat to be avoided under the provisions of the NCCP/HCP, shall be identified with temporary fencing or other markers clearly visible to construction personnel. Additionally, prior to the commencement of grading operations or other activities involving disturbance of CSS, a survey will be conducted to locate gnatcatchers and cactus wrens within 100 feet of the outer extent of projected soil disturbance activities and the locations of any such species shall be clearly marked and identified on the construction/grading plans.
3. A monitoring biologist, acceptable to USFWS/CDFG will be on site during any clearing of CSS. The landowner or relevant public agency/utility will advise USFWS/CDFG at least seven (7) calendar days (and preferably fourteen (14) calendar days) prior to the clearing of any habitat occupied by Identified Species to allow USFWS/CDFG to work with the monitoring biologist in connection with bird flushing/capture activities. The monitoring biologist will flush Identified Species (avian or other mobile Identified Species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities. If birds cannot be flushed, they will be captured in mist nets, if feasible, and relocated to areas of the site be protected or to the NCCP/HCP Reserve System. It will be the responsibility of the monitoring biologist to assure that Identified bird species will not be directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities on a timely basis.
4. Following the completion of initial grading/earth movement activities, all areas of CSS habitat to be avoided by construction equipment and personnel will be marked with temporary fencing other appropriate markers clearly visible to construction personnel. No construction access, parking or storage of equipment or materials will be permitted within such marked areas.
5. In areas bordering the NCCP Reserve System or Special Linkage/Special Management areas containing significant CSS identified in the NCCP/HCP for protection, vehicle transportation routes between cut-and-fill locations will be restricted to a minimum

number during construction consistent with project construction requirements. Waste dirt or rubble will not be deposited on adjacent CSS identified in the NCCP/HCP for protection. Preconstruction meetings involving the monitoring biologist, construction supervisors and equipment operators will be conducted and documented to ensure maximum practicable adherence to these measures .

6. CSS identified in the NCCP/HCP for protection and located within the likely dust drift radius of construction areas shall be periodically sprayed with water to reduce accumulated dust on the leaves as recommended by the monitoring biologist.

7.5.4 Conclusions Regarding Consistency of the NCCP/HCP Minimization/Avoidance Measures and Mitigation Measures with the NCCP Conservation Guidelines

For the reasons set forth in this chapter and in Chapters 5 and 8, the Central and Coastal NCCP/HCP provides for a Reserve System, including specifically designed reserves protecting core habitat and connectivity features assuring species interchange within and between reserves, and a comprehensive Adaptive Management Program determined to be fully consistent with the substantive requirements of the NCCP Conservation Guidelines. Regarding the assurances of assemblage of the NCCP/HCP Reserve System, the findings for the Implementation Agreement state that:

“Based on the deed restrictions, provisions of dedication offers, commitments pursuant to adopted CEQA mitigation measures and other encumbrances against those current and future public lands which are to be included in the Reserve System and Special Linkage Areas as established by the NCCP/HCP, USFWS and CDFG have determined that the habitat protection afforded under those encumbrances and by commitments of lands for Reserve System or Special Linkage purposes pursuant to this Agreement constitute commitments in perpetuity to uses consistent with the purposes of the NCCP/HCP as set forth herein” (Implementation Agreement, Section 3.0(j)).

Each of the encumbrances and commitments cited in the above Finding as the basis for the “commitments in perpetuity” determination is reviewed in detail in the Final EIR/EIS Response to Comments:

The mitigation measures proposed to be provided by *participating landowners*, in combination with pre-NCCP and NCCP avoidance actions, assure the assemblage of the Reserve System and the implementation of the Adaptive Management Program. The NCCP/HCP Reserve System is of sufficient size and the NCCP/HCP assurances of a comprehensive Adaptive Management Program are such that the NCCP/HCP, in its totality, provides for high likelihoods for persistence of NCCP Target Species in the subregion. Therefore, the proposed 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.

With regard to *non-participating landowners*, the NCCP/HCP provides an option for mitigation of impacts on the habitat of species listed as threatened or endangered under CESA/FESA which would place such mitigation actions within the broad framework of a comprehensive Reserve System and long-term management program. As an alternative mitigation approach to the FESA Section 7/10 and CESA 2081 processes, the NCCP/HCP mitigation fee option provides an effective means of addressing incidental take by "*non-participating landowners*."

**CHAPTER 8 LEVEL OF SIGNIFICANCE OF IMPACTS ON CSS
RESOURCES REMAINING FOLLOWING THE
APPLICATION OF FEASIBLE AVOIDANCE AND
MITIGATION MEASURES**

**SECTION 8.1 SUBSTANTIVE REGULATORY STANDARDS FOR
DETERMINING LEVELS OF SIGNIFICANCE**

CEQA requires a determination regarding the "levels of significance" of impacts remaining following the application of feasible avoidance and mitigation measures. Where a project is directed toward habitat conservation goals identified by government agencies, the California Legislature and U.S. Congress and toward the satisfaction of specific statutory habitat protection requirements, the level of significance of remaining impacts necessarily relates to the purposes of the proposed project within the analytical framework defined by the substantive statutory standards and legislative statements of intent. In the case of the NCCP/HCP, the "project purposes" include addressing the requirements of the NCCP Act and FESA in order to provide regulatory coverage for specified listed and unlisted species, CSS and "covered habitats" as defined in the Implementation Agreement. In establishing the environmental review framework for the Central and Coastal NCCP/HCP, both the California Legislature, in the case of the NCCP Act, and Congress, in the case of FESA, have determined that broader, "natural communities" (NCCP Act), or "ecosystem" (FESA) level conservation planning is more protective of significant habitat and species, over the long term, than project-by-project level review.

Under CEQA, the level of significance of remaining impacts necessarily relates to the purposes of the Proposed Project where, as in the case of the NCCP/HCP, the primary project purposes focus on addressing the requirements of the NCCP Act and FESA in order to provide regulatory coverage for Identified Species and for species dependent upon and associated with CSS and "covered habitats" and for the "Headlands plant species." Thus, for purposes of making the CEQA assessment regarding "levels of significance of remaining impacts" on CSS resources and "covered habitats," the substantive requirements of the NCCP Conservation Guidelines and Section 10(a) of FESA are determinative of the ultimate conclusions regarding "significance."

NEPA is essentially a procedural statute (except for its alternatives analysis requirement) requiring a "hard look" at environmental consequences of a proposed action and alternatives to the action but not requiring mitigation of impacts. However, one of the purposes of the Proposed Project is to satisfy the requirements of Section 10(a) of FESA in the context of the gnatcatcher special 4(d) Rule. As reviewed previously, FESA Section 10(a) requires minimization and mitigation of impacts to the maximum extent practicable. Accordingly, the NEPA review of FESA mitigation and minimization is substantive to the extent that mitigation and minimization are required pursuant to FESA Section 10(a). Likewise, NEPA and FESA both require the review of alternatives in relation to substantive statutory standards.

In addition to the specific substantive requirements of Section 10(a) of FESA, the significance of impacts of proposed incidental take on Identified Species and species dependent upon or associated with CSS and "covered habitats" should be reviewed in relation to the Congressional intent clauses for FESA. In enacting FESA, Congress declared that one of the main "purposes" of FESA is to "provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved. . ." (16 U.S.C. 1531 (b)). Consequently, the review in this Chapter of the environmental significance of impacts remaining following the application of NCCP/HCP measures providing for avoidance/minimization (Chapters 5 and 7) and mitigation (Chapter 7) will address the NEPA requirements for analysis of the environmental consequences of the proposed actions within the context of both the specific statutory framework and the fundamental purpose statements of FESA. CEQA, NEPA and Section 10(a)(1)(B) requirements for alternatives analyses are provided in the review of alternative reserve design approaches and alternative conservation strategies to potentially reduce impacts as set forth in Chapters 3, 5, 7 and 9.

The focus of a NCCP subregional plan is to provide adequately for the long-term viability of the "target/identified" species in a manner consistent with the requirements of the NCCP Act and Section 10(a) of FESA. This determination of NCCP/Section 10 consistency revolves around the ability of the NCCP/HCP program to maintain *net habitat value*, on a *long-term basis* for the target/Identified Species (see further analysis of "net habitat value" in the following section). Under the NCCP Act, the assessment regarding whether a subregional plan can maintain "net habitat value on a long-term basis" is carried out by reviewing the consistency of the Reserve System and Adaptive Management Program with the NCCP Conservation Guidelines. Thus, under FESA and the special 4(d) Rule for the gnatcatcher, the determination regarding *net habitat value* and the conclusions regarding consistency with the NCCP Conservation Guidelines address the Section 10(a) requirement that the proposed

incidental take "will not appreciably reduce the likelihood of survival and recovery of the species in the wild." Since the subregional plan will provide the basis for making the Section 10(a) findings, the "net habitat value"/NCCP Conservation Guidelines consistency determinations are essential for the purpose of evaluating the *levels of significance of impacts of the Proposed Project* under CEQA and NEPA.

**SECTION 8.2 LEVEL OF SIGNIFICANCE OF REMAINING IMPACTS ON
CSS RESOURCES: MAINTENANCE OF "NET HABITAT
VALUE"**

**A. The NCCP Conservation Guidelines: Net Habitat Value On a Long-Term
Basis**

The NCCP Conservation 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.

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)

"Habitat value" can be defined as the ability of a unit of habitat to support an animal, which is usually expressed as the product of area and an index of habitat quality (area multiplied by a "habitat quality index" between 0 and 100). "Net habitat value" is a term that takes into account habitat gains and losses due to a particular activity, such as reductions in habitat area (impact) and increased habitat quality (mitigation through management). "Net habitat value over the long-term" refers not only to current habitat value, *but also to likely future increases*

and decreases. Accordingly, "net habitat value over the long-term means, in functional terms, the ability of a unit of habitat to support an animal, taking into account particular activities and likely future increases and decreases in habitat value. As stated in the above excerpt from the NCCP Conservation Guidelines, "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." The converse for the CSS ecosystem, according to the NCCP Conservation Guidelines, is that "a status quo strategy for 'benign neglect' management is likely to result in substantial further losses of CSS biodiversity."

Thus, as indicated by the NCCP Conservation Guidelines, a Reserve System that consists of smaller, appropriately managed habitat areas could have a greater likelihood of maintaining CSS habitat values and biodiversity under adaptive management than a system of larger habitat areas that are unmanaged or ineffectively managed.

B. Overview of 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 or habitat to support a particular organism. If a unit of habitat is reduced in area or quality, its habitat value declines. The NCCP/HCP creation of the subregional Reserve System and implementation of the Adaptive Management Program are proposed as the essential elements in assuring that no long-term net loss of habitat value occurs within the subregion. Implementation of the NCCP/HCP is intended to maintain "net long-term habitat value" in the subregion in two ways:

- First, creation of the proposed Reserve System would 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 within the reserve. All of the management elements of this NCCP/HCP have the potential not only to maintain, but to enhance net long-term habitat value within the Reserve System. Thus, the creation and management of the Reserve System would offset the impacts of incidental take on lands of property owners who contribute significantly to establishment and adaptive management of the Reserve System.

- Second, significant opportunities for restoration and enhancement that would result in an increase in net CSS habitat value have been identified and will be created within the Reserve System. As reviewed previously in Chapter 7, the adaptive management elements of the NCCP/HCP provide significant enhancement and restoration through actions such as eradication of invasive plants, cowbird trapping and fire management.

The adaptive management enhancement and restoration functions for the Central/Coastal Subregion Reserve System include, but are not limited to, the following management activities, provided as mitigation on the part of "*participating landowners*:"

- revegetation of existing degraded habitat;
- re-establishment of native vegetation in areas that have been converted to other habitat types due to the activities of man or excessive fire events;
- control of invasive or exotic plant and animal species, such as artichoke thistle, black mustard, cowbirds, bullfrogs, and red foxes;
- fire management activities;
- modification or termination of agricultural activities, such as grazing, that adversely impact habitat values and biodiversity; and
- managing public access and recreation to protect/enhance habitat values, including seasonal access restrictions during nesting or temporary restrictions designed to provide opportunities for recovery for overused areas.

As reviewed in Chapter 7, 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 as an optional mitigation program for "*non-participating landowners*." Such restoration and enhancement actions would include enhancement of severely degraded CSS habitat and creation of new CSS habitat. The Reserve System restoration and enhancement opportunities provide an alternative for property owners who do not wish to pursue the FESA Section 7 and 10 and the CESA Section 2081/2084 project-by-project mitigation processes. Thus, the NCCP/HCP mitigation fee

program is intended to provide a meaningful alternative option for landowners while presenting the regulatory agencies with a mitigation option that can readily incorporate project-specific restoration and enhancement into a large-scale subregional management system.

As indicated in the previously quoted 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 or cowbirds). NCCP adaptive management actions to maintain long-term habitat value will be carried out through 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 will 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 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/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 the sustained adaptive management and habitat contiguity features of the Central/Coastal NCCP/HCP.

C. Levels of Significance of Impacts of Incidental Take on the Part of "Participating Landowners" - Consistency with the Requirements of the NCCP Conservation Guidelines/NCCP Act

The NCCP/HCP proposes that, 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 achieve the following:

- meets the requirements of the NCCP Act for the protection of “identified” species and species dependent upon or associated with CSS and “covered habitats”, and, in so doing,
- does “not appreciably reduce the likelihood of survival and recovery of” the target/ Identified Species (as required by Section 10 of FESA, among other required findings); for species dependent upon or associated with CSS and “covered habitats,” this finding will be addressed at the time of the listing of any such species.

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. (Final EA, at p. 14, 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 focussing 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 reserves.
- (2) Direct threats to species due to cowbird parasitism have also been addressed through the continuation of specific programs for reducing cowbird parasitism. 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/identified) species populations.
- (3) Habitat quality would 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 Chapter 7 Mitigation Measures, address each of the factors cited above in the EA excerpt as contributing to the decline in CSS habitat quality: fire, exotic species, recreational use and grazing.
- (4) 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 in Chapter 7, 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 2825 (c) and 2835 approvals.

-- Summary of Contributions of the Proposed Reserve System to Maintaining Net CSS Habitat Value on a Long-Term Basis

Both the "quantitative" summary of proposed incidental take on the part of *participating landowners* presented in Chapter 6 and a "qualitative" assessment of the CSS habitat within the reserve and outside the reserve indicate that the NCCP/HCP will maintain net habitat value in the subregion for the NCCP target species and Identified Species. As compared with

an estimated 5,500 acres of occupied CSS protected within the proposed Reserve System, total occupied habitat subject to incidental take outside the Reserve System by the actions of "participating" landowners is about 1,000 acres. (This habitat loss could affect up to 97 surveyed gnatcatcher sites.) Within the Reserve System, impacts related to the activities of "participating" landowners could result in the incidental take of nine gnatcatcher sites and up to 95 acres of surveyed occupied habitat.

The reserve design protects the majority of the CSS habitat ("occupied" and other CSS) within the subregion. Figures 15 and 16, and Table 8-1 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. An additional 4,838 acres of CSS in Special Linkage Areas, Existing Use Areas, non-reserve open space, and The North Ranch Policy Plan Area is addressed through other measures reviewed in Chapter 7. Thus, significant protection of both inland and coastal CSS habitat is provided.

In particular, the NCCP/HCP emphasizes the protection of CSS habitat located within the Coastal subarea and along the frontal slopes of the Lomas de Santiago (in the Central subarea). The maritime-influenced micro-climates (*i.e.*, the lower frequency and severity of winter freezes) associated with the Coastal subarea San Joaquin Hills and the frontal slopes of the Lomas de Santiago in the Central subarea are thought to enhance the productivity of subpopulations of many of the "target" and other Identified Species (pers. comm., Dennis Murphy based on variations in gnatcatcher populations due to climate influences and as reasonably inferred by the topographic/climate zone locations of gnatcatchers found in this subregion). Thus, 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 are the greatest (See Figure 17 and Table 8-2).

- CSS Within the Proposed Coastal Subarea Reserve

Within the Coastal subarea reserve, CSS constitutes almost 49 percent of the total subarea reserve. Other important habitat components include chaparral (19 percent) and grasslands (19 percent). Virtually all of the CSS (96 percent) within the reserve 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 particularly important as habitat for the coastal California gnatcatcher and a variety of CSS-related species (See Table 8-2).

- Target Species Birds Within the Coastal Subarea Reserve

Figure 16 illustrates the distribution of target species birds within the Coastal subarea in relation to the Reserve System, Special Linkage Areas, Existing Use Areas and other public open space. Within the Coastal subarea, 164 surveyed gnatcatcher sites (57%) and 262 surveyed cactus wren sites (65%) are located within the proposed reserve. The non-reserve portion of the subarea that the NCCP proposes to be authorized for incidental take contains 62 current 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 (See Table 8-2).

- CSS Within the Proposed Central Subarea Reserve

The subarea Reserve System includes 53 percent of the CSS within the Central subarea that is located outside of the Cleveland National Forest boundary, including 4,330 acres of CSS located at elevations below 900 feet elevation and another 3,106 acres of CSS located between 900 and 1,200 feet (Figure 17 and Table 8-2). 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 Cleveland National Forest 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 the gnatcatcher is rarely found at elevations above 1,200 feet.

- Target Species Birds Within the Central Subarea Reserve

Figure 15 illustrates the distribution of target species birds within the Central subarea in relation to the Reserve System, Special Linkage Areas, Existing Use Areas, other open space and the North Ranch Policy Plan Area. Within the Central subarea 206 of the current gnatcatcher sites (66 percent) and 409 of the current cactus wren sites (69 percent) are located within the proposed reserve. About 46 (15 percent) of the current gnatcatcher sites and 113 (19 percent) of the current cactus wren sites are located within the non-reserve areas proposed by the NCCP/HCP to be authorized for incidental take. The remainder of the current "target species" 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

Table 8-1
Central & Coastal Subregion NCCP
Vegetation, Target Species, and Proposed Habitat Reserve

Vegetation	Special Reserve	Linkage	Existing Use	Non Reserve Open Space	Policy Plan Area	National Forest OS	National Forest Private	Other Non Reserve	Total
Dunes						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				42	53
Marsh	343		29	234				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				2	563	43	5	804
Cliff and Rock	74	7	1	1	14	29	12	35	173
Marine & Coastal	362		15	0				1,553	1,930
Lakes, Reservoirs, Basins	99	10	1	790			0	456	1,357
Water Courses	182	1	22	8	0		9	563	784
Agriculture	577	90	5	83			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			108	600
Cactus Wren Total Sightings	671	39	64		14			206	994
Total Sightings	1041	59	151	10	19			314	1594
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

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

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.

