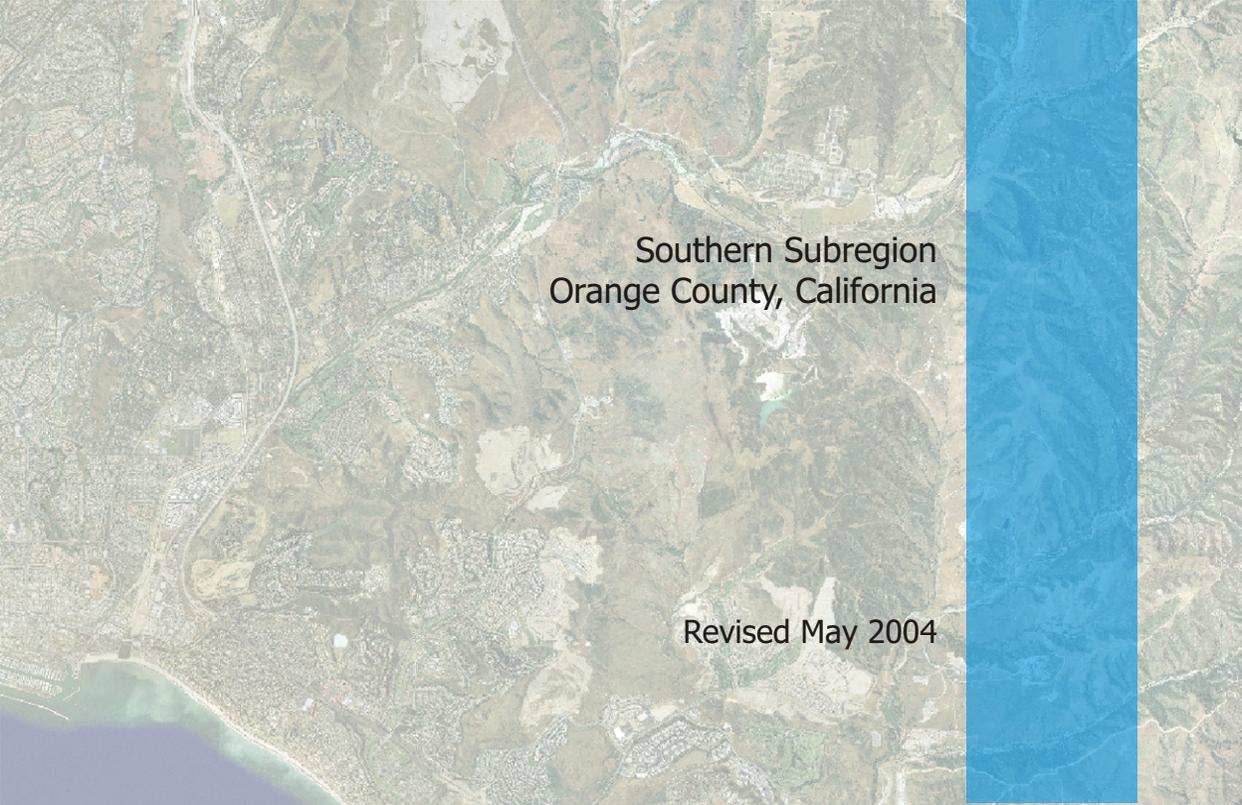


DRAFT SOUTHERN NCCP/HCP PLANNING GUIDELINES



Southern Subregion
Orange County, California

Revised May 2004

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SECTION 1: DRAFT SOUTHERN NCCP/HCP GUIDELINES INTRODUCTION

1.1 Introduction

This document presents the second version of the Planning Guidelines for the Southern Subregion NCCP/HCP (Draft Southern NCCP/HCP Guidelines). The original Draft Southern NCCP/HCP Guidelines were made available to the public in April 2003. The primary differences between this version and the April 2003 version are: **(1)** the addition of species accounts for 14 additional unlisted planning species in Section 4 (written comments by the resource agencies on the additional accounts submitted to the agencies in June 2003 have not been received); and **(2)** revised accounts for the arroyo toad, thread-leaved brodiaea, and many-stemmed dudleya) based on recent information.

1.2 Purpose of the Guidelines

The Draft Southern NCCP/HCP Guidelines are intended to provide an objective and common set of planning considerations and recommendations for use by the resource and regulatory agencies and the program participants in selecting and evaluating reserve program, restoration and management alternatives for the Southern Subregion NCCP/HCP. The Draft Southern NCCP/HCP Guidelines are comprised of three primary components:

1. NCCP Tenets outlined in the 1993 NCCP Conservation Guidelines;
2. Reserve Design Principles prepared by the panel of NCCP Science Advisors convened by The Nature Conservancy (1997); and
3. A set of draft “work in progress” sub-basin specific planning recommendations prepared by the NCCP Consultant Team.