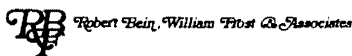


Table 8-2
Elevation Summary
Vegetation Categories, and the Proposed Habitat Reserve
Coastal & Coastal Subregion

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
CSS 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
CSS >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
OW 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
OW >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
DDA 900'-1200'	214	16	8	0	80	1,505	1,823	2	0			104	107	217	16	0	80	1,610	1,930
DDA >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



and Existing Use Areas and the North Ranch Policy Plan. As is the case for CSS and other habitat located within the Cleveland National Forest, the ten cactus wren sites located in the National Forest are not included in calculations related to protection of occupied CSS.

- Other Subarea Habitat Related to the Central Reserve

Overall biodiversity and long-term habitat value within the Central subarea are 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:

- 543 acres located in Special Linkage Areas
- 1,654 acres in Existing Use Areas
- 1,089 acres in other permanent public open space, but located outside the Reserve System;

In addition, the following areas include supporting habitat areas considered likely to be protected in significant measure in the future:

- the 9,456-acre North Ranch Policy Plan Area, subject to habitat conservation planning policies specified in the NCCP/HCP;
- the 26,404 acres of natural habitat contained within the Cleveland National Forest.

- Reserve Design Contributions to Bio-diversity Protection through the Creation of a Multiple-Habitat/Multiple-Species Reserve System

One of the important precepts of the NCCP Conservation Guidelines is that net habitat value of the CSS system requires the protection of the mosaic of habitats within which CSS is naturally inter-mixed. Hence, the protection of subregional bio-diversity in areas contiguous with CSS helps maintain and increase net habitat value for CSS species, and, in this sense, the contribution of the proposed Reserve System to bio-diversity protection has direct benefits for CSS species. Therefore, the proposed habitat reserve 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 proposed 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 Cleveland National Forest. If the wildlands included within Special Linkage Areas, other permanent open space, and the North Ranch Policy Plan Area are included (these areas contain an additional 22 percent of the remaining wildlands), the NCCP/HCP conservation strategy protects approximately two-thirds (64 percent) of the remaining wildlands within the subregion.

As Reviewed in Chapter 7, 12 of the 13 major habitat classes are represented within the reserve (only the coastal dune type is not included). Of these 12 habitat types, when the amount of existing habitat outside the Cleveland National Forest is considered (*i.e.*, the remainder of the subregion including the NRPPA), the proposed Reserve System contains (Table 8-3):

- 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 oak woodlands;
- 97 percent of existing forest lands (primarily Tecate cypress); and
- 56 percent of cliff and rock habitat.

Table 8-3
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.



The major habitat components in terms of acreage (Table 8-3) within the Reserve System are:

- CSS (18,527 acres);
- chaparral (6,950 acres); and
- grasslands (5,732 acres).

All of the non-CSS habitats summarized above contribute to long-term subregional biodiversity, provide protection for non-CSS habitats and species and contribute to the future function of the Reserve System. (For an overall assessment of "habitat value" protected by the proposed Reserve System, see the NCCP/HCP in Chapter 4, Section 4.3.)

-- Contributions of the NCCP/HCP Adaptive Management Program to Maintaining Net Habitat Value

As specified in the NCCP Conservation Guidelines, a comprehensive Adaptive Management Program can be employed to maintain and increase habitat value sufficiently to offset the loss of CSS habitat value resulting from the conversion of CSS habitat proposed by an NCCP subregional plan. 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 System will increase and thus sustain increased long-term populations of target species. As reviewed at length in Chapter 7, elements of the proposed Adaptive Management Program that contribute to maintaining and increasing net CSS habitat value provide for the following:

- incorporate land management policies which emphasize long-term habitat protection;
- 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 controlling cowbirds, eliminating artichoke thistle, and other measures;
- 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 devote increased attention to preventive practices that will benefit both biological resources and urban communities adjacent to the reserve and implement a long-term fire management program intended to result in a mosaic of CSS habitat succession while protecting CSS habitat from excessive fire frequencies that could result in the conversion of CSS habitat to non-native, invasive plant species;

- provide opportunities to potentially relocate Pacific pocket mice to suitable habitat within the Reserve System and opportunities for related enhancement, habitat restoration, recovery and monitoring activities.
- implement a recreation/access control plan that will provide for appropriate public use and enjoyment of the Reserve System while protecting sensitive resources;
- 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.

Approximately 15,000 acres of the proposed Reserve System are currently publicly owned and would be available for inclusion in the Reserve System immediately following approval of the NCCP/HCP and signing of the Implementation Agreement by participants. However, because more than 20,000 acres of the proposed Reserve System 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. Consequently, the NCCP/HCP establishes the institutional framework for the NCCP Non-Profit to carry out early implementation of most of the above-summarized Adaptive Management Programs pursuant to the "Interim Management Program" (e.g., fire management, invasive plant species eradication, the NCCP Monitoring Program) in order to assure that CSS habitat values can be maintained and increased as authorized incidental take by "*participating landowners*" proceeds. In order to address the need for managing these lands prior to dedication, *participating landowners* are required to 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 to maintain and improve habitat values on lands designated for ultimate inclusion within the reserve.

Virtually all habitat identified for incidental take by *participating landowners* is well within the documented dispersal range of the target species. Assuming that the NCCP adaptive management activities contribute to an increase in habitat value within the reserve, gnatcatchers and cactus wrens dislodged from habitat outside the Reserve System to be taken will very likely disperse to nearby reserve areas (this in fact occurred to a significant extent even during the fast moving October 1993 Laguna Hills wildfire as bird populations in the Sand Canyon Reservoir area increased dramatically).

-- Conclusion Regarding Mitigation of Incidental Take by *Participating Landowners* Proposed To be Authorized Under the NCCP/HCP-Consistency with the Requirements of the NCCP Act

In conclusion, the Proposed Project would provide for the creation and adaptive management of a subregional habitat Reserve System that would:

- include more than 35,000 acres of wildlands in a permanent habitat reserve that will prohibit residential, commercial and industrial uses, incompatible recreational activities 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 fee program usable for development impacts affecting both CSS and non-CSS habitat impacts throughout the subregion;
- complete the habitat minimization and avoidance measures started with the pre-NCCP 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 and manage biological resources.

For the above reasons, and as reviewed in Chapter 7, the NCCP/HCP Reserve System and Adaptive Management Program address and fully meet all the requirements of the NCCP Conservation Guidelines. In doing so, the NCCP/HCP has been determined to meet the requirements of the NCCP Act. For the reasons stated in Chapter 7 and in this chapter, the contributions of *participating landowners* to the NCCP/HCP will “provide for high likelihoods for persistence of target species in the subregion” (NCCP Conservation Guidelines, p. 8) and will maintain the “net habitat value” of CSS habitat within the subregion on a long-term basis, thereby mitigating incidental take on the part of “*participating landowners*.”

D. Levels of Significance of Incidental Take on the Part of “Non-Participating Landowners” - Consistency with the Requirements of the NCCP Conservation Guidelines/NCCP Act.

The NCCP/HCP proposes to authorize incidental take for “*non-participating*” landowners involving 11 surveyed gnatcatcher sites and 116 acres of occupied habitat (see Chapter 6). Additionally, 20-25 surveyed cactus wren sites and related habitat could be impacted under the NCCP/HCP. As previously reviewed, “*non-participating landowners*” have three options for complying with CESA/FESA requirements and for meeting the NCCP Conservation Guidelines requirements regarding “long-term net habitat value:”

- avoidance of impacts

- fulfill FESA and CESA requirements through FESA Section 7 or 10 and CESA through Section 2081/2084 permits
- payment of a mitigation fee for use by the NCCP/HCP to restore, enhance or acquire habitat of equivalent value to that being converted

The first option, "avoidance," clearly maintains net habitat value. The second option, compliance with existing regulatory requirements, will maintain net habitat value due to the commitment of the regulatory agencies to further the goals of the NCCP Conservation Guidelines per the Planning MOU, the 4(d) Rule for the gnatcatcher and existing statutory requirements (e.g., CESA 2081, FESA Sections 7 and 10). The third option, payment of a mitigation fee for use by the NCCP/HCP, will maintain net habitat value through the commitment of the NCCP/HCP management entity to employ such mitigation fee funds, as provided in Section 6.2.2 of the NCCP/HCP, to supplement the adaptive management and monitoring program (see the Mitigation Measures set forth in Chapter 7 of this document). Use of the funding provided by the mitigation fees would include enhancement and restoration of degraded CSS habitat within the Reserve System and acquisition of lands/easements that would supplement the Adaptive Management Program. For these reasons, take of occupied habitat by "non-participating landowners" would not reduce net habitat value of occupied CSS on a long-term basis.

SECTION 8.3 SPECIES ADDRESSED BY THE NCCP/HCP - "LEVELS OF SIGNIFICANCE" OF IMPACTS ON IDENTIFIED SPECIES

A. NCCP/HCP Treatment of Additional Species Designated as "Identified" Species

As indicated in the USFWS Region I "Guidelines for Determining Covered Species Lists and Assurances Relative to Habitat Conservation Planning,"

It is important for the Service and permit applicant to agree early in the planning process which species will be targeted for protection; i.e., develop a "target" species list for which the applicant will provide adequate coverage and seek assurances at the end of the planning process. The Service encourages applicants to include, at a minimum, federally listed and proposed threatened and endangered species, Federal candidate species, and state-listed or sensitive species. A well designed target species list can: 1) provide incentives for permit applicants to conserve as many species, habitat types, and ecosystems as possible; and 2) increase the likelihood that applicants will receive assurances for as many species as possible.

According to the NCCP/HCP, the Central and Coastal Subregion NCCP/HCP was formulated to focus on CSS habitat and the three "target species" designated by the State's Scientific Review Panel. Consistent with the NCCP Conservation Guidelines focus on protecting CSS and the three "target species' as a suite of 'target species' . . . useful as a surrogate for planning purposes" the NCCP Reserve System was planned (both as a result of pre-NCCP planning reviewed previously under "Minimization/Avoidance" in Chapter 5 and through the NCCP

planning program itself) for the protection of a much broader suite of species and habitat types. This effort to plan for a broader range of species reflects the opportunity provided by the fact that CSS occurs in a "mosaic" of interspersed habitat types associated with the naturally-fragmented CSS habitat. Thus, protection of patches of CSS offers opportunities to include patches of adjacent and inter-mixed non-CSS habitat within the protective envelope of the recommended CSS habitat reserve.

As reviewed in Chapter 7, the recommended subregional habitat Reserve System contains significant representation of virtually all of the major habitat types within the subregion. Specifically, the recommended subregional habitat reserve exhibits the following important characteristics:

- 18,527 acres of CSS are included within the Reserve System;
- CSS accounts for less than 50 percent of the total acreage within the recommended reserve;
- significant portions of twelve of the thirteen major habitat types existing in the subregion are included in the reserve (only the "coastal dune" habitat type is missing); and
- habitat areas capable of supporting both CSS and non-CSS species are included within the Reserve System.

Based on the biological characteristics of the proposed 37,378-acre permanent habitat reserve, the subregional NCCP/HCP recommends an increase in the number of species (beyond the "Target" species) receiving regulatory coverage under the combined NCCP Act/special 4(d) Rule provisions. Regulatory coverage means that species will be treated "as if listed" under Section 10 of the FESA and Section 2835 of the California Fish and Game Code and incidental take conforming with this NCCP/HCP is authorized. These additional species have been termed "Identified Species" to conform with the language of Section 2835 of the NCCP Act. The following discussion describes additional species that should receive Section 10/ Section 2835-level regulatory coverage.

B. Species Proposed to Receive Coverage Under Section 10 of the FESA, the FESA Section 4(d) Rule and the NCCP Act/CESA as "Identified Species."

In addition to the original "target species," the subregional NCCP/HCP proposes to provide equivalent "as if listed" coverage for 36 species which are also termed *Identified Species* under the NCCP/HCP. Most of the species proposed for regulatory coverage (i.e., Section 10(a) permit coverage and NCCP Act Section 2835 "Identified Species" coverage) are presently unlisted species. However, several of the proposed *Identified Species* are federal and/or state-listed species.

The species identified below (including both the original target species and the added species) are proposed to receive Section 10 and Fish and Game Code Section 2835 "Identified Species"

coverage and deemed to be fully mitigated for CEQA purposes and fully addressed for NEPA purposes as treated in the NCCP/HCP (as reviewed below, some species are “conditionally covered” and require additional species-specific mitigation per the Mitigation Measures at the end of this Chapter). Descriptions of the distribution and habitat needs of the above species within the subregion and recommended Reserve System are set forth in Chapter 4 (Biological Setting) and in Appendix 6.

SPECIES RECOMMENDED TO RECEIVE 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

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

** Species that are currently proposed for federal listing.

Amphibians (3)

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

Plants (8)

- Catalina mariposa lily
- ** Laguna beach Dudleya
- ** Santa Monica Mts Dudleya
- Nuttall’s scrub oak
- small-flowered mountain mahogany
- heart-leaved pitcher sage
- Coulter’s matilija poppy
- Tecate cypress

Conditionally Covered Species (10)

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

The biological justification for granting regulatory coverage for these species is presented in the following section.

C. Rationale for Providing Regulatory Coverage for the NCCP/HCP Identified Species and CEQA/NEPA Impact Assessment.

-- Biological Rationale for Granting Regulatory Coverage

The evaluation of whether or not a particular species should be considered “covered,” and therefore considered an ‘Identified Species’ for purposes of the NCCP/HCP, is complex and does not lend itself to evaluation against fixed criteria as a decision making method. Many factors are considered, as summarized by the following list. The outcomes of these evaluations

applying these factors to species proposed for coverage as Identified Species are discussed in the NCCP/HCP.

- The species is associated with a habitat type that is predominantly conserved (the species is more likely to be adequately conserved as well) as opposed to associated with a habitat type that is predominantly subject to conversion (the species is less likely to be adequately conserved),
- The species is widespread in the state or continent (requires less rigorous conservation in the subregion) or endemic to the subregion or region (requires very rigorous conservation),
- The species relatively secure (a greater degree of uncertainty can be tolerated) or relatively vulnerable (a greater degree of confidence in conservation measures is warranted),
- The species is a generalist (exploiting a wide niche and thus more likely resistant to environmental changes) or a specialist (restricted to a narrow niche and potentially more vulnerable to environmental variability),
- The species is numerous (less vulnerable to stochastic effects and deleterious genetic effects) or scarce (more vulnerable to stochastic effects and deleterious genetic effects),
- The species is a highly mobile disperser (island population effects are likely to be offset by immigration) or a poor disperser (island population effects are more likely to be significant),
- The species is evenly distributed (likely to occur throughout the Reserve System) or is highly localized (likely occurs in a few, highly important places),
- The species is minimally present or a migrant through the subregion (conservation in the subregion is less likely to be of critical importance) as opposed to a species that breeds or winters in the subregion (conservation in the subregion may be critically important to a species' life history),

- The species is known to respond well to management (for example, least Bell's vireo has responded very well to cowbird control, making management of relatively greater importance in evaluating coverage) or is known to not respond well to management (for example, a species with low reproductive potential and poorly understood biology),
- The species is well understood (adequacy of conservation measures can be assessed with greater confidence) or not well understood (adequacy of conservation measures will have substantial uncertainty),
- Species whose important occurrences are within the reserve or other protected lands or species-specific management measures are available to offset impacts if important occurrences are in areas subject to development (species which are not likely to be subject to significant impacts), as opposed to species with important occurrences outside the Reserve in areas subject to development or for which species-specific management measures are not available to offset impacts (species which are likely to be subject to significant impacts),
- A species whose primary habitat type is not subject to cumulatively significant loss within the subregion as opposed to species whose primary habitat type is potentially subject to significant cumulative loss within the subregion,
- A species found as very vulnerable discrete populations at highly limited occurrences which cannot feasibly be conserved *in-situ* without the consent and cooperation of landowners and where landowners will fully cooperate with *ex-situ* conservation actions that reduce risk to the populations; in contrast with species for which landowners will not adequately cooperate with *ex-situ* conservation actions that reduce risk to the populations.

The above are some, but by no means all of the factors which may be considered in the case of any given species. Other factors which are unique to various taxa may be relevant. Each species considered for coverage presents a unique combination relative to these factors, which must be evaluated in the context of that species' biology. Baseline distributional data are but one of these factors, and the importance of this factor is in turn influenced by other factors (e.g., secure or less secure, generalist or specialist, etc.). The studies used to designate Identified Species are cited in the species accounts appearing in Chapter 2 of the NCCP/HCP.

The covered species list also reflects input from the consultant project biologist, resource agency project biologists and other biologists with subregional expertise in various taxa. In some cases, the professional judgment of these biologists indicated that species should be covered under certain conditions and not others, in which case the species is listed as "conditionally covered."

-- Coverage of "Species Groups"

Even though each species presents unique circumstances relative to the factors described above, the reasons for designating a species for coverage cluster into groups. The discussion of these groups helps to illustrate their common ecological characteristics and aids in understanding why they were identified for coverage. As further reviewed below, these groupings may be summarized as: (a) species occupying habitat closely overlapping target species, (b) well-conserved endemics, (c) generalist top predators provided with habitat linkages (d) species of very limited distribution in the subregion with good overlap with target species, and (e) urban-adaptable.

Several of the additional Identified Species are found predominantly in CSS habitat and are ecologically similar to one or more of the three target species. These species were identified for coverage because their habitats generally overlap with the target species and the particular Identified Species is more secure than the target species. For example, in terms of habitat requirements, the San Diego woodrat is very closely associated with the cactus patches which support the coastal cactus wren; the coastal whiptail, San Diego horned lizard, and red diamond rattlesnake use habitat similar to that of 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.

For the species found predominantly in CSS habitat, the degree of similarity in habitat use and ecological relationships indicates that the NCCP/HCP 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 the NCCP Conservation Guidelines, the NCCP Act (including Section 2835) and FESA Section 10. These species will clearly benefit from the conserved habitat in the Reserve System, but they are substantially more numerous or otherwise more secure than the target species. Thus, if the reserve is

adequate to conserve the more demanding target species, it follows that the reserve is adequate to conserve species with similar but less demanding requirements (so long as none of the other evaluation factors above contraindicates coverage for a particular species in this group).

Some of the additional Identified Species are more generally associated with the habitat mosaic of CSS, chaparral, and woodlands found in the Reserve System. Examples include the San Bernardino ringneck snake, red diamond rattlesnake, coastal rosy boa, foothill mariposa lily, 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.

Others of the additional 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 Coastal subarea reserve. Tecate cypress is limited to one large population (Sierra Peak) and one very small population (Fremont Canyon) population in Orange County. Locally-imposed CEQA conditions of approval for adjacent projects require preparation of specific management plans for Tecate cypress which will complement management provided through the NCCP/HCP. Foothill mariposa lily is nearly endemic to Orange County. Because the NCCP/HCP Reserve System provides for protection and management of much of the range for these species and, in some instances, special conditions have been required, it is concluded that they are adequately conserved to receive regulatory coverage under FESA Section 10, CESA Sections 2081/2084, and the NCCP Guidelines.

Finally, other species were identified for coverage because they are widely distributed beyond the subregion (see Table 8-4) and the NCCP/HCP provides adequate conservation measures within the context of the subregion. Because of their wide distribution and relatively high populations, these species' conservation needs are generally much less than the target species. The NCCP/HCP provides for preservation of over half of the wildlands existing in the subregion in a Reserve System managed specifically for biodiversity. It is reasonable to conclude that certain species are adequately conserved when considering the evaluation factors above in the context of a large Reserve System managed for biodiversity.

-- Impact Assessment for Identified Species

Table 8-4 provides the assessment of protected habitat, habitat assumed to be taken and the reasons for proposing the species to be an NCCP/HCP Identified Species. As indicated, each of the species was analyzed and, on the basis of information summarized and referenced above, it is determined that each of the species will be adequately conserved to meet the requirements of Section 2835 of the NCCP Act and that the NCCP/HCP provides for these species in a manner that addresses the requirements of Section 10(a)(1)(B) of FESA. Therefore, the expected impacts will be reduced to below a level of significance (see further discussion in Section 8.4) for CEQA purposes and area adequately addressed for NEPA purposes.

-- Conditionally Covered Species

Ten of the thirty-nine Identified Species proposed to receive regulatory coverage by the NCCP/HCP are treated as conditionally covered species. Due to the special needs of these species, the NCCP/HCP proposes that "special conditions" would have to be fulfilled to justify the modification of habitat/take of these species. Five of the conditionally covered species are federally listed and two are proposed for federal listing. Accordingly, the conditions of coverage for each of these species limit allowed habitat impacts and include special provisions targeted to the needs of the particular species. In response to public comments received during the draft EIR/EIS review period and further review by CDFG, USFWS and the NCCP consulting biologist, three of the proposed Identified Species that are neither listed nor proposed for listing have been added to the list of conditionally covered species (the Golden eagle, the Prairie falcon and the Foothill mariposa lily). In the case of each of the following conditionally covered species, impacts are limited in terms of: (a) allowing the conversion of only highly degraded and/or artificial habitat (San Diego fairy shrimp and Riverside shrimp); (b) prohibiting conversion of habitat that plays an essential role in the distribution of the species in the region (Quino [Wright's] checkerspot butterfly and the Arroyo toad, the latter subject to a special Limestone Creek provision); (c) prohibiting the conversion of habitat that supports migrants or nesting birds and has potentially significant long-term conservation value in the subregion (Southwestern willow flycatcher and Least Bell's vireo); (d) requires minimization actions on the part of projects sited within a half mile of an active nest (Golden eagle and Prairie falcon); and (e) requires minimization and mitigation measures (Foothill mariposa lily). In each case, compensatory habitat and a mitigation plan are required. For each of the conditionally covered species, the Implementation Agreement requires that mitigation plans must be prepared in coordination with the NCCP Non-Profit, CDFG and

Table 8-4
SUMMARY OF COVERED SPECIES

Species	Conserved and not taken¹	Assumed taken²	Reason identified as a covered species
California gnatcatcher <i>Polioptila 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 ⁵	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.

Species	Conserved and not taken ¹	Assumed taken ²	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 subject to conditions because of wide distribution beyond the subregion, and the subregional conservation measures provided by the NCCP/HCP. Conditions provide for review near nest sites and that provision is made for any other appropriate mitigation.
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 subject to conditions because of wide distribution beyond the subregion, and the subregional conservation measures provided by the NCCP/HCP.
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>	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).	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.	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.
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>	40,250± acres if potential habitat ⁸	11,500± 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>	18,250± acres of coastal scrub and 20,000± acres of other wildlands ⁹	7,250± acres of coastal scrub and 18,750± 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>	49,750± acres of potential habitat ¹¹	24,000± 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>	36,500± acres of potential habitat ¹⁸	10,500± 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>	48,500± acres of potential habitat ¹⁹	23,250± 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>	36,500± acres of potential habitat ¹⁸	10,500± 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>	47,000 acres of potential habitat ²⁰	22,250± 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>	23,250± acres of potential habitat ²¹	7,500± 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 taken ¹	Assumed taken ²	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>	45,750± acres of potential habitat ²⁵	22,000± acres of potential habitat, ²⁵ subject to review outside the NCCP/HCP if coverage conditions are not met.	Identified for coverage subject to conditions, because its habitat requirements generally coincide with the target species. Conditions provide for review of projects which may affect larger populations, and allow provision of any other appropriate mitigation.
Catalina mariposa lily <i>Calochortus catalinae</i>	47,000± acres of potential habitat ²⁶	22,250± 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>	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.	No take is authorized for the remaining known populations, and existing regulatory protections apply to non-participating landowners.	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, where they can benefit from adaptive management. Existing protections are not diminished for populations outside the reserve.
Santa Monica Mountains Dudleya <i>Dudleya cymosa</i> <i>spp. 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>	36,500± acres of potential habitat ²⁹	10,500± 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>	3,750± acres of potential habitat ³⁰	1,000 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 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 System, as well as habitats in the special linkage and existing use areas, non-reserve open space, and the policy plan area. However, the reader should recognize that some development will occur in the "conserved and not taken category," (due to the fact that only Reserve System and Special Linkage lands have firmly defined levels of protection) which will be offset to a degree by non-development on lands in the assumed taken category (see footnote 2). 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 and 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 [This footnote is not used in this table.]

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.
- 28 Cliff and rock in Central Subarea.
- 29 Scrub, chaparral, and watercourses.
- 30 Chaparral in the Coastal subarea only.

USFWS and that the final mitigation plan must be approved by USFWS. The conditions proposed to be applicable to the ten *conditionally covered species* are set forth as Mitigation Measures at the end of this Chapter.

-- Detailed Impact Assessment for Two Recently Listed Species

Two of the ten species proposed as “conditionally covered” species have been listed very recently. Since one of these species (the Pacific Pocket Mouse) has been found in the Coastal subarea and the other species (the Arroyo Toad) has been found in the Central subarea, the treatment of these two species is reviewed in further detail in the following subsections.

- Pacific Pocket Mouse

This section on the Pacific pocket mouse has been expanded substantially following public review of the draft EIR/EIS to summarize information and mitigation measures provided in the Responses to Comments volume. This information is provided below to present an amplified review of conditions required for coverage of the mouse but does not significantly affect the assessment or conclusions presented in the draft EIR/EIS.

The Pacific pocket mouse (*Perognathus longimembris pacificus*) was listed by the USFWS under its emergency authority on February 3, 1994 as an endangered species (Fed. Reg. Vol 59, No. 23, at pp. 5306-53120). According to the Federal Register Notice:

Prior to 1993, this species had not been observed in over 20 years. The Pacific pocket mouse was rediscovered on the Dana Point Headlands, Orange County, California, during July 1993. No more than 39 individuals are known to exist despite relatively intensive, recent surveys in all of the remaining, undisturbed locales where the species historically occurred.

The emergency listing was extended to a final rule published on September 29, 1994 (Fed. Reg. Vol. 59, No. 188, at pp. 49752-49764).

The Pacific pocket mouse is found in loose soils in dry areas consisting of low elevation grasslands, CSS, and coastal strand associations. Its historic range is from Los Angeles County to the extreme southwestern portions of San Diego County. In terms of potential habitat within the planning subregion, other than the Dana Point site that contains the only currently known population, this species was found in small numbers in the Spyglass Hill area of Newport Beach between 1968 and 1971, before that area was developed.

Between 1990 and the present extensive site-specific trapping for the Pacific pocket mouse has been conducted on lands within reasonable proximity to the historic population in the San Joaquin Hills. These trapping efforts resulted in more than 6,400 trap nights being conducted at the locations identified in the tabular summary below. Based on the extensive surveys of all prospective areas within a reasonable distance of the only historical sightings of the Pacific pocket mouse, the NCCP/HCP concluded that the Pacific pocket mouse is not found on lands identified for proposed authorized incidental take except for the one population in Dana Point.

**PACIFIC POCKET MOUSE TRAPPING EFFORTS
IN THE SAN JOAQUIN HILLS PORTION OF THE COASTAL SUBAREA**

SITE	DATE	TRAP NIGHTS
Newport Coast Resort Site	Sept. 1993	327
	August 1994	900
Pelican Hill	October 1990	334
	July 1994	1,575
Wishbone Development Area	Sept. 1993	327
Upper Wishbone Hill	July 1994	500
Upper Coyote Canyon	July 1991	97
Upper Bommer Canyon	July 1991	194
Shady Canyon	Sept. 1994	1100
MacArthur Boulevard, Irvine	April 1991	291
Concordia University, Irvine	Nov. 1991	194
Laguna Canyon	June 1991	97
	August 1992	475
TOTAL TRAP NIGHTS		6411

Relationship Between the Pacific Pocket Mouse and the NCCP/HCP

The subregional NCCP/HCP has preliminarily identified lands with restoration and enhancement potential within the Reserve System (Figure 39). These potential restoration/enhancement lands have been identified primarily through the County GIS system and as a result of The Nature Conservancy field research and habitat management activities over several years.

The Adaptive Management Program provides a framework for accomplishing translocation of Pacific pocket mice if deemed feasible by the USFWS after additional scientific study and analysis. To the extent that the Reserve System contains lands that, in the future, may be determined by USFWS to serve as viable mitigation sites for take of the species pursuant to Section 7 or Section 10 of FESA, the NCCP/HCP indicates that the acquisition/restoration/enhancement provisions of the subregional NCCP/HCP may be invoked. As noted below, the Reserve System provides substantially greater buffering capabilities from impacts detrimental to the species and could allow for the establishment of areas of natural refugium. One of the specific conditions of coverage for the Pacific pocket

mouse is that the NCCP Non-Profit will agree to allow Pacific pocket mice to be relocated onto portions of the Reserve System determined to be suitable for the mice and will provide for related enhancement, restoration, monitoring and recovery activities as part of the Adaptive Management Program.

Participating landowners are contributing land to the Reserve System and/or funding to the Adaptive Management Program. The Implementation Agreement provides the following regarding *participating landowners* other than Chandis-Sherman:

- Extensive trapping efforts for the Pacific pocket mouse were conducted between 1990 and the present by participating landowners. Based on the results of these trapping efforts, participating landowners shall not be required to conduct additional trapping or surveys on their properties. In the event that a Pacific pocket mouse population is encountered on participating land ownerships other than the Chandis-Sherman property, 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.

As explained above, surveying to date does not suggest that any members of the species are located in these areas. Nevertheless, should one or more members of the species be found in areas owned by *participating landowners* permitted for incidental take within the subregion pursuant to this NCCP/HCP, the owners of such property would agree, via the Implementation Agreement, to allow the USFWS to access such property to relocate these members to suitable locations within the permanent reserve.

Pacific pocket mice found on lands owned by *non-participating landowners*, including within Existing Use Areas, will remain subject to CESA and FESA regulations as required in the Implementation Agreement as follows:

- *Non-participating landowners* that propose development on lands identified as potential pocket mouse habitat (approximately 150-200 acres have been identified) 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 on-site 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.

Inclusion of possibly 740 acres of potential mouse habitat in the Coastal subarea preserve and the proactive population enhancement program are potential mitigation vehicles for non-participating landowners as well as Chandis-Sherman. However, as discussed in the Response to Comments volume, these estimates of potentially suitable habitat were made utilizing a very preliminary habitat evaluation model. Effective contributions to the NCCP/HCP initiated research and recovery effort may also provide opportunities for effective mitigation for *non-participating landowners* within the subregion who discover Pacific pocket mice on other lands, although this NCCP/HCP does not authorize incidental take for these animals. Any such incidental take would have to be permitted separately with the USFWS. Such mitigation within the permanent Reserve System will be encouraged by the USFWS under Section 7 or 10 of the FESA to the extent that additional enhancement activities have been identified at that time.

- Existing Populations of the Pacific Pocket Mouse

In recent years, confirmed populations of Pacific pocket mice have been found at only 3 or 4 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 four 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.

Recent surveys conducted on Camp Pendleton have resulted in the discovery of three, previously unknown populations: MASS 3/Oscar 1, Panhe and Cuchillo. 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.

The other two populations were discovered in the northern portion of Camp Pendleton by consultants for the Foothill/Eastern Transportation Corridor Agency in conjunction with the Foothill Transportation Corridor-South project. The populations (Panhe and Cuchillo) are separated by San Mateo Creek and an ongoing agricultural operation. The Panhe population is estimated to contain approximately 33 individuals. (Crude population estimates during general surveys ranged from 9-50 individuals.) No population estimate has been made of the Cuchillo population; a total of 13 Pacific pocket mice were trapped in 1995.

As noted previously, the Dana Point Headlands contains the only population of the Pacific pocket mouse currently known to exist within the subregion. As noted below, in its current condition and location, this population on the Headlands site is extremely vulnerable to extirpation. At a population of between 25 and 40 individuals, this population is considered vulnerable to the deleterious effects of inbreeding depression. See E.O. Wilson "The Diversity of Life" (1992). Specific measures addressing this population are reviewed in the following subsection.

Provisions of Regulatory Coverage for the Headlands Under the NCCP/HCP

In accordance with the conditions set forth under Mitigation Measures for the "conditional coverage" granted for the Pacific pocket mouse and Section 8.3.2 of the NCCP/HCP Implementation Agreement, the NCCP/HCP provides for the initiation of a programmatic research and recovery effort for the 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. As described above, a process is established for other landowners within the subregion in the event the pocket mouse is encountered on other ownerships.

Pursuant to consultations between USFWS, CDFG and Chandis-Sherman several conservation measures have been developed to address, in the short term, threats to the existing population of Pacific pocket mouse on the Chandis-Sherman property and, in the long term, to provide for research, management and possible translocation of the population to more suitable habitat within and, perhaps, outside the Reserve System. As specified in the NCCP/HCP and the

Implementation Agreement, Chandis-Sherman will set aside an approximately 22-acre temporary Pacific pocket mouse preserve area which will include the approximately four-acres currently occupied by the Pacific pocket mouse. Activities within the Pacific pocket mouse preserve area will be severely restricted while the USFWS and CDFG (and consulting biologists) conduct biological studies and other recovery efforts, including possible translocation activities with respect to the Pacific pocket mouse population. These activities will be funded through a contribution of \$350,000 from the Chandis-Sherman property owners and a matching contribution of \$350,000 by USFWS. USFWS and CDFG may also enter into an option agreement with the Chandis-Sherman property owners to acquire the preserve area at the end of the eight-year preserve period, or such earlier time agreed to by USFWS, CDFG and Chandis-Sherman. In the absence of such an agreement, the USFWS will acquire the preserve area following expiration of the eight-year preserve year period, if the site is determined to be essential to the survival and recovery of the species.

Some commentors have suggested that measures could be taken to avoid or minimize direct or indirect impacts such as the possibility of collapsed burrows resulting from construction activity outside the temporary preserve area. Impacts to the Pacific pocket mouse population in the temporary preserve were analyzed in the EIR/EIS and are not considered significant. Burrowing rodents are generally adapted to responding to burrow collapses, as this is a natural event. However, indirect impacts may occur from future construction activities near the temporary preserve, including disturbance and noise. Disturbance impacts could include burrow collapse, vibration, lighting, water runoff, predator attraction, trash, or sedimentation. Fugitive dust could also be a problem if it is not controlled by construction management practices. To minimize the effect of any indirect construction impacts, the NCCP/HCP, the Implementation Agreement and EIR/EIS have been modified to include construction-related minimization measures to address possible indirect impacts on the Headlands population (see Mitigation Measures for the Pacific pocket mouse at the end of this Chapter).

The NCCP/HCP Implementation Agreement also provides for additional protective measures, including:

1. Posting information signs at entry points to designated, natural open space on the Headlands site regarding the status of the mouse and its conservation needs;

2. Posting signs at entry points to be designated, natural open space on the Headlands site prohibiting the public from bringing dogs, cats, and other pets into designated, natural open space area on the bluff promontory; and
3. Limiting public use of any designated, natural open space within the 22-acre temporary preserve area near the bluff promontory to designated walkways.