These guidelines are also complemented by the Watershed & Sub-basin Planning Principles (Watershed Planning Principles) prepared to address the protection and management of aquatic resources within the planning area. The consultant team has also prepared additional general planning area resource protection, management and restoration policies which should be considered for incorporation into reserve design planning.

The Draft Southern NCCP/HCP Guidelines are a “work in progress” prepared by the NCCP/SAMP working group. These guidelines represent a synthesis of the following source materials:

- The NCCP Conservation Guidelines, including the seven Tenets of Reserve Design, prepared by the Scientific Review Panel appointed by the CDFG (1993);

- The Principles of Reserve Design and Adaptive Management Principles for the Southern Subregion prepared by the Science Advisors convened by The Nature Conservancy to assist in the preparation of the Southern NCCP (1998); and
- Southern Subregion databases.

These guidelines do not: (1) commit to conserve or allow impacts to specific biological and hydrological resources; or (2) discount specific biological and hydrological resources that are not identified herein. As the public preparation and review process for the NCCP/HCP continues, it is anticipated that new planning information and analyses could modify the assessment of the significance of specific resources, including the initial protection, management, and restoration recommendations. Thus, the specific language in the Draft Southern NCCP/HCP Guidelines will continue to be reviewed and modified as appropriate.

Using the broader NCCP Tenets as a framework and starting point, the Draft Southern NCCP/HCP Guidelines provide guidance for decision-makers that is keyed to local biologic, hydrologic, and geomorphic conditions. These guidelines address resources at both the landscape and more detailed hydrologic/geomorphic sub-basin levels. For each sub-basin planning unit, the Guidelines identify the important biological resources and key hydrologic/geomorphic processes. Protection recommendations also are included, providing an objective and common set of planning considerations and recommendations for use in selecting and evaluating Habitat Reserve design, restoration and adaptive management alternatives.

The Draft Southern NCCP/HCP Guidelines also reflect other non-biological objectives in keeping with the purpose and need of the NCCP/HCP to provide a subregional approach to protecting identified species and their habitats while allowing for compatible economic uses. Accordingly, application of the planning recommendations is consistent with the Science Advisors recognition that the NCCP “reserve design principles are not absolutes and “. . . that it may be impractical or unrealistic to expect that every design principle will be completely fulfilled throughout the subregion” (Science Advisors 1998).

1.3 Relationship of Guidelines to Other Planning Program Criteria

The participants in the Special Area Management Plan/Master Streambed Alteration Agreement (SAMP/MSAA) process have also developed tenets and principles for the identification and evaluation of alternatives. The U.S. Army Corps of Engineers (ACOE) and California Department of Fish and Game (CDFG) set forth eight SAMP/MSAA Tenets characterized as overall program goals intended to facilitate the identification of alternatives that meet the project purpose and need. The participants have also jointly collaborated on a set of Watershed Planning Principles. The Watershed Planning Principles are intended to function in a similar manner as the NCCP Science Advisors reserve design principles. Reserve Design Principle 7 was added by the Science Advisors in recognition of the role that hydrologic and sediment processes play in

shaping the landscapes of the planning area. This principle helps to integrate the NCCP/HCP and SAMP/MSAA processes and serves as a link between this set of guidelines and the tenets and principles of the SAMP/MSAA.

The Watershed Planning Principles and the Draft Southern NCCP/HCP Guidelines described in this document are applied at the sub-basin scale as a response to the distinct characteristics (geomorphic, hydrologic and biologic) of each of the sub-basins. Both the Watershed Planning Principles and the Draft Southern NCCP/HCP Guidelines use the same sub-basin units/boundaries as the basis for addressing site-specific resource protection and management. This facilitates and makes more effective a comparison of the effects of the proposed respective guidelines/principles for both the NCCP/HCP and SAMP/MSAA programs. It is important to understand that the Draft Southern NCCP/HCP Guidelines and Watershed Planning Principles will not always treat the same biologic and hydrologic resources in the same manner. Use of common sub-basin planning units enables program participants and the public to identify and address those instances where the different approaches and priorities inherent in the NCCP/HCP and SAMP/MSAA programs create the need for reconciliation of differing protection and management recommendations.