This NCCP/HCP also proposes to authorize the incidental take of any Pacific pocket mice in the temporary Pacific pocket mouse preserve after the expiration of the eight-year period proposed for the temporary reserve, unless the USFWS has purchased this area pursuant to the terms outlined in the Implementation Agreement. As virtually all individuals of the species would be expected to have been translocated off of the Headlands site by this time in accordance with Section 8.3.2(a)(1)(G) of the IA, or the site will have otherwise been determined not to be essential to the survival and recovery of the species, it is unlikely that any significant number of pocket mice would be impacted by development activity within this 22-acre area after the initial eight-year period; however, any such resulting take will be permitted by this NCCP/HCP. Prior to expiration of the term of the temporary preserve, take will be authorized for qualified individuals under an amendment to the USFWS FESA Section 10(a)(1)(A) permit for the Pacific pocket mouse for purposes of allowing for the initiation of a research and recovery effort of this population.

-- Analysis of Minimization/Avoidance Actions and Alternative Reserve Designs for the Headlands Site

The Headlands site is surrounded by urban development and for many years has been planned as a residential and tourist/recreational/commercial development. The Headlands site is isolated from the proposed Reserve System, separated from the Coastal subarea reserve 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 NCCP/HCP 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.

The NCCP/HCP concluded that inclusion of the Headlands property in the proposed Reserve System was neither feasible nor appropriate. The factors contributing to this conclusion include 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 the other properties of the Reserve System significantly reduce, and likely eliminate, any biological connectivity function for the permanent Reserve System;
- the site is relatively small, surrounded by existing urban/residential uses and already heavily trespassed by local residents and visitors that use the site for recreational purposes;
- the size of the site, combined with the surrounding urban development renders the sensitive animal species, especially the gnatcatcher, cactus wren and pocket mouse, particularly vulnerable to predation and disturbance by feral and domestic animals;
- the size and isolation of the site, in combination with the already heavy use by neighbors and visitors, the resulting habitat disturbance and exposure to predation of sensitive species by feral and domestic animals, make it a poor candidate for long-term management and maintenance of existing biological values;
- 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 guidelines.

For all of the above reasons, this site was rejected as a component of the proposed habitat Reserve System.

-- Analysis of Take Resulting from Programmatic Research and Recovery

The NCCP/HCP proposes amendment of the USFWS Carlsbad field office's existing permit authorizing take to include the programmatic research and recovery effort envisioned in the NCCP/HCP and to initiate necessary studies for the Pacific pocket mouse pursuant to an amendment to the current USFWS Section 10(a)(1)(A) permit. It should be noted that specific research protocols would still be required for each study initiated under the authority of this permit. Pursuant to Title 50 C.F.R. § 17.22, in reaching a decision whether to amend a Section 10(a)(1)(A) permit, the USFWS is to consider six factors, specifically:

1. Is the purpose for which the permit is required adequate to justify removing the individuals from their present location or from the wild, or otherwise changing their status?
2. What is the probably direct and indirect effect which issuing the permit would have on the wild populations of the species?
3. Would the permit directly or indirectly conflict with any known program intended to enhance the survival probabilities of the population from which the individuals of the species would be removed?
4. Would the purpose of the permitted activity be likely to reduce the threat of extinction facing the species?
5. What are the opinions and views of scientists or other persons or organizations having expertise concerning the species or other germane issues?

6. Do the expertise, facilities and other resources available to the applicant appear adequate to successfully accomplish the relocation and propagation objective?

The following conclusions can be reached regarding each of the six factors described above:

1. Given the existing known threats to one of the only known populations of the Pacific pocket mouse, the Section 10(a)(1)(A) permit is required in order to provide opportunities to study and expand the species' range, which may include the removal of some or all of the individuals from their current location to areas providing more suitable long-term habitat for the species if approved by USFWS.
2. The possible direct effect of issuing the permit will be to remove the wild population of the Pacific pocket mouse from its current vulnerable and marginal location and existing adverse conditions and create opportunities to increase the numbers of the species in the wild and enhance the genetic stock of existing populations.
3. There is no existing program intended to enhance the survival probabilities of the Pacific pocket mouse. The permit would not conflict directly or indirectly with any known or expected program.
4. Given the substantial existing threats to the Headlands population and the relative lack of scientific knowledge regarding the species' biology and habitat needs, the Proposed Project is likely to reduce the threat of extinction facing the species.

-- Pacific Pocket Mouse Level of Significance of Impacts

The NCCP/HCP will maintain and enhance long-term net habitat value for the Pacific pocket mouse and thereby provide for its long-term viability consistent with the requirements of the NCCP Act and Section 10(a) of FESA.

As reviewed above, surveys for this species outside the reserve area have discovered only one population of pocket mice within the Coastal subarea. (Pacific pocket mice would not be expected within the Central subarea.) Establishment of the Coastal Subarea reserve and the Adaptive Management Program offers the best opportunity to preserve the species in the subregion for the long term. As examined above, the Dana Point population, located on approximately four acres on the Dana Point Headlands, is considered extremely vulnerable for

a variety of reasons, including: high exposure to stochastic events resulting in extirpation such as fire, drought and disease, likelihood of inbreeding depression, small population size, small habitat size, severe limitations on expanding suitable habitat on the site, immediate adjacency to highly urbanized areas, frequent exposure to human intrusion and disturbance and exposure to predation by feral and domestic animals.¹

The NCCP/HCP would allow for research and recovery efforts to occur within the 22-acre temporary preserve for a period of at least eight years and for the possible relocation of this population over that time period to areas within the permanent Coastal Reserve System offering greater long-term prospects for the species' survival due to significantly expanded habitat, active management and monitoring, significantly reduced exposure to human disturbance and animal predation, opportunities for multiple, dispersed subpopulations and the provision of refugia from potentially catastrophic events. Moreover, if relocation and/or captive breeding of the population is not considered feasible and the USFWS determines that the Headlands site is essential to the survival and recovery of the species, USFWS has committed to purchase the site for permanent preservation and management.

The work of several researchers suggests that endangered populations can be expected to have a greater likelihood of survival if they can exist in larger, contiguous blocks of habitat.² Expansion of the Pacific pocket mouse into areas within the Reserve System could allow for several different Pacific pocket mouse populations to become established and to develop capabilities of exchanging genetic material among the populations, thereby providing more stability and greater viability for the species. Moreover, the NCCP/HCP Reserve, through the establishment of the endowed Adaptive Management Program, specifically provides for long-term monitoring of the species and methods to modify habitat to suit the needs of the species. The subregional NCCP/HCP Reserve System would also provide substantial buffering

¹Brylski (1993) and Collins (1992) questioned the Headlands site's ability to maintain the species. Erickson (1996) has noted the likely extirpation of this population without proactive enhancement measures. Soule, Price and Ryder have all noted the uncertainties and experimental nature of any translocation program for the mouse. Brylski has both concluded that the Headlands population will decline to extinction in the absence of proactive conservation measures (Brylski 1993) and has noted the need for more information and details to be developed before actual translocation of animals commences (Brylski 1996).

²Soule and Wilcox (1980); Frankel and Soule (1981); Soule, Bolger, et al. (1988); see also NCCP Conservation Guidelines. For example, Bolger et al. (1994), among others, have noted that rodent species populations have less chance of surviving in small areas of habitat the more fragmented the habitat. Soule et al. (1992) have further noted that "urban barriers including highways, streets and structures impose a very high degree of isolation." Many of the larger works referenced by Erickson (1996) demonstrate the value of populations existing in larger, rather than smaller, blocks of habitat.

capabilities from impacts detrimental to the species and, if suitable habitat were found, could allow for the establishment of areas of natural refugium to enable the population to better withstand negative environmental events such as fire. Mice populations in the permanent reserve would also be less subject to the detrimental effects of human disturbance, a phenomenon that at least one observer has noted as detrimental to Heteromyids (MacMillan pers. comm. with USFWS June 1994). Although the Headlands site is not geographically important to the long-term success of the NCCP/HCP, by establishing a temporary pocket mouse preserve, and permitting scientific studies, recovery efforts (including possible relocation and/or captive breeding and habitat enhancement, management and monitoring) within the Reserve System, the Headlands site will provide an important component to the overall success of the NCCP/HCP in maximizing the opportunities for enhancing and maintaining biodiversity within the subregion.

During the eight-year, or longer, term of the temporary preserve, qualified biologists approved by the USFWS and CDFG would have access to the 22-acre preserve to conduct biological studies, propagation activities and translocation efforts of individuals to areas within the permanent reserve. The Headlands property owners and USFWS would provide a total of \$700,000 to fund a programmatic research and recovery effort for this population of mice. If determined appropriate and feasible, the USFWS and CDFG will coordinate with the permanent Non-profit Management Corporation to identify appropriate translocation sites in the Reserve System to prepare those sites, as necessary, for mouse introduction, and to monitor and conduct post-translocation studies and population enhancement activities within the permanent reserve. The USFWS experience in other mouse species' relocation and propagation programs will be useful in considering and conducting such activities with respect to the Headlands population of the Pacific pocket mouse.

For the above reasons, impacts to the Pacific pocket mouse on the Headlands Property are reduced to below a level of significance.

- Southwestern Arroyo Toad

The southwestern arroyo toad (*Bufo microscaphus californicus*) was listed as an endangered species under the FESA on December 16, 1994 (Federal Register, Vol. 59, No. 241, pp. 64859-64866). This species is proposed by the NCCP/HCP to be treated as an Identified Species, with coverage conditional upon implementation of additional mitigation measures identified herein.

The historic range of this species includes southwestern California and northwestern Baja California. According to the Federal Register listing notice, this toad has disappeared from much of its formerly occupied habitat and now survives as small isolated populations primarily in the headwaters of drainages in southern California from San Luis Obispo County to San Diego County. In the Central and Coastal Subregion, extant populations of this toad are known to exist only in the Central Subarea, in the watershed of Santiago Canyon. There are no known populations in the Coastal Subarea.

- The arroyo toad habitat proposed for regulatory coverage comprises smaller populations (except as provided in the Implementation Agreement for the lower Limestone Creek population), reintroduced populations, or populations which have expanded due to NCCP reserve management. 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 proposed for regulatory coverage.
- Projects that would affect arroyo toad habitat, including the Limestone Creek Golf Course, would be considered mitigated consistent with a mitigation plan that is in accordance with the terms of the Implementation Agreement. The mitigation plan is required to address design modifications and other on-site measures that are consistent with the project's purposes, and minimize impacts, and provide appropriate feasible protections for the arroyo toad, 2) provide for arroyo toad relocation to an appropriate location (which may be in either the reserve or other open space) acceptable to the USFWS and CDFG coupled with compensatory habitat management/enhancement activities to maintain overall carrying capacity for arroyo toads at the relocation site, and 3) provide for monitoring and adaptive management of arroyo toads and their habitat consistent with Chapter 5 of the NCCP. Adaptive management activities for this species would include a program to control predators such as bullfrogs, clawed frogs, and non-native fishes; and may include a program of closing unculverted dirt road crossings or upgrading such crossings with concrete fords and/or culverts on publicly owned lands outside the reserve (e.g. National Forest lands) if baseline monitoring indicates such management is likely to be effective. The mitigation plan will be developed in coordination with USFWS, CDFG, and the reserve management non-profit corporation.

-- Conclusions Regarding Level of Significance of Impacts on
Additional Identified Species and Covered Habitat Types

As a result of limiting relocation to smaller populations (except for the Limestone Creek population, if any, pursuant to the Implementation Agreement) and the above mitigation requirements, it is determined that potential impacts to the arroyo toad are reduced to below a level of significance for CEQA purposes and are adequately addressed for NEPA purposes.

D. Additional 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 above, the NCCP/HCP indicates it is likely that field inventories conducted within the Reserve System during the early years of reserve management may demonstrate that other 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 Adaptive Management Program for the permanent Reserve System will provide for field surveys for these special interest species.

Consistent with the NCCP/HCP and the Implementation Agreement, additional species may be added to the lists of covered "Identified Species." Each new species added to the "covered" list would receive regulatory coverage equal to the coverage received by "target and Identified Species" under the NCCP Guidelines, CESA, FESA, and the special 4(d) Rule for the coastal California gnatcatcher in the manner prescribed in the NCCP/HCP Implementation Agreement. Such added species would be recommended based upon completion of the field surveys conducted as part of the Adaptive Management Monitoring Program set forth in Chapter 4 of the NCCP/HCP. The annual reports prepared and submitted to the CDFG and USFWS by the NCCP Non-Profit would update both of the above lists as additional information becomes available.

E. CSS and "Covered Habitats"

1. Habitats Subject to the NCCP/HCP "Covered Habitats Provisions" (Section 8.3.4(d) of the Implementation Agreement)

Pursuant to the FESA authority cited in the NCCP/HCP Implementation Agreement and to Section 2825(c) of the NCCP Act, the NCCP/HCP proposes to provide for the concurrent issuance of Section 10(a) and CESA Section 2081 permits (subject to the requirements of Section 8.3.4(d) of the Implementation Agreement) for species listed in the future and found outside the NCCP/HCP Reserve System that are dependent upon or associated with CSS and with the following habitat types:

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

The four habitat types listed above are referred to in Section 8.3.4(d) of the Implementation Agreement as "covered habitats." As noted above, the same type of regulatory coverage will be extended to CSS. Potential CSS impacts are the same as those set forth in Chapter 6 and Chapter 7.

The following table indicates the amount of each habitat type located within the Reserve System and the amount of habitat outside the Reserve System subject to the "covered habitat" provisions of the Implementation Agreement:

	ACRES OF "COVERED HABITATS" OUTSIDE THE RESERVE SYSTEM	ACRES OF "COVERED HABITATS" INSIDE THE RESERVE SYSTEM
• oak woodlands;	205	940
• Tecate cypress forest;	3	191
• cliff and rock; and,	28	74
• within the Coastal Subarea only, chaparral.	<u>260</u>	<u>3,337</u>
TOTALS	496	4,542

Thus, out of a potential 5,038 acres of "covered habitats" within the subregional plan area other than CSS (as noted above, CSS acreage is examined in Chapters 6 and 7 and in other sections of this Chapter 8), only 496 acres of habitat are proposed to be considered "covered habitats." In terms of total acreage, over 90% of these four habitat types are protected within

the NCCP Reserve System, with less than 10% of the total of these four habitat types treated in the NCCP/HCP subregional plan as “covered habitats” (these totals do not include acreage of the three habitat types - *i.e.*, other than Coastal subarea chaparral - found within the North Ranch Policy Plan Area).

2. Extent of Regulatory 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. The terms “dependent upon” and “associated with” are defined as follows in the Implementation Agreement:

“A species will be considered “dependent upon” a particular habitat when that habitat provides the primary space 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 sources 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.”

It is important to understand that the “covered habitat”/CSS provisions of the Implementation Agreement 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 FESA 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.

3. Regulatory Context for the NCCP/HCP “CSS and Covered Habitats Provisions” of Section 8.3.4 of the Implementation Agreement.

According to the NCCP/HCP, the intent of the assurances offered by CDFG and USFWS in the Implementation Agreement is 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 further 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.”

The USFWS and CDFG 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 CSS and “covered 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. These commitments help ensure that subregional habitat types found to be substantially included within the Reserve System are addressed by the NCCP as part of a mosaic of habitat types, rather than having the NCCP/HCP focus solely on CSS habitat needs. Accordingly, for the reasons set forth in the following subsections and as indicated in Section 8.3.4(c) of the Implementation Agreement, USFWS “finds the Covered Habitats to be protected in a manner comparable to the protection of CSS afforded by the NCCP/HCP.”

4. Impact Assessment - “Covered Habitats”
 - a. Habitat Coverage for Species Dependent Upon or Associated with Oak Woodlands.

Coastal Subarea

Approximately 89% of the oak woodlands acreage remaining in the Coastal subarea (exclusive of the North Ranch Policy Plan Area) is protected within the subarea Reserve System. Under pre-1993 fire conditions, high quality oak woodlands were located in Laurel Canyon and Laguna Canyon (see Figure 55) as well as elsewhere in the Irvine Coast LCP area, Shady Canyon and Wood Canyon. Restoration and enhancement prescriptions for oak woodlands were set forth in the September 25, 1993 version of The Nature Conservancy Report titled “The Irvine Company Open Space Reserve Habitat Enhancement and Restoration Program.” The extent of recovery of the Coastal subarea oak woodlands from the October 1993 wildfires cannot be determined with any degree of certainty at present.

Central Subarea

Approximately 60% of the oak woodlands acreage in the Central subarea is within the subarea reserve (additional large areas of oak woodlands are located within the North Ranch Policy Plan Area). In particular, substantial high quality oak woodlands are located within the Central subarea reserve. During the course of the preparation of the East Orange General Plan, a thorough assessment of the quality and health of the oak woodlands within that 10,000-acre planning area was undertaken (see excerpts from the East Orange General Plan and EOGP final EIR in Appendix 24). As a result of the final CEQA review, additional oak woodlands were protected through a set of land use plan revisions consistent with the Sea and Sage Audubon/Irvine Company Agreement set forth in Appendix 20. The quality of oak woodlands protected pursuant to the EOGP in relation to oak woodlands identified for

potential conversion is portrayed in Figure 73. In terms of habitat value, the EOGP EIR determined that over 80% of the oaks classified as "High Habitat Value" oak woodlands will be preserved. (See Response to Comments 11H). Thus, the vast majority of high quality oak woodlands is protected through the implementation provisions of the EOGP and the oak woodlands areas of the EOGP incorporated into the proposed Central subarea reserve.

A comparable land use planning process was undertaken in conjunction with the Mountain Park plan. The areas of oaks protected, as well as impacted, are reviewed in the excerpt from the Mountain Park plan EIR set forth in Appendix 24. The highest quality oak woodlands, primarily within Weir Canyon, are fully protected through the provisions of the Mountain Park plan and the incorporation of the Mountain Park open space commitment areas into the proposed Central subarea reserve. The Mountain Park EIR concluded that 61% of the high value oak woodlands would be preserved in larger blocks of contiguous habitat (see Response to Comments 11H).

Thus, the highest quality oak woodlands within the Central subarea are protected by the proposed reserve design in large blocks of habitat reflecting a mosaic of oaks, grasslands and CSS. Approximately 73% of the oak woodlands, representing over 75% of high value habitat will be preserved in the EOGP and Mountain Park areas, with additional acreage of high value oak woodlands located in Irvine Regional Park.

-- Adaptive Management of Oak Woodlands Habitat

Several elements of the NCCP/HCP Adaptive Management Program would contribute to the long-term health of the oak woodlands. First, the short-term and long-term fire management program should reduce significantly the buildup of understory vegetation and other fuel loading that increase fire impacts on the canopy of oaks, thereby increasing the likelihood of oak woodlands survival of wildfires. Second, the grazing management program required under the "interim use" provisions of the Adaptive Management Program will significantly reduce the impacts of grazing on oak woodland regeneration, particularly the impacts of compaction and loss of acorns and seedlings. Third, the NCCP/HCP proposes a grasslands management program which would enhance the combined oak woodlands/grasslands habitats upon which many oak woodlands species depend. Finally, the Nature Conservancy submitted an "Oak Woodland Restoration, Habitat Enhancement and Stewardship Plan for Limestone Canyon" to The Irvine Company in June 1995. This extensive analysis and recommended actions, prepared in consultation with CDF, is now available for use in conjunction with the

NCCP/HCP Adaptive Management Program and thus provides important prescriptions for increasing net habitat value of oak woodlands on a long-term basis.

-- Conclusion Regarding Habitat Coverage/Level of Significance for Oak Woodlands Habitat Coverage

Due to the extensive areas of high quality oak woodlands incorporated into the NCCP/HCP Reserve System and to the complementary adaptive management elements reviewed above, it is determined that impacts to oak woodlands, and species dependent upon or associated with oak woodlands, in areas outside the Reserve System with respect to the habitat coverage provisions of the NCCP/HCP are reduced to a level below significance.

b. Tecate Cypress

The NCCP/HCP incorporates approximately 97% of all Tecate Cypress within the subregion. A significant portion of the Tecate Cypress habitat is located within the CDFG reserve in Coal Canyon. Of the remaining Tecate Cypress, Figures 64 and 65 portray the current areas of Tecate Cypress and the areas of Tecate Cypress protected through specific provisions of the Mountain Park plan. The NCCP/HCP fire management program is particularly significant for Tecate Cypress due to the role of fire in the regeneration of Tecate Cypress. With such a high percentage of protected, contiguous habitat, species dependent upon or associated with Tecate Cypress will likewise be protected and, as a consequence, any impacts outside the reserve area are reduced to below a level of significance.

c. Cliff and rock

The NCCP/HCP Reserve System contains 56% of the cliff and rock habitat within the subregion (with an additional 11% located within the North Ranch Policy Plan Area subject to future habitat conservation and development planning). In the Coastal subarea, significant areas of cliff and rock are located in Laurel Canyon, Laguna Canyon, Shady Canyon and Bommer Canyon. In the Central subarea, significant areas of cliff and rock are found in Limestone Canyon, Weir Canyon and Windy Ridge. Additionally, important cliff and rock areas are found in the North Ranch Policy Plan Area, particularly in Fremont Canyon. Due to the extent of protected cliff and rock area, the potential impacts on cliff and rock areas located outside the proposed Reserve System and on species dependent upon or associated with this habitat type are reduced to below a level of significance.

d. Chaparral, Coastal Subarea Only

The Coastal subarea reserve contains 68% of the chaparral in the subarea. Due to the extent of protected chaparral in the Irvine Coast LCP open space areas, Laguna/Laurel Canyons, the San Joaquin Hills and the Aliso/Wood Canyon Regional Park, the potential impacts on this habitat type outside the proposed Coastal subarea reserve, and on species dependent upon or associated with, Coastal subarea chaparral are reduced to below a level of significance.

5. Conclusion - Level of Significance of Impacts Resulting from the Habitat Coverage Provisions of the NCCP/HCP

As indicated in the NCCP Conservation Guidelines, CSS is not found in large blocks of CSS habitat but instead is intermixed with other types of habitats:

“CSS is naturally patchy vegetation community. Over a scale of several miles, it is found in diverse habitat mosaics with other ecological communities. While there are species dependent on coastal sage scrub, these species do not always exhibit a clear tendency to occupy areas of contiguous coastal sage scrub. Rather, vegetation components of coastal sage scrub habitat in mosaics with other habitat types may provide habitat for target species and other species of concern.” (NCCP Conservation Guidelines, p.2)

“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.” (NCCP Conservation Guidelines, p. 2)

“It is the intent of the NCCP to preserve a substantial representation of the biodiversity associated with CSS.” (NCCP Conservation Guidelines, p.6)

In recognition of the fact that CSS “is found in diverse habitat mosaics with other ecological communities” and in furtherance of the “intent of the NCCP to preserve a substantial representation of the biodiversity associated with CSS,” the NCCP Conservation Guidelines tenets of reserve contain the following prescription: “Reserves should be diverse: Blocks of habitat should contain a diverse representation of physical and environmental conditions”

(NCCP Conservation Guidelines, at p. 9). To carry out the protection of the CSS habitat mosaic and biodiversity goals of the NCCP Conservation Guidelines, the NCCP/HCP defines the following specific project purposes:

“7. Formulate a conservation strategy that addresses the protection of non-CSS habitats within the overall CSS habitat mosaic.” (NCCP/HCP, p. II-6)

“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.” (NCCP/HCP, p. II-7)

The diversity of habitats proposed to be protected by the NCCP/HCP Reserve System is depicted in Figures 13, 15 and 16 of the NCCP/HCP Map Book. Many of the elements of the NCCP/HCP Adaptive Management Program will benefit a variety of habitat types, particularly measures such as the fire management program, the invasive species and pest eradication program and the grazing management program (see discussion of oak woodlands issues in Response to Comment 11H). Certain of the habitat types that would be protected by the NCCP/HCP subregional Reserve System are: (a) substantially intermixed with CSS and (b) represent a very high percentage of the habitat types, in terms of quality of habitat as well as overall quantity of habitat, found within the subregion. Due to these factors, the NCCP/HCP subregional plan, CDFG and USFWS have concluded that the protection of these “non-CSS habitats within the overall CSS habitat mosaic” effectively protects species dependent upon or associated with some of these habitat types including: oak woodlands, cliff and rock, Tecate cypress and chaparral (the latter within the Coastal subarea only).

Based on the foregoing, the lead agencies have concluded that the NCCP/HCP proposal to include the above four habitat types as “covered habitats” within the overall subregional plan CSS mosaic is well within the framework of FESA’s basic statutory purpose of assuring ecosystem protection. Likewise, in light of the manner in which the special 4(d) Rule for the gnatcatcher furthers this FESA statutory purpose and Congressional policy stated in FESA by explicitly acknowledging the NCCP Act/planning program and incorporating the NCCP Conservation Guidelines into the approval criteria under the rule (along with the requirement that the NCCP plan must meet Section 10(a) approval standards), it is reasonable to conclude that protection of certain subregional habitat types within the Reserve System CSS mosaic in a manner consistent with the NCCP Conservation Guidelines is fully consonant with the

statutory purposes and policies of FESA. The USFWS findings set forth in Section 8.3.4(c) of the Implementation Agreement, as set forth below, fully support these conclusions.

-- Levels of Significance of Impacts in Relation to FESA

It is 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, the "covered habitats provision" of the Implementation Agreement 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 USFWS assurances set forth in Section 8.3.4(d)(2) of the Implementation Agreement 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 requirements for the issuance of Section 10(a)(1)(B) permits for species dependent upon or associated with CSS and "covered habitats" for the following reasons:

"In order to further the purpose of FESA 'to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved' and to reverse the trend towards species extinction found by the courts to be the intent of Congress in enacting FESA, the 4(d) Rule for the gnatcatcher incorporates the biodiversity goals of the NCCP Conservation Guidelines' tenets of reserve design, as well as the specific CSS reserve design elements of the Conservation Guidelines. In keeping with the Conservation Guidelines' prescription that 'blocks of habitat [within the NCCP reserves] should contain a diverse representation of physical and environmental conditions,' the Central/Coastal NCCP/HCP contains sufficient habitat of certain types that the USFWS, on the basis of the review provided in the NCCP/HCP and EIR/EIS, finds the Covered Habitats to be protected in a manner comparable to the protection of CSS afforded by the NCCP/HCP. 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)).

It is important to note that the Implementation Agreement makes clear the USFWS will not issue a Section 10(a) permit if after taking all feasible and appropriate measures specified in Section 8.3.4(d) of the Implementation Agreement, USFWS is not able to make the findings required for the issuance of the permit.

The NCCP/HCP and EIR/EIS analysis of “covered habitats” is intended to provide the USFWS with the necessary information to determine whether it wishes to share in the responsibility for assuring compliance with any future FESA requirements for species that are subsequently listed and that are dependent upon or associated with these particular habitat types. The USFWS has used this information provided by the NCCP/HCP to determine: (1) that the degree of responsibility assumed by *participating landowners* - as represented by the quality and extent of these habitat types committed to Reserve System protection and adaptive management - is proportional to the level of impacts that might occur in areas of these habitat types proposed for “habitat coverage” and (2) that the latter areas are sufficiently limited in quality and extent that the USFWS is willing to take responsibility as set forth in the Implementation Agreement. In this way, the USFWS has indicated that it 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.

Accordingly, for purposes of assuring compliance with FESA and the NCCP Act, potential impacts on CSS and “covered habitats” outside the Reserve System and on species dependent upon or associated with CSS and the “covered habitats” (pursuant to Implementation Agreement Section 8.3.4(d)) are reduced to below a level of significance by: (a) the quantity and quality of “covered habitat” types included within the NCCP/HCP Reserve System; (b) the protection afforded CSS and the “covered habitats” by the NCCP/HCP, (c) mitigation measures required pursuant to prior master plan and project level CEQA reviews, (d) USFWS assurances to undertake (to the maximum extent of its legal and funding capability pursuant to the specific provisions of the Implementation Agreement) any further mitigation for impacts on species dependent upon or associated with CSS and “covered habitats” required for the issuance of Section 10(a)(1)(B) permits, for *participating landowners*, for any such species

proposed for listing; and (e) the Implementation Agreement provision precluding the issuance of Section 10(a) permits if, following the application of all measures required pursuant to the Implementation Agreement for "covered habitats," the Section 10(a) jeopardy findings cannot be made. The latter two provisions assure that a careful and thorough assessment of species-specific habitat impacts, habitat needs and management needs will be carried out and addressed pursuant to Section 10(a) standards. Within the Reserve System, potential impacts on "covered habitats" are expected to be minimal due to the Adaptive Management measures requirements for minimizing the impacts of new recreational and infrastructure facilities and the limited exposure of these habitat types to planned arterial roadways.

-- Levels of Significance of Impacts in Relation to the NCCP Act

The NCCP/HCP statement of project purposes relies considerably on the declaration of statutory purposes adopted by the California Legislature in its 1991 enactment of the NCCP Act, including the following:

"(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.

*"(d) Natural community conservation planning. . . Provides a regional planning focus which can effectively address cumulative impact concerns, minimizes wildlife habitat fragmentation, promotes multi species management and conservation. . . . And promotes the conservation of broad-based natural communities and species diversity" (Section 1 of AB 2172, California Legislature, 1991; *emphasis added*)*

The above excerpts from the statement of statutory purpose define the intent of the California Legislature in enacting the NCCP provisions into State law. The NCCP Act's title itself carries forward the emphasis on conservation of "broad-based natural communities" - "Natural Community Conservation Planning act" (California Fish and Game Code, section 2800) - rather than an emphasis on species by species planning. A "natural community conservation plan" is identified as a plan that identifies and provides for the regional or area wide protection and perpetuation of natural wildlife diversity" . . . (Fish and Game Code section 2805(a), *emphasis added*). The statutory emphasis on "regional or area wide planning" is clearly intended to define a much broader geographic and substantive framework than the species-by-species planning under CESA that had preceded the enactment of the NCCP Act. Again, the

emphasis in the NCCP Act is on promoting the “conservation of broad-based natural communities” rather than focussing on individual species.

In terms of specific implementation measures provided for within the NCCP Act, the NCCP statute provides several different implementation tools to assure the necessary certainty and broad-scale planning to “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” (NCCP Act, Section 1(g)). As reviewed previously, NCCP Act Section 2835 provides assurances allowing the taking of any “Identified Species” whose conservation and management is provided for in an NCCP. However, two other sections of the NCCP Act provide for CESA assurances without any reference to “Identified Species.” Section 2825(c) of the NCCP Act indicates that natural community conservation plans shall be implemented pursuant to Section 2081 of CESA without any mention of a pre-condition that specific species must be “Identified Species” under the NCCP plan. Likewise, Section 2830 of the NCCP Act indicates that CDFG may recommend to the Fish and Game Commission the taking of “any candidate species whose conservation and management is provided for in a department approved natural communities conservation plan” (emphasis added) without any mention of a requirement that such a species must be an “Identified Species” as provided for in Section 2835 of the NCCP Act.

Thus, the California Legislature established three different avenues for integrating CESA permitting assurances with the approval and implementation of NCCP plans, only one of which requires that individual species be identified in the applicable NCCP plan. In providing for implementation measures not relying on specific species identification, the California Legislature carried out the NCCP Act’s Legislative intent to promote the “conservation of broad based natural communities” and to maintain the “continued viability of those biological communities impacted by growth and development” (NCCP Act, Section 1(d) and (l), emphasis added). For the same reasons as set forth above under the FESA effects analysis, it is determined that, consistent with the purposes and provisions of the NCCP Act, potential impacts on “covered habitats” and species dependent upon or associated with such habitats are reduced to below a level of significance for CEQA purposes and provide for a full assessment of environmental consequences for NEPA purposes.

-- Level of Significance of Impacts - CSS Regulatory Coverage Pursuant to Section 8.3.4(d) of the Implementation Agreement

Regarding the NCCP/HCP treatment of CSS in the same manner as "covered habitat," the analysis in section 8.2 C. provides the basis for concluding that the USFWS assurances, in conjunction with the NCCP/HCP CSS mitigation program and the Implementation Agreement requirement that Section 10(a) permits (for CSS species that are not Identified Species) will not be issued if the Section 10(a) jeopardy findings cannot be made, reduce the level of impacts to below a level of significance for CEQA purposes. For the same reasons, these considerations provide for a full assessment of environmental consequences in relation to FESA for NEPA purposes.

F. Designated Plant species Not Included on the List of Target and Identified Species Receiving Coverage Under the NCCP/HCP.

Although the distribution and abundance of five plant species occurring, or potentially occurring, on the Headlands property are not sufficiently well known within the Central/Coastal subregion as a whole 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 considered by USFWS to be sufficiently well known so as to allow for incidental take coverage to be provided to the Headlands property owners for any impacts to these species on the Headlands property as part of this NCCP/HCP.

A biological assessment of the Chandis-Sherman property conducted in 1991 and 1993 determined the following with respect to the five sensitive plant species found on the property and described below:

Cliff Spurge. This shrub is concentrated near the steep ocean-facing bluffs. Natural erosion can be expected to eventually limit the population size, if additional terrain (*i.e.*, a buffer, or bluff-top setback) is not available for population expansion in immediately adjacent habitat to the north and east.

Western Dichondra. Two locales of this species were found on the steep ocean-facing bluffs on the property.

Palmer's Grappling Hook. The reported site-specific habitat of this plant has been degraded by unauthorized human trespass on the site. No plants were observed during favorable spring conditions at the historic locale where previously observed, despite a specific focused search. The population of this tiny annual may be extirpated from the site and limited opportunity for "re-occurrence" exists.

Prostrate Spineflower. A small population may occur on the sandiest substrata on the ocean facing bluffs.

Blochman's Dudleya. Approximately 250 flowering plants of this taxon were noted during a directed search for this species in spring 1991. The numbers noted are significantly less than the population size estimated in 1983. The population appears to have rebounded since 1991. The USFWS estimates that the Dana Point Headlands population count is approximately 1,000-2,000 individuals (Roberts, pers. comm 1996), although it continues to be impacted by heavy foot traffic and vehicle traffic which continue to degrade the relatively open terrain where this minuscule plant still grows. Soil disturbance and subsequent weedy growth can substantially hinder the vigor of this population.

Impacts to, and the take of, the following plant species that would result from implementation of planned activities on the Headlands site include:

- Blochman's Dudleya (*Dudleya blochmaniae*)
Subject to CDFG identifying the relocation site and secure all permissions required to conduct the relocation, if any, Chandis/Sherman shall relocate any population of this species which would be directly impacted by grading at the owners' expense. Such relocation may take place at any time after issuance of the Section 10(a) permits to Chandis/Sherman, provided that Chandis/Sherman shall provide CDFG not less than one year's prior notice of any intent to impact populations through grading on the site.
- Western dichondra (*Dichondra occidentalis*)
- Cliff Spurge (*Euphorbia misera*)
- Prostrate spineflower (*Chorizanthe procumbens*)
- Palmer's Grappling Hook (*Harpagonella palmeri*)

Loss is proposed to be authorized for these five plant species on the Headlands property only, for the following reasons: (1) several species occur, or would potentially occur, in only small portions of the site, (2) the five species occur in other locations in Southern California, (3) suitable and sufficient habitat some of for these species will be preserved by the subregion's permanent Reserve System relative to the numbers of individual 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 and may allow for relocation of some individual plants to be impacted (*e.g.*, individuals of the cliff spurge are likely to remain under any final open space design), (5) the Headlands property owners shall relocate any populations of Blochman's Dudleya on the site which would be directly impacted by site development pursuant to terms in the NCCP/HCP Implementation Agreement, and (6) the Headlands property owners shall provide \$500,000 to the NCCP/HCP endowment fund for the permanent Reserve following issuance of the first grading permit on the site, the Reserve should contribute to the maintenance of certain of those plant species. 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 8.4B, satisfy the necessary requirements to enable the USFWS to issue coverage for those plant species on the Headlands Property.

**SECTION 8.4 CONCLUSIONS REGARDING LEVEL OF SIGNIFICANCE OF
IMPACTS FOLLOWING THE APPLICATION OF FEASIBLE
AVOIDANCE AND MITIGATION MEASURES**

**A. Level of Significance - NCCP Act, FESA Conformity and CEQA/NEPA
Conclusions**

Chapters 5 and 7 have analyzed the extent to which the Proposed Project addresses the requirements and conservation planning criteria set forth in the NCCP Conservation Guidelines. Previous sections of this Chapter have evaluated the extent to which the NCCP/HCP maintains "net habitat value" of CSS habitat for the target/Identified Species within the subregion on a long-term basis sufficient to offset the impacts of proposed authorized incidental take on CSS habitat. This would not be the case in relation to likely long-term habitat impacts in the absence of the NCCP/HCP under the No Project and No Take Alternatives (*i.e.*, under these Alternatives, net habitat value would not be maintained on a long-term basis). As set forth in the 4(d) Rule, conclusions regarding consistency with the NCCP Act are to be related to the requirements for the approval of an HCP pursuant to the FESA Section 10 (a)(1)(B) regulations. In turn, the FESA consistency analysis supports the

EIR/EIS conclusions regarding the level of significance of impacts on CSS resources for purposes of CEQA and NEPA.

1. Conformity with the NCCP Act

With regard to the NCCP Act, the NCCP/HCP conforms with the requirements of the NCCP Coastal Sage Scrub Program Conservation Guidelines, including: (a) the tenets of reserve design; (b) requirements for adaptive management and (c) maintenance of "net habitat value" on a long-term basis within the subregion. This Chapter 8 has reviewed the environmental implications of the last requirement and has determined that the NCCP/HCP - through its assurances of reserve design, connectivity and adaptive management - not only carries out the specific precepts of the NCCP Conservation Guidelines, but also, in so doing, addresses each of the significant factors identified in the EA for the 4(d) Rule as causing threat to the long-term survival of the gnatcatcher. For the reasons set forth in Chapter 7 and this chapter, this environmental review concurs in the conclusion of the draft Implementation Agreement that the NCCP/HCP meets the requirements of the NCCP Planning Guidelines (including Planning Process and Conservation Guidelines), thereby fulfilling the requirements of the NCCP Act and creating the basis for the management authorization for take of Identified Species set forth in Section 2835 of the NCCP Act and for the issuance of Section 2081 permits for species dependent upon or associated with CSS and with "covered habitats" pursuant to NCCP Act Section 2825 (c).

2. Conformity with Criteria for Issuance of FESA Section 10(a) Permits

With regard to FESA Section 10(a) findings set forth in Chapter 1, Section 1.2.2, the following conclusions may be drawn regarding the potential impacts resulting from the Proposed Project as they affect the long-term survival of Identified Species and species dependent upon or associated with CSS and "covered habitats for CEQA level of significance purposes and for NEPA adequacy of assessment purposes:"

- Chapter 6 indicates that proposed "take" is incidental to otherwise lawful activities and reviews the extent of proposed "take."
- Chapter 5 concludes that, as a result of both pre-NCCP and NCCP/HCP actions resulting in a comprehensive, large-scale CSS habitat Reserve System in the Central

and Coastal subareas, the impacts of proposed incidental take will be minimized to the maximum extent practicable.

- Chapter 7 concludes that the NCCP/HCP constitutes a comprehensive subregional Reserve System and Adaptive Management Program, consistent with the NCCP Conservation Guidelines, which mitigates the impacts of proposed take to the maximum extent practicable and that further minimization of impacts will be achieved as a result of the construction-related minimization measures and the Adaptive Management Program provisions for existing and new recreational and infrastructure facilities.
- As set forth in Appendix 15 (Monitoring) and in the Implementation Agreement, the permit applicants have ensured that adequate funding will be provided to implement the measures proposed in the habitat conservation plan (NCCP/HCP).
- As reviewed in Chapter 7 and as provided for in the Implementation Agreement, the permit applicants have provided for all measures identified by CDFG and USFWS as required conditions for issuance of Section 10(a) permits for proposed incidental take on the part of "*participating landowners*" and for Section 10(a) permits for proposed incidental take on the part of "*non-participating landowners*."
- As reviewed in Chapter 8, the combination of the NCCP/HCP Reserve System and Adaptive Management Program will provide for maintaining net habitat value for *participating landowners* and for *non-participating landowners* provides a mitigation fee assuring net habitat value; regarding Existing Use Areas, the CSS habitat values of these areas make Section 9 of FESA applicable in most cases and likely assures maintenance of habitat value.

Therefore, the impacts of proposed incidental take will be offset and thus will not reduce the likelihood of survival of Identified Species.

With regard to the "recovery" requirements of FESA Section 10(a)(1)(B), 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 that not only maintain net habitat value but also contribute to the recovery of target/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)

Adaptive management measures such as short-term and long-term fire management, will reduce the impacts of major wildfires on target/Identified Species populations and “covered habitats.” Long-term fire management measures are intended both to reduce the likelihood of major, frequent wildfires and to establish a prescribed burn program that emulates the natural role of fire in CSS ecosystem succession. Likewise, other adaptive management elements will address factors that presently impede recovery, such as cowbird brood parasitism and loss of habitat due to invasive plant species, over the long term and therefore further long-term recovery of the gnatcatcher, as well as providing significant benefits for the essential behavioral functions of the other Identified Species. For these reasons, the implementation of the NCCP/HCP assures that take proposed to be authorized within the NCCP/HCP subregion will not appreciably reduce the likelihood of recovery of the target/Identified Species as required by FESA Section 10(a) and thus the adverse impacts of proposed incidental take on “recovery” are, as reviewed in this chapter and Chapter 7, reduced to below a level of significance for CEQA purposes and adequately addressed for NEPA purposes. The foregoing environmental assessment also provides the basis for the assurances regarding recovery planning set forth in the Implementation Agreement.

For the reasons set forth in this Chapter and in Chapter 7, the NCCP/HCP provides for “high likelihoods for persistence of the Identified Species within the subregion” (NCCP Conservation Guidelines, p. 8). By assuring the maintenance of net CSS habitat value for CSS-related Identified Species in the subregion on a long-term basis, by protecting the habitat of non-CSS Identified Species and by protecting the “covered habitat” types within the NCCP/HCP Reserve System, the NCCP: (1) assures, as specifically determined in the Biological Opinion and in the Implementation Agreement, that proposed incidental take will “not appreciably reduce the likelihood of survival and recovery of the target/Identified Species in the wild;” (2) addresses the other requirements for permit issuance under FESA Section 10(a)(1)(B) as reviewed in this chapter; and (3) contributes to meeting the requirements of Section 10(a)(1)(B) for species dependent upon or associated with CSS and the “covered

habitats” in the manner prescribed in Implementation Agreement Section 8.3.4(c) and (d). Thus, compliance with the NCCP Conservation Guidelines provides the programmatic basis for making the “survival and recovery” and other findings of the FESA Section 10(a) requirements. Accordingly, the adverse impacts of proposed incidental take on survival of the NCCP target/Identified Species and species dependent upon or associated with CSS and “covered habitats” are reduced to below a level of significance for CEQA purposes and are addressed adequately for NEPA purposes.

B. Environmental Assessment that Provides the NEPA/CEQA Analysis for Assurances to Permittees Under the NCCP Act and Section 10(a) of FESA

As reviewed in the previous subsection, the environmental assessment set forth in this chapter, as well as in Chapters 5-7, provides the CEQA basis for the CDFG management authorization (set forth in the NCCP/HCP Implementation Agreement) for take of Identified Species pursuant to Section 2835 of the NCCP Act. This CEQA review also provides the basis for Identified Species and “covered habitat” regulatory coverage under sections 2825(c) and 2830 of the NCCP Act, which together with 2835 coverage, provide assurances to (1) “*participating landowners*” that no further mitigation will be required for take of all NCCP/HCP “Identified Species” and species dependent upon or associated with CSS and “covered habitats;” and (2) “*non-participating landowners*” who elect to use the NCCP mitigation fee option, the same assurances with respect to CSS-related “Identified Species.”

Likewise, this chapter provides the environmental analysis set forth in this chapter provides the CEQA/NEPA assessment for the USFWS “assurances” specified in the NCCP/HCP Implementation Agreement. According to the USFWS “Region I Guidelines for Determining Covered Species Lists and Assurances Relative To Habitat Conservation Planning “ (August 1, 1995):

On August 11, 1994, Secretary of the Interior Bruce Babbitt issued a joint U.S. Fish and Wildlife Service/National Marine Fisheries Service (Services) “No Surprises” policy. This policy is based on the conference report to the 1982 amendments to the Act, which states: “In the event that an unlisted species addressed in an approved conservation plan is subsequently listed pursuant to the Act, no further mitigation requirements should be imposed if the conservation plan addressed the conservation of the species and its habitat as if the species were listed pursuant to the Act.”

The "No Surprises" policy was intended 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 . . . except under extraordinary circumstances."

If extraordinary circumstances warrant additional mitigation, the primary obligation will not rest with the HCP permittee. Additional mitigation for covered species from an HCP permittee who is in compliance with the HCP's obligations shall be limited to changes within conserved habitat areas or to the HCP's operating conservation program. No additional land or funding will be required of the permittee.

Assurances will be given for those species that are adequately covered by the HCP; i.e., 1) the HCP must address the conservation of the species and its habitat (either individually or by habitat association), and 2) all section 10 issuance criteria specified in the Act and its implementing regulations must be met (see section 10(a)(2)(B) of the Act, 50 CFR 17.22 and 17.32(b), and Chapter 7 of the National HCP Handbook.

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.

For an HCP to satisfy the section 10 issuance criteria: 1) the taking must be incidental to an otherwise lawful activity; 2) the impacts must be minimized and mitigated to the maximum extent practicable; 3) adequate funding must be provided; 4) the taking must not appreciably reduce the likelihood of the survival and recovery of the species; and 5) any other necessary measures must be met.

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 equal 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.

As a cross-check of the adequacy of an ecosystem-based plan, the Service also will analyze the effects of the plan on certain species. In general, those species which are under the greatest degree of threat (e.g., listed species, proposed species, and Category I 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. (Region I Guidance, at pp. 1-3)

As reviewed in this chapter, each of the "Identified Species" and the Headlands plant species are proposed by the NCCP/HCP to be a covered species for one or more reasons which include: 1) the species habitat closely overlaps that of one or more of the 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 populations(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 can be protected adequately with special conditions (*i.e.*, "Conditionally covered species") which have been fashioned through extensive consultation with CDFG and USFWS. With regard to species dependent upon or associated with CSS and "covered habitats" pursuant to Section 8.3.4(d) of the Implementation Agreement, the extent of protected habitats justifies the commitments made in that section of the Implementation Agreement regarding species coverage.

Therefore, the NCCP/HCP provides an adequate environmental basis for the various "assurances" committed to by CDFG and USFWS in the Implementation Agreement.

Likewise, the comprehensive nature of the NCCP/HCP and its conformity with the NCCP Act, CESA and FESA provide an adequate environmental basis for the assurances that would be committed to by those local governments which ultimately become signatories to the Implementation Agreement once it becomes effective.

Finally, certain specific assurances are provided in the NCCP Implementation Agreement to the effect that inclusion of the 1,033-acre area presently located on MCAS El Toro would not be the basis for agency objections to future aviation use of the remainder of MCAS El Toro for aviation purposes so long as such aviation uses are within the noise parameters of documented El Toro Use. The 1981 AICUZ study is set forth in summary form in Appendix 22 to provide the environmental baseline for this assurance.

C. Conclusions Regarding Basis for Critical Habitat Assurances in the NCCP/HCP Implementation Agreement

As reviewed in this chapter, the creation of the NCCP/HCP Reserve System with its associated intra-subregion and inter-subregion 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 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 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 Chapter 7 and in this Chapter, 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 this document 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 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."

MITIGATION MEASURES

Conditionally Covered Species

Ten of the thirty-nine Identified Species proposed by the NCCP/HCP to receive regulatory coverage under the NCCP/HCP are proposed for coverage subject to enforcement of specific conditions. These conditions would address the potential impacts associated with implementation of the NCCP/HCP and assure consistency with the FESA and NCCP Conservation Guidelines. Specific conditions are related to individual species habitat needs, sensitivity and other factors based on the agencies' expertise, the expertise of the NCCP biology consultant, input from biologists during the preparation and environmental review of the NCCP/HCP and comments received during the formal review period.

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. (Summaries of habitat requirements and other characteristics relating to these species are set forth in Chapter 4). For each species where the conditions of coverage require a mitigation plan, the final 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 proposed 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 NCCP Non-Profit. Typically, this would mean that the added habitat would be located adjacent or in close proximity to the proposed 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 NCCP Non-Profit, CDFG and USFWS.

Several Identified Species are addressed with specific conditions, as follows:

- (1) Pacific Pocket mouse
 - (A) 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).

- (B) 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.

- (C) 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). 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.

- (D) 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 research and recovery efforts. 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.
- (E) 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 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.
- (F) 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 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 described in (B) 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, notwithstanding any other provision of this

Agreement except Section 11.12, 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 described in (B) above 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) 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.
- (G) Upon the issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property, Take of all Identified Species 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 (F) above, 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 this 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.
- (H) In the event the authorization issued for Take of the Pacific pocket mouse described in Section 8.3.2(a)(1)(G) 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 this Agreement 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) 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.
- (I) 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 proposed 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 Property, 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.

(2) Southwestern Arroyo toad.

The southwestern arroyo toad (*Bufo microscaphus californicus*) was listed as an endangered species under the FESA on December 16, 1994 (Fed.Reg., Vol. 59, No. 241, pp. 64859-64866). This species does not occur in the Coastal subarea. The arroyo toad habitat covered supports smaller populations (except for the Limestone Creek 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 the 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 species 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.

(3) 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 the subregion is not covered. USFWS may define specific locations in the Central/Coastal Subregion for surveys for this species. Participating Landowners shall conduct surveys at the locations specified by USFWS. Planned Activities that would affect habitat of this species shall be consistent with a mitigation plan that:

- 1) addresses design modifications and other on-site measures that are consistent with the

MITIGATION MEASURES

Conditionally Covered Species

Ten of the thirty-nine Identified Species proposed by the NCCP/HCP to receive regulatory coverage under the NCCP/HCP are proposed for coverage subject to enforcement of specific conditions. These conditions would address the potential impacts associated with implementation of the NCCP/HCP and assure consistency with the FESA and NCCP Conservation Guidelines. Specific conditions are related to individual species habitat needs, sensitivity and other factors based on the agencies' expertise, the expertise of the NCCP biology consultant, input from biologists during the preparation and environmental review of the NCCP/HCP and comments received during the formal review period.

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. (Summaries of habitat requirements and other characteristics relating to these species are set forth in Chapter 4). For each species where the conditions of coverage require a mitigation plan, the final 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 proposed 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 NCCP Non-Profit. Typically, this would mean that the added habitat would be located adjacent or in close proximity to the proposed 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 NCCP Non-Profit, CDFG and USFWS.

Several Identified Species are addressed with specific conditions, as follows:

- (1) Pacific Pocket mouse
- (A) 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).

- (B) 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.

- (C) 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). 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.

- (D) 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 research and recovery efforts. 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.
- (E) 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 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.
- (F) 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 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 described in (B) 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, notwithstanding any other provision of this

Agreement except Section 11.12, 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 described in (B) above 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) 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.
- (G) Upon the issuance of the Section 10(a) Permit and CDFG Management Authorization for the Chandis-Sherman Property, Take of all Identified Species 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 (F) above, 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 this 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.
- (H) In the event the authorization issued for Take of the Pacific pocket mouse described in Section 8.3.2(a)(1)(G) 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 this Agreement 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) 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.
- (I) 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 proposed 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 Property, 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.

(2) Southwestern Arroyo toad.

The southwestern arroyo toad (*Bufo microscaphus californicus*) was listed as an endangered species under the FESA on December 16, 1994 (Fed.Reg., Vol. 59, No. 241, pp. 64859-64866). This species does not occur in the Coastal subarea. The arroyo toad habitat covered supports smaller populations (except for the Limestone Creek 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 the 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 species 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.

(3) 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 the subregion is not covered. USFWS may define specific locations in the Central/Coastal Subregion for surveys for this species. Participating Landowners shall conduct surveys at the locations specified by USFWS. Planned Activities that would affect habitat of this species shall 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 land in the Reserve System 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 System including cowbird trapping, 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.

(4) Southwestern willow flycatcher.

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 the subregion is not covered. USFWS may define specific locations in the Central/Coastal Subregion for surveys for this species. Participating Landowners shall conduct surveys at the locations specified by USFWS. Planned Activities that would affect habitat of this species shall 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 land in the Reserve System 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 System including cowbird trapping, 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.

(5) Quino (wright's) checkerspot.

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 shall 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 land in the Reserve System 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 System 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.

(6) 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 shall 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 land in the Reserve System 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 the NCCP/HCP. The mitigation plan will be developed in coordination with USFWS, CDFG, and the NCCP Non-Profit Corporation.

(7) San Diego 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 shall 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 land in the Reserve System 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 the NCCP/HCP. The mitigation plan will be developed in coordination with USFWS, CDFG, and the NCCP Non-Profit Corporation.

(8) Golden Eagle.

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.

(9) Prairie Falcon.

Planned Activities that would affect prairie falcon 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.

(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 USFWS and CDFG is 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.

Headlands Plan Species - Blochman's dudleya

With respect to the Blochman's dudleya population on the Chandis-Sherman Property only, Chandis-Sherman shall offer to relocate any population of Blochman's dudleya which will be directly impacted by grading. Chandis-Sherman shall 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 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 this subsection (b) need not be tied to grading or disturbance on the site.

CHAPTER 9 NON-CSS ENVIRONMENTAL CONSEQUENCES AND CUMULATIVE IMPACTS ANALYSIS

SECTION 9.1 INTRODUCTION

-- Non-CSS Direct Impacts

As reviewed in the introduction to Chapter 5, virtually every area proposed for incidental take pursuant to the Proposed Project, has been planned at general plan/master plan level of analysis with extensive CEQA analysis. The NCCP/HCP does not create any land use entitlements for land use "development" that were not in effect prior to the NCCP/HCP and the NCCP/HCP itself does not propose any development entitlements. Accordingly, the evaluation of non-CSS environmental consequences in Section 9.2 below focuses on the potential environmental implications of changes in land use designations from "development" to "open-space" protection and other changes in land use (*e.g.*, recreational use) that would result from the approval of the NCCP and local government participation by becoming signatories to the NCCP/HCP Implementation Agreement.

-- Cumulative Impacts

Since the NCCP/HCP does not involve any new entitlements, development projects that would be allowed to proceed that would otherwise not be able to proceed under the current 4(d) Rule "interim take" provisions are necessarily cumulative impacts of incidental take recommended to be authorized by the Proposed Project. That is, while the Proposed Project does not create any land use development entitlements, the ability of projects to proceed under NCCP/HCP incidental take will have cumulative impacts in addition to impacts on CSS resources. To provide a complete environmental assessment of non-CSS environmental consequences of the Proposed Project, this chapter will address cumulative impacts in Section 9.3.

SECTION 9.2 NON-CSS RESOURCES: ENVIRONMENTAL CONSEQUENCES

9.2.1 Non-CSS Biological Resources

Proposed Project

All areas proposed to be added to the NCCP/HCP Reserve System involve the elimination of development designations for areas identified for development under existing General Plans. As a consequence, the biological resources contained within these areas will be preserved rather than altered for future development (see Figures 20, 60 and 61). No area presently designated for open space on current General Plans will be changed to a non-open space designation. Thus, the establishment of the NCCP/HCP Reserve System will provide for protection of non-CSS biological resources (see Figure 4) not presently protected under existing land use designations in areas proposed to be added to pre-NCCP open space commitments. Therefore, the Proposed Project will result in an overall net benefit for long-term protection of non-CSS subregional biological resources.

Overall, non-CSS resources will benefit both from comprehensive reserve management provided for in the NCCP/HCP and from specific elements of the Adaptive Management Program. The program for eradicating invasive plant species will allow native grasses and other native species, as well as CSS, to re-colonize areas where sufficient remnant vegetation or seed sources remain. The short-term and long-term fire management program will benefit existing vegetation by providing for a prescribed burn alternative to manual thinning of vegetation and by providing for long-term prescribed burn regimes that more closely emulate natural fire regimes than is currently the case. Prescribed burn programs and other management actions will also help avoid the deleterious impacts of repeated burns which, over time, often result in the conversion of native vegetation to nonnative vegetation (as has happened in many areas of Chino Hills State Park). Additionally, the provision for a cattle grazing management plan will benefit non-CSS resources as well as CSS by reducing both the direct impacts of grazing on existing vegetation and the soil compaction impacts that are believed to affect long-term oak woodland re-generation.

For the above reasons, the NCCP/HCP does not adversely impact any significant subregional non-CSS biological resources and, overall, provides a net environmental benefit for such resources.

-- No Take Alternative

As reviewed in Chapters 5 and 7, the No Take Alternative inherently is focussed on protection of CSS habitat occupied by gnatcatchers and the other six federally listed Identified Species in the subregion. The result is that the land area protected under the No Take Alternative is significantly less than that under the Proposed Project alternative. Moreover, the No Take Alternative does not protect large blocks of contiguous habitat which, as a consequence, leaves non-CSS habitat subject to conversion pressures.

With absolute prohibitions on take under the No Take Alternative, not only are large blocks of non-CSS habitat left subject to development, but the limitations on development required by the No Take Alternative will likely increase pressure for development of non-CSS resources. Since the No Take Alternative will also likely prevent development required to trigger phased dedications under pre-NCCP open space programs, non-CSS resources located within areas otherwise protected will likely be re-evaluated for development potential. Therefore, the No Take Alternative not only protects smaller land areas, with no protection provided for contiguous non-CSS habitat, but the No Take Alternative also will likely generate development pressure on non-CSS habitat.

Regarding long-term management of non-CSS resources, the No Take Alternative does not include provisions for management of CSS resources or non-CSS resources. Consequently, the adaptive management benefits for non-CSS resources reviewed under the Proposed Project alternative would not be provided under the No Take Alternative.

-- The No Project Alternative

As previously reviewed in Chapters 5 and 7, it is unlikely that the No Project Alternative would result in as comprehensive and large-scale Reserve System as that recommended by the Proposed Project. Moreover, because habitat protection options for the No Project Alternative would be examined incrementally over a long time period pursuant to Section 7 and Section 10 processes, the potential for protecting non-CSS habitat located within these areas would diminish because landowners will likely attempt to develop non-CSS habitat before proceeding with Section 7 and 10 processes involving gnatcatcher habitat. The EA for the 4(d) Rule for the gnatcatcher reached the following conclusions for the No Action alternative which is basically the same alternative as the No Project:

Other habitat types would continue to diminish due to piecemeal losses from other individual projects. The requirements of CEQA would continue to apply

The indirect protection that the NCCP/HCP offers to some other habitats would rely primarily on CEQA and thus would likely be less effective. Comprehensive, regional planning would receive less effort, diluting efforts that may con serve some other habitat types known to be associated with CSS. (EA, August 2,1993, p. 43-44)

Regarding the habitat management implications of the No Project Alternative for non-CSS habitat, the incremental nature of the No Project Alternative reviewed in Chapter 7 indicates that comprehensive management of large-scale, reserve-size land areas containing multiple non-CSS habitat types would not be in place for a long time period, if at all. In contrast, the adaptive management benefits of the Proposed Project for non-CSS habitat reviewed in Chapter 7 (e.g., short- and long-term fire management plans) would be in place at the outset of the NCCP/HCP implementation under the "interim use" provisions of the NCCP/HCP management program.

For the above reasons, the No Project Alternative is likely to result in significant adverse effects occurring on non-CSS resources and in the loss of opportunities for enhancing non-CSS resources through early implementation of a comprehensive Adaptive Management Program.

9.2.2 General Plan Designations

A. Land Use and Open Space Elements

-- The Proposed Project

As shown in Figures 20, 52, 53, 60 and 61, the NCCP/HCP proposes converting land use designations in a number of areas in the Central and Coastal subareas from development designations to open space/dedication/donation designations. Because each of these non-acquisition areas is owned by The Irvine Company, one of the "*participating landowners*," The Irvine Company's commitments can provide for the long-term protection of lands proposed by the NCCP/HCP. The legal basis for these assurances is set forth in the Implementation Agreement assurances.

However, for purposes of compliance with California general plan law, changes in general plan/zoning designations for each of these areas will likely be required ultimately for many, of not all of these areas to assure that general plan land use and open space elements reflect commitments made pursuant to the NCCP/HCP. With regard to the Shady Canyon Special Linkage Area and the Lomas Ridge areas proposed to be added to the GPA 16 dedication commitments, specific provisions of the City of Irvine/Irvine Company MOU contemplate the possibility that "governmental or development standards or requirements [may] constrain development within the Development areas of a district due to extraordinary biotic . . . constraints or limitations" and provide that, under these circumstances, "the City shall transfer the development opportunities eliminated by such standards or conditions to other mutually acceptable locations" (OS MOU, paragraph (j), at p. A-3). Thus, the City of Irvine general plan and open space program contain provisions potentially applicable to the NCCP/HCP proposed changes in land use designations (particularly development intensity implications of the Shady Canyon project and the proposed Lomas Ridge preservation areas).

At this time, it is not known whether the above-quoted provision of the City of Irvine/Irvine Company Memorandum of Understanding Implementing Initiative Resolution 88-1 will be determined to be applicable to the habitat/open space commitments proposed by the NCCP/HCP to be added to the GPA 16 open space commitments. If the City of Irvine concurs that the above provision of the 1988 Open Space MOU is applicable to the NCCP/HCP commitments, both the open space and development implications of the Proposed Project could be addressed under existing City land use regulations. The areas presently designated in the general plan for development could be modified to become open space designations under a future general plan amendment undertaken pursuant to the MOU. Likewise, the development opportunities eliminated by the NCCP proposed change in land use designation could be accommodated in the manner provided for in the 1988 MOU. While development opportunities would not have to be identified in particular areas of the City, the provisions of the MOU indicate that the City's overall level of housing commitment would be maintained (see discussion in following subsection under "Housing Element"). If the City does not agree that the above-quoted provision of the 1988 MOU is applicable, there would be potential implications for the Housing Element and overall, city-wide jobs/housing balance resulting from a reduction in citywide housing intensity.

The City of Orange East Orange General Plan contains provisions for development transfers that could be invoked to assure that there is no loss of development opportunities overall within the East Orange General Plan area. Virtually, all of the NCCP-proposed open space

commitments in the sphere of influence areas of the Cities of Irvine and Orange are in areas contiguous with or in close proximity to areas identified for open space uses under existing general plans and thus would not create land use incompatibilities. Therefore, the NCCP/HCP does not cause any significant adverse impacts for purposes of local government Land Use and Open Space Elements.

-- The No Take Alternative

Because the No Take Alternative focuses on gnatcatcher occupied CSS habitat, areas reserved for open space under this alternative are less likely to be in large-scale, contiguous blocks of habitat, there is a much greater possibility of land use incompatibilities where such protected lands are interspersed with lands authorized for development under GPA 16 and the EOGP. In effect, the No Take prohibitions would constitute a de facto form of "spot zoning" that is generally considered to be contrary to good planning practice in California.

-- The No Project Alternative

Because the ultimate reserve design under a No Project Alternative is speculative in nature, the Land Use and Open Space Element implications of this alternative are equally speculative and cannot be effectively assessed.

C. Housing Elements

-- The Proposed Project

Regional Housing Needs Allocation for the City of Irvine from July 1989 to July 1996 are as follows:

- 1,675 units - Income I and II
- 1,635 units - Income II
- 2,611 units - Income IV
- 7,267 units - Above Income IV

TOTAL 13,188 residential dwelling units
(please see the City of Irvine Housing Element for a discussion of the income categories and regional housing allocation provisions)

According to the City of Irvine, the Southern California economic recession and other factors affecting Orange County have combined to reduce actual production of dwelling units considerably below the rate required to attain the above projections.

The residential dwelling units that could be transferred in the City of Irvine under the provisions of the 1988 Open Space MOU reviewed in Section "B" above are as follows:

	Dwelling Units To Be Transferred	New NCCP Reserve Acres
Planning Area 1	25	104
Planning Area 2	766	864
Planning Area 6	178	1,001
Planning Area 22*	2,920	Special Linkage
	3,889	1,969

* + Shady Canyon Special Linkage

Except for the Shady Canyon Special Linkage commitment (CSS to be preserved by means of a conservation easement - see Figures 51-53), the draft Implementation Agreement indicates that the "New NCCP Reserve Areas" will be transferred at 75 % of buildout of the 3,889 "Dwelling Units to be Transferred." As a consequence, the total number of residential dwelling units provided for as a result of the City of Irvine GPA 16 would remain the same. In terms of the City's Housing Element, the environmental considerations involved in the provision of housing (*e.g.*, jobs/housing balance) would not differ from the housing matters reviewed in the final EIR for GPA 16. If at such time as particular housing units are actually transferred to specific sites for development purposes there is any difference in unit type(s) from that analyzed in GPA 16, the environmental implications of such a change would be analyzed at that time.

However, if the City of Irvine does not agree to apply the provisions of the 1988 Open Space MOU or is unable eventually to agree with The Irvine Company on mutually acceptable locations in the future, there is a possibility of a conflict with the findings of compatibility of "Consistency with AQMP Jobs/Housing Locational Policies" analyzed at pp. 364-366 of the final EIR for GPA 16. A further reduction in housing opportunities beyond the reduction in housing effected by GPA 16 could create a conflict with regional policies promoting jobs/housing balance for social, economic and environmental purposes as reflected in the above-summarized housing needs allocation.

The City of Orange East Orange General Plan also provides flexibility in locating specific residential intensities of development such that the NCCP/HCP proposed reduction in land area resulting from The Irvine Company donation of land areas to the NCCP reserve will not result in an overall loss of residential units. As noted in Section 2.4.1 of the EOGP Land Use Element, the overall limit of 12,350 units within the plan area means that "some land use areas will not and cannot be built out to the maximum allowed intensity within individual residential categories" established by the Land Use Plan Statistical Summary. The Land Use Element further provides: "Subject to appropriate California Environmental Quality Act (CEQA) review at subsequent levels of planning, a determination will be made as to which residential land use areas will develop at the maximum intensity of use allowed by Table 3 [Land Use Standards] and which land use areas will be developed at less than the maximum allowed intensities." Since most of the land areas to be donated to the NCCP reserve (*i.e.*, lands presently identified for development in the EOGPA) are low density development designations (see Figure 20 and the East Orange General Plan), the residential dwelling units that might have been allocated to these areas can easily be accommodated within remaining land areas consistent with the provisions of the EOGPA. Therefore, the NCCP/HCP does not result in any significant adverse impacts on housing resources provided for in the EOGPA and as reviewed in the final EIR for the EOGPA.

-- The No Take Alternative

The No Take Alternative would potentially have significant impacts on housing in relation to areas proposed for authorized incidental take under the Proposed Project alternative. Due to the populations/distribution of gnatcatchers in the Irvine Coast, the San Joaquin Hills and the frontal slopes of Lomas Ridge (see Figures 7, 15 and 16), significant amounts of housing opportunities could be lost. With regard to No Take areas located within NCCP reserve areas, implications for the City of Irvine would likely be comparable to that identified above for the Proposed Project. .

-- The No Project Alternative

The No Action alternative reviewed in the EA for the 4(d) Rule states the following regarding "Housing" impacts:

The housing needs of the growing human population will continue to increase under the No Project Alternative. Residential and the accompanying infrastructure

projects that would impact CSS occupied by the gnatcatcher would have to be through the section 10(a)(1)(B) permitting process or section 7 consultation process, as appropriate. This alternative would have significant economic impacts to the economy for the region. (EA, at p. 44)

Due to the uncertainties of the Section 7 and 10 processes, and the long time frame over which they would unfold, it would be difficult to plan comprehensively for potential alternative locations for lost housing opportunities under the No Project Alternative. In contrast, under the Proposed Project, the currently designated residential land use areas displaced by the NCCP/HCP Reserve System would be known at the outset. This would allow for more comprehensive planning (under existing General Plan provisions for housing development transfers) and greater likelihood of assuring consistency with California's general plan laws (e.g., the requirement for consistency between the land use and circulation elements necessitates an understanding of the future location of housing so that circulation improvements necessary to serve such development can be planned for and financing assured).

D. Recreation Elements

-- The Proposed Project

In general, the allowable uses provisions of the Proposed Project, limit recreational uses within the Reserve System to various forms of passive recreational use (e.g., the Irvine Coast LCP already limits uses to those consistent with a Wilderness Park designation). Within County park areas, a specified amount of incidental take is proposed to accommodate future recreational needs. As a consequence, the County has concluded that the Proposed Project will not significantly impact future recreational uses. Within the City of Irvine PA 16 areas, some recreational uses could be restricted, but due to the absence of specific recreational use plans for the GPA 16 areas, it would be speculative to attempt to assess potential impacts on recreational use opportunities. Some forms of recreational use, such as mountain bikes, have been shown to require additional supervision or restriction (e.g., current problems in Whiting Regional Park). However, the success of The Nature Conservancy docent/access program for many of the areas of the proposed reserved system indicates that significant recreational use opportunities can be retained even in relation to sensitive habitat areas.

-- The No Take Alternative

The No Take Alternative would likely require stringent limitations on recreational use for all area occupied by gnatcatchers. Lacking a comprehensive Adaptive Management Program, the No Take Alternative has no means of allowing for supervised recreational access in the vicinity of occupied gnatcatcher habitat and thus would likely have greater impacts on recreational use opportunities than the Proposed Project. Due to the site-specific nature and absolute prohibitions on take inherent in the No Take alternative, areas proposed for authorized incidental take by the Proposed Project on the part of the County of Orange Department of Beaches, Harbors and Parks would not be allowed, with attendant impacts on recreational use opportunities.

-- The No Project Alternative

This alternative would likely have impacts on recreational use areas comparable to the Proposed Project. However, due to the absence of assurances regarding a comprehensive management program, the No Project Alternative would likely result in greater limitations on recreational use opportunities than the Proposed Project.

9.2.3 Transportation/Air Quality - Environmental Consequences

-- The Proposed Project

The NCCP/HCP includes several changes recently made to the City of Irvine Circulation Element and to the County of Orange Master Plan of Arterial Highways involving the deletion of the Sand Canyon/SJHTC interchange and of portions of : (a) Sand Canyon Avenue, (b) Lake Forest Drive, (c) Bonita Canyon Drive and (d) the San Joaquin Hills road extension (see Figures 46 and 51 and Appendix 23, Mitigated Negative Declaration No. IP 100). As reviewed in the Shady Canyon Project EIR, the deletion of these arterial roadways provides significant environmental benefits, including substantial benefits for the NCCP/HCP in terms of avoidance of impacts on target species populations, reduced impacts on habitat, improved management of the reserve and allowing for the creation of the Shady Canyon Special Linkage which would otherwise be infeasible or greatly limited (see Figures 51 and 52). The City of Irvine Circulation Element has been amended to provide for the deletion of these roadways. The City's action on June 27, 1995 was followed by action by the County of Orange on August 1, 1995 to similarly amend the County of Orange Master Plan of Arterial Highways (MPAH)

to reflect these deletions. The transportation/air quality analysis for these proposed Circulation Element/MPAH changes is set forth in Appendices 23 and 24.

Since one of the roadways to be deleted in the City of Irvine Shady Canyon Project/Circulation Element actions is Sand Canyon Avenue (which was previously intended to connect with the SJHTC at an interchange in the San Joaquin Hills and then extend on to Pacific Coast Highway), the County MPAH will also need to reflect this interchange deletion within the Irvine Coast Local Coastal Program area (including the connection of Sand Canyon Avenue to the Irvine Coast Phase III area rather than to the SJHTC - see Figure 46).

Based on the environmental review of the Sand Canyon, Lake Forest, Bonita Canyon extension, Sand Canyon/SJHTC interchange and San Joaquin Hills Road extension deletions from the City of Irvine Circulation Element and the County of Orange MPAH, it is concluded that these roadway deletions will not cause significant adverse transportation or air quality impacts and that, overall, these roadway deletions will have very positive effects on management of the CSS reserve, target species populations and habitat and general biological resources. Any changes that would result in significant modifications to the Irvine Coast LCP would also require approval by the California Coastal Commission either as a minor amendment or as a major amendment. However, for purposes of NCCP/HCP implementation, The Irvine Company owns the land areas where the proposed roadway deletions are located and is able to make commitments regarding their long-term preservation and contribution to NCCP "interim management" pending any required Coastal Commission review.

The air quality/transportation implications of the Culver and Jeffery extensions from the City of Irvine to the City of Orange and the widening of Santiago Canyon Road are reviewed in the EOGP final EIR at pp. 5-146 to 5-207 as part of the overall transportation/air quality assessment for the EOGP. Since the NCCP/HCP provides for the Culver and Jeffery arterials as allowed uses within the Central reserve (see Figure 28) and specifically provides for the widening of Santiago Canyon Road, the Proposed Project does not result in air quality/transportation implications different from those examined in that EIR.

The SJHTC, the ETC and the FTC North are central elements of the County MPAH. The FESA gnatcatcher environmental implications of constructing these two transportation corridors have been reviewed and finalized through the Section 7 consultations set forth in Appendix 8. Under the Proposed Project, additional regulatory coverage for the gnatcatcher at the state level and for all the other target/identified species is provided for through the

TCA's role as a "*participating landowner*" (the TCA provides very significant funds and "connectivity" areas essential to the NCCP/HCP). As a consequence, the subregional and regional transportation and air quality contributions of the SJHTC, ETC and the FTC North segment within the subregion as specified in the SCAG Regional Mobility Plan and in the South Coast Air Quality Management District AQMP, will be assured. Accordingly, the NCCP/HCP constitutes a positive contribution to regional transportation and air quality and will not result in any significant changes to regional air quality and transportation elements of the current SCAG and SCAQMD regional plans.

Overall, the NCCP/HCP is not projected to have significant adverse transportation or air quality impacts on the subregional or regional transportation system. With regard to the jobs/housing balance policies of the regional AQMP, the NCCP/HCP will not have significant adverse impacts, except for the one potential adverse impact on housing resources if the City of Irvine does not proceed with the lost development opportunities provisions of the 1988 Open Space MOU.

-- The No Take Alternative

Under the No Take Alternative, the Culver and Jeffery extensions provided for in the EOGP could potentially be limited or precluded. The loss of circulation system transportation capacity would likely have adverse air quality impacts. All other transportation/air quality impacts would be comparable to the Proposed Project.

-- The No Project Alternative

The No Action alternative analysis for the EA (at pp. 44-45 - see Appendix 3) for the 4(d) Rule described potential transportation impacts that apply to the No Project scenario for this subregion.

9.2.4 Agriculture

577 acres of agricultural land are located within NCCP/HCP reserve areas. These lands are unlikely to be converted to non-agricultural uses until actually dedicated to a public agency (except for a current proposal by The Irvine Company to grant Caltrans mitigation opportunities on approximately 30 acres of land located on the frontal slopes of Lomas Ridge). Since these agricultural lands are in areas allowed for development under GPA 16, the lands

will likely remain in agricultural use as long, if not longer, under the Proposed Project as under the current GPA 16 designations or under the No Take and No Project Alternatives.

SECTION 9.3 CUMULATIVE IMPACTS

A. Regulatory Definitions of Cumulative Impact

NEPA defines "cumulative impact" as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR Section 1508.7).

The CEQA Guidelines define cumulative impacts as:

"Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

- (a) The individual effects maybe changes resulting from a single project or a number of separate projects.*
- (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. (CEQA Guidelines, Section 15355)*

B. Subregional Framework for Cumulative Impact Assessment of Identified Species, CSS and "Covered Habitats"

In accordance with the NCCP Conservation Guidelines and the provisions of the special 4(d) Rule for the gnatcatcher, cumulative impacts on Identified Species, CSS and covered habitats are to be reviewed on a subregional rather than regional basis. Concurrent with the public review of the proposed special 4(d) Rule, the USFWS undertook an extensive NEPA review through an Environmental Assessment, which analyzed the broad programmatic, regional

issues raised by the proposed reliance on the NCCP planning process. The final 4(d) Rule for the gnatcatcher stated that incidental take resulting from activities conducted pursuant to the State's NCCP Act "and in accordance with a NCCP plan for the protection of coastal sage scrub habitat, prepared consistent with the State's NCCP Conservation and Planning Process Guidelines" would be authorized, provided the plan has been prepared in accordance with the NCCP Act and has been found to meet the standards set forth in 50 CFR 17.32(b)(2).

The NCCP Conservation Guidelines (see Appendix 3 of the EIR/EIS) clearly state an intent to employ a subregional planning process, present an overview of regional CSS conditions (see Attachment A of the Conservation Guidelines) and depict an initial delineation of the subregional planning units (see Attachment B, titled "Subregional CSS NCCP Planning Unit Focus Map"). Based on the NEPA review for the 4(d) Rule and in reliance on the conservation planning prescripts set forth in the NCCP Conservation Guidelines incorporated into the 4(d) Rule, the appropriate local government agencies, in consultation and collaboration with CDFG and USFWS, undertook to carry out the subregional planning program that is at the heart of the NCCP Conservation Guidelines. It is considered appropriate, in the context of a specific implementation effort in one part of the planning region, to rely upon the fundamental decisions regarding the regional planning framework/subregional planning process made at a broad programmatic level pursuant to the fully noticed special 4(d) Rule and NCCP Guidelines processes.

Part I (Introduction) of the NCCP/HCP describes the overall five-county CSS NCCP Program for Southern California and the relationship of the Central and Coastal Subregion NCCP/HCP to that overall program. Based on this review of the overall Southern California NCCP CSS Program and reports prepared in conjunction with the NCCP Conservation Guidelines (see "Subregionalization for Natural Communities Conservation Planning," Peter F. Brussard, Dennis D. Murphy, CSS Scientific Review Panel, 1992), it is clear that there were no species/habitat tradeoffs between subregions, biological links and interconnections between other subregions, or other complementary or conflicting actions that would affect other subregions within the five-county NCCP study area.

As explained in Part I of the NCCP/HCP and in the NCCP Guidelines adopted by the State and incorporated as a standard of review for the NCCP/HCP by the Special 4(d) Rule for the gnatcatcher, the NCCP program for the five-county area was established by CDFG and approved by USFWS with the intent of conducting conservation planning with ten to fifteen individual subregions (page 14 of the NCCP Planning Guidelines). The focus on the

preparation of individual subregional NCCP/HCPs was adopted by the respective local, State and federal lead agencies because the size (6,000 square miles) and complexity of the overall study area (an intricate mosaic of multiple habitats/species contained within a densely populated metropolitan area) made the completion of a single, integrated NCCP/HCP for the entire area infeasible.

The subregional approach implemented by the lead agencies under the terms of the NCCP Guidelines recognizes that it is not feasible to require coordination of planning decisions (e.g., the timing of program review and action or General Plan/ordinance content) among local jurisdictions that extend geographically from the City of Chula Vista at the international border with Mexico northward to the Palos Verdes Peninsula. The subregional approach recognizes that it would be impossible under CEQA and NEPA to require/enforce mitigation within one jurisdiction for impacts within another jurisdiction. The legislative body of one local jurisdiction cannot bind the legislative body of another jurisdiction. Under such circumstances, the first NCCP/HCP could not be completed until all other potential "linked" NCCPs were ready for completion.

The independent regulatory status of the subregions is further demonstrated by the fact that "interim take" allowed under the Special 4(d) Rule is calculated on a subregional or subarea, not regional, basis. Finally, according to the NCCP Conservation Guidelines: "An approved *subregional* NCCP plan will *supersede* the interim designation of potential long-term conservation value and the interim 5% CSS loss limit will no longer apply" (NCCP Conservation Guidelines, at p. 14, emphasis added).

Based on the subregional NCCP approach, each subregion is initially defined by the local jurisdictions and landowners and approved by CDFG and USFWS. To be approved by CDFG and USFWS, subregions must be large enough and contain sufficient diversity to constitute effective conservation planning units and allow impacts to be analyzed on a cumulative basis under CEQA and NEPA. Subregional NCCP/HCPs must provide for creation of a habitat Reserve System that enables long-term protection and management of CSS habitat and Identified Species consistent with the FESA/CESA and the State's NCCP Guidelines. The subregional NCCP/HCPs also must address the need for connectivity *within* the subregion and *between* the subregion and adjacent subregions. By requiring subregions to address both long-term species/habitat protection within the subregion and connectivity with adjacent subregions, each subregion NCCP/HCP can be formulated and approved without requiring the completion of any of the other ten to fourteen subregional NCCP/HCPs that will be prepared. This means

that it is not necessary to address the status of NCCP programs throughout the subregion during the review and approval of an individual NCCP/HCP.

Thus, for an area to be approved to proceed with NCCP subregional planning, USFWS and CDFG must determine at the outset that each subregional NCCP/HCP can be self-sufficient for purposes of Reserve System Design and Adaptive Management and capable of being analyzed independent of other subregions with respect to compliance with FESA, the Special 4(d) Rule, CESA, CEQA and NEPA. Accordingly, the assessment of cumulative impacts regarding species and habitats proposed for regulatory/CEQA coverage by the NCCP/HCP is conducted on a subregional basis

C. Cumulative Impact on CSS Habitat

By virtue of its programmatic definition in the NCCP Conservation Guidelines, the NCCP Act and the 4(d) Rule for the gnatcatcher, the Central/Coastal NCCP/HCP is directed specifically toward reasonably foreseeable cumulative impacts of incidental take of CSS habitat on the target/identified species and of species dependent upon or associated with CSS and "covered habitats" at a very large subregional scale. As reviewed in the Chapter 3, Alternatives Analysis, the NCCP/HCP is intended to provide a subregional conservation planning alternative to project-by-project Section 7/Section 10 review under FESA and Section 2081/2084 review under CESA for presently listed CSS species and for species listed in the future. Accordingly, the review of environmental consequences for CSS habitat and the proposed "covered" habitats" in Chapter 8 addresses the cumulative impacts on subregional CSS habitat and "covered habitats" resulting from all incidental take proposed to be authorized by the NCCP/HCP. Chapter 8 also analyzes CSS and "covered habitats" cumulative impacts in terms of "net habitat value on a long-term basis" as presented in the NCCP Conservation Guidelines and in relation to the findings that the proposed subregional level of incidental take will not appreciably reduce the likelihood of survival and recovery of the target/identified species in the wild. Therefore, cumulative impacts for NEPA and CEQA purposes are addressed at the subregional level as reviewed in Chapters 5-8.

For information purposes and informed decision-making, Appendix 18 contains summaries of major Section 10 approvals in northern Orange County (the Unocal and Shell/MWD HCPs) and a summary of the current status of the Southern Orange County subregional NCCP planning process. As a result of the Unocal and Shell MWD HCPs, in combination with previous public acquisition programs, it is estimated that 80% of the CSS habitat extant in

northern Orange County will be preserved and managed in significant part as a result of provisions of those HCPs. With regard to the Southern Orange County NCCP, preliminary alternative plans under consideration would provide significant protection for CSS habitat and target species populations; however, it must be emphasized that the Southern Orange County NCCP proposed subregional plan has not yet been formulated to the extent that it is ready for public review pursuant to CEQA and NEPA.

Additionally, the Section 7 consultations for the SJHTC, the ETC and the FTC segment within this NCCP subregion examine cumulative impacts of these projects on CSS habitat and on the NCCP/HCP reserve design process. These Section 7 consultations are set forth in Appendix 8.

With regard to "interim take" impacts on CSS pursuant to the special 4(d) Rule for the California gnatcatcher, the County of Orange supplies a quarterly report in a public report to the USFWS providing cumulative totals of CSS affected by interim take permits within the NCCP subregions and within the North County area (the most recent report is dated April 16, 1996). As indicated in the Response to Comments, total impacted CSS is approximately 700 acres, less than 2% of the total CSS within the subregion. Additionally, most of the interim take permits require mitigation to substantially offset the loss of habitat value and many of these mitigation requirements have been incorporated into the NCCP/HCP reserve design (e.g., the ETC CSS restoration program near Siphon Reservoir reviewed in Section 7.5.1 of the EIR/EIS) and Special Linkage designations (e.g., PA 1C-2/11B portrayed at Figures 44 and 45 of the NCCP Map Book and the Disney Newport Coast mitigation within the Pelican Hill golf courses Special Linkage Area). Thus, when taking into account the total amount of CSS modified pursuant to interim take authorization within the subregion and the extensive mitigation required for many projects, 4(d) Rule interim take does not contribute to cumulative impacts on CSS in excess of those impacts analyzed in the NEPA Environmental Assessment for the 4(d) Rule and, in absolute terms, cumulative impacts on net habitat value are not significant from a subregional perspective.

D. Cumulative Development Impacts

It is important to understand that the authorization of incidental take does not constitute an entitlement to develop, other than for purposes of habitat conversion allowed pursuant to the NCCP Act, CESA and FESA that would otherwise not be allowed. Because of the extent of prior master-planning in central Orange County, almost all development on the part of the non-utility "participating landowners" (i.e., The Irvine Company, the TCAs, Chandis-Sherman

and the County of Orange) is provided for as the result of extensive CEQA, and NEPA, review of the development activities. In order to provide the public with information on potential cumulative impacts, the "Summary" sections of the following CEQA approvals are set forth in Appendix 24.

- The Irvine Coast MCDP final EIR and subsequent Irvine Coast approvals
- The County of Orange Final EIR for the Irvine Coast Master Development Permit
- The final EIR for the City of Irvine GPA 16
- The final EIR for the East Orange General Plan Amendment
- The final EIR for the Mountain Park General Plan Amendment
- The final EIR for the University of California at Irvine Long Range Development Plan

Given the scale of the subregion, rather than attempting to overgeneralize cumulative impacts through a summary in this document, the reader is directed to review each of the above EIRs.

For further information on the extensive analysis of cumulative impacts conducted for the SJHTC and ETC environmental documents, the reader is directed to the following:

- The final EIR and EIS for the SJHTC
- The final EIR and EIS for the ETC

The summary sections of the following projects in areas in close proximity to the proposed Coastal subarea reserve are also included in Appendix 24.

- The Shady Canyon Project
- The Irvine Coast Phase III
- The final EIR for the city of Dana Point General Plan

Both the Shady Canyon project and the Irvine Coast Phase III EIRs indicate substantial reliance on the NCCP program for mitigation of impacts to gnatcatcher habitat. These cumulative CSS impacts have been accounted for and reviewed in Chapters 5-8. Other cumulative impacts are specifically addressed within these EIRs (each of these EIRs is also subsumed under cumulative impact analyses provided for in the GPA 16 EIR and Irvine Coast MCDP EIRs and the 1988 Irvine Coast LCP CEQA findings respectively) .

Each of these projects' cumulative impact analyses present other projects currently in the CEQA pipeline for CEQA purposes:

- San Joaquin Marsh EIR
- PA 25 EIR
- Lower Peters Canyon Project EIR
- Laguna Canyon Road EIR
- University of California at Irvine Long Range Development Plan FEIR

CHAPTER 10 GROWTH-INDUCING EFFECTS AND IRREVERSIBLE ENVIRONMENTAL CHANGES

SECTION 10.1 GROWTH INDUCEMENT

Section 15126g of the CEQA Guidelines directs growth inducement analyses in environmental documents as follows:

The Growth-Inducing Impact of the Proposed Action. Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may further tax existing community service facilities so consideration must be given to this impact. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. SOURCE: 1994 CEQA Guidelines, Section 15126g.

According to the Guidelines, growth-inducing impacts can occur if a project would include growth either directly or indirectly in the surrounding environment. A project with direct growth-inducing impacts might be one in which a currently undeveloped area was supplied with urban levels of public services and facilities with significant capacity for growth. Placement of a major employment attractor in an outlying, undeveloped area may also be considered to be a direct growth inducement. No features of the Proposed Project or alternatives would directly induce growth. Although provision of a NCCP/HCP Reserve System would likely be regarded as an enhancement in the region's quality of life, it is not anticipated that people would be induced to move to Orange County as a result of project implementation.

A project with indirect growth-inducing impacts might be one that would cause a change in the location, type or pattern of growth, resulting in the construction of additional housing in an area not currently planned for such housing. A project that would result in a reduction in the supply of available land for housing in one area may be considered to have indirect growth

inducing effects if such a reduction would result in a shift in projected growth to an area not currently planned for such growth.

As discussed in Chapter 9 of this document, implementation of the Proposed Projects would not result in a substantial shift in the location, type and pattern of growth within the subregion. Residential dwelling units would potentially be shifted within the City of Irvine but this would not result in any inducement of growth beyond that assessed in the EIR for City of GPA 16 because there would be no net increase in residential dwelling units.

SECTION 10.2 ANY SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED PROJECT SHOULD IT BE IMPLEMENTED

Adoption of the Proposed Project or one of the two alternatives and issuance of a take permit under Section 10(a)(1)(B) of the federal ESA would preserve portions of habitat areas within the subregion.

Incidental take of target/Identified Species would represent an irreversible environmental change associated with implementation of the proposed federal and state actions. The numbers of NCCP target species and associated CSS habitat that could be taken within the NCCP/HCP Reserve System and outside the reserves are set forth in Chapter 6. Habitat areas and habitat types protected within the Reserve System are depicted in Figures 15 and 16. Cumulative impacts resulting in irreversible environmental changes are described in Appendix 24 ([Master Plan EIR excerpts). Cumulative air emissions reviewed in the Master Plan EIRs have been found to be consistent with AQMP policies and development has been found to be consistent with AQMP policies.

CHAPTER 11

SECTION 11.1 LIST OF AGENCIES AND ORGANIZATIONS CONTACTED

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