1.4 Format of Document

Section 1 provides an introduction to the Draft Southern NCCP/HCP Guidelines.

Section 2 of this document contains materials intended to provide basic planning principles that can be used throughout the planning area and species information for listed and other selected species in the planning area, as follows:

- Section 2.1 contains the NCCP Tenets outlined in the 1993 Conservation Guidelines.
- Section 2.2 sets forth the Science Advisors translation of the NCCP Tenets to Subregional Design Principles.

Section 3 sets forth general policies for resource protection, management and restoration that apply at the planning (landscape) area scale. These general policies also address:

- The protection and maintenance of wildlife movement corridors and habitat linkages;
- Creation and management of urban/wildland interface areas;
- Fuel management; and
- Grazing management.

Section 4 provides species accounts and key physical habitat components of listed and other selected planning species in the planning area.

Section 5 identifies and discusses resource planning considerations at the sub-basin scale. This section reflects the need to identify key planning principles that both reflect and address the distinctive characteristics of each of the sub-basins. Each sub-basin description and analysis includes:

- A summary of the Existing Conditions and Biological Resources that represent important planning consideration in the sub-basin.
- A summary of Planning Recommendations for the sub-basin. Planning Recommendations are broken down into three categories; protection, management and restoration.

Section 6 reviews in more detail the restoration and management recommendations for each sub-basin and explains how these recommendations could contribute to an overall Habitat Reserve design and future adaptive management program.

1.5 Relationship to Species Downstream and Outside the Planning Area

In addition to the listed and other selected planning species that occur within the Southern Subregion planning area and the hydrologic/sediment resources occurring within the Orange County portions of the San Mateo Creek watershed, other listed species and hydrologic resources of significance occur downstream of the planning area. Potential downstream impacts and mitigation measures will be addressed in the CEQA/NEPA documents for the NCCP/HCP and SAMP/MSAA. From an NCCP/HCP perspective, potential downstream impacts will be considered from a species needs, terrains, hydrology and water quality perspective. This consideration will include information regarding watershed processes and species needs gained in formulating the Draft Southern NCCP/HCP Guidelines.

SECTION 2: PLANNING AREA TENETS AND PRINCIPLES

2.1 NCCP Tenets

Seven basic Tenets of Reserve Design were outlined in the NCCP Conservation Guidelines (November 1993). These tenets were elaborated upon in the Coastal/Central NCCP (1996) and repeated here for planning purposes:

1. **Conserve target species 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.

Reserves should represent the full range of physiographic conditions which support the three target species (California gnatcatcher, cactus wren and orange-throated whiptail), 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.

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.

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.

Linkages 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.

To the degree possible, reserve blocks of core habitat should be on the order of a 1,000 or more acres. In this community and setting, reserve habitat blocks in the 100 or more acre range may require special management efforts to remain viable, and reserve habitats in the 10-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 1,000s 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 may sometimes be necessary and desirable to include small blocks of habitat at strategic locations for habitat linkages.

5. **Link reserves with corridors:** Interconnected blocks of habitat serve conservation purposes better than isolated blocks of habitat.

Linkages allow for genetic exchange, recolonization of habitat following perturbations, and operation of the "rescue effect" for small 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 (i.e., "live-in" habitat) 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, chaparral, 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 land cover within them physically 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) suitable 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 much be “jumped,” include visual barriers, and/or include significant non-habitat components (e.g., golf course, fuel modification zones).

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 coastal sage scrub and contribute to the long-term protection and management of the coastal sage scrub 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 sage 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 Southern Subregion, the greatest potential for encroachment is from urban edges surrounding reserve lands. Encroachment by non-native species (e.g., non-native grasses and exotic weeds) 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 to area (P/A) ratio and avoid highly interdigitated configurations. (A circle has the smallest P/A ratio.)

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.

2.2 Science Advisors Translation of Tenets to Subregional Reserve Design Principles

The NCCP Science Advisors elaborated upon the general NCCP tenets set forth in Section 2.1 with a series of reserve design principles and recommendations developed specifically for the Southern Subregion. For ease of use, these principles and recommendations are summarized in this section, and are set forth in their entirety in APPENDIX A:

- Potential reserve sites should be prioritized based on the presence or potential presence of species or other ecological phenomena in the following five categories:
 1. Legally protected species
 2. Rare plant or habitat associations
 3. Upper trophic level or generalist species
 4. Locally rare species
 5. Species indicative of select habitat types
- Reserves should capture the environmental gradient, both within and among habitat types. This includes the elevation gradient, the coast/inland gradient, and variability among soils, vegetation and habitat types.
- Reserve design should seek, in order of priority:
 1. Continuity within habitat
 2. Connectedness
 3. Proximity
- Reserve design should strive to maintain the contiguity of large intact habitat blocks and not fragment them internally.
- Reserve design should attempt to minimize physical and visual barriers between reserves, particularly those reserves that are close together.
- Development around reserves should be directed to existing disturbed areas everywhere possible and away from native communities.
- Linkages should follow landscape features and respond to patterns of dispersal exhibited by species considered in reserve design. These linkages should be designed to serve the widest array of species by providing characteristics required for dispersal by the most wide-ranging organisms (mountain lion, bobcat, coyote, red-diamond rattlesnake).

The Science Advisors also specifically identified important habitats and specific uplands and riparian areas within the subregion.

- Several important grassland areas occur within the subregion. They are valuable for a variety of vertebrate species of concern, including badger, burrowing owl, spadefoot toad and horned lark. Also the ecotone between coastal sage scrub and grassland is important for California gnatcatchers. Important grassland areas are Gobernadora, Chiquita, upper Gabino, and Cristianitos.

- Reserve selection should favor increasing open space and *de facto* permanent natural areas, or reserves should be in close proximity to those areas. They include:
 - Donna O’Neill Land Conservancy at Rancho Mission Viejo
 - Caspers Wilderness Park
 - O’Neill Regional Park
 - Open Space in Upper Trabuco
 - Wagon Wheel Park (General Thomas F. Reilly Regional Park)
 - Camp Pendleton
 - Cleveland National Forest

- Ridgetop connectivity between Canada Gobernadora and Bell Canyon is important.

- Several key riparian systems occur within the subregion, including along San Juan Creek, Trabuco Creek, and the San Mateo Creek drainage (Gabino and Cristianitos creeks). Maintaining the integrity of these systems is important for a wide variety of species.

- Several canyons are important for nesting raptors, including Gabino, La Paz, Cristianitos and Talega canyons.

- Maintaining the integrity of riparian systems (including major stream courses and their tributaries) is very important for both vertebrates and invertebrates in:
 - San Mateo Drainage (Cristianitos and Gabino creeks)
 - San Juan Creek
 - Trabuco Creek
 - Gobernadora Creek

To address the importance of hydrologic and erosional process, the Science Advisors combined two previous tenets and added this seventh tenet to ensure that reserve design planning would account for the hydrologic and erosional processes that shape the landscapes of the planning area:

- The reserve system should protect intact hydrologic and erosional processes, including both normal function and extreme events (flooding, earthflow). Reserve design should protect to the maximum extent possible the hydrology and erosion regimes of riparian systems, especially in Cristianitos, San Juan and Trabuco drainages.

This tenet is more fully addressed in the SAMP/MsAA Watershed & Sub-basin Planning Principles, but is addressed in this document as appropriate for certain habitats and species.

SECTION 3: GENERAL POLICIES FOR PROTECTING, MANAGING AND RESTORING HABITAT SUPPORTING SELECTED SPECIES

The goal of the NCCP/HCP is to fashion a habitat conservation planning and implementation program that addresses coastal sage scrub and other natural habitats on an ecosystem basis at a subregional level, pursuant to the State of California NCCP coastal sage scrub program and within the framework of the 1993 NCCP Conservation Guidelines. According to the NCCP Conservation Guidelines:

. . .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.

To achieve the above goals, the NCCP Conservation Guidelines set forth seven tenets of reserve design previously discussed in Section 2.

In other NCCPs, four planning elements comprise the “Conservation Strategy” and have been formulated as programmatic vehicles for carrying out the NCCP Tenets of reserve design:

- *Creation of a Reserve:* 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 doing so, to adapt management actions to new information and changing habitat needs.
- *Implementation Agreement and Funding:* the formulation of a binding Implementation Agreement that identifies the rights and obligations of all signatory parties to the approved NCCP/HCP and provides for funding mechanisms adequate to assure the implementation of the NCCP/HCP consistent with FESA, CESA and the NCCP Act.

The combination of a properly formulated Habitat Reserve and a comprehensive Adaptive Management Program will allow the NCCP/HCP program to maintain *net habitat value* on a *long-term basis* for species ultimately receiving regulatory coverage under the program. As broadly defined in the 1993 NCCP Conservation Guidelines, “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.” (Conservation Guidelines 1993, p 9). Specifically defined, *net habitat value*

takes into account habitat gains and losses due to a particular activity, such as reductions in habitat area (impact) and increases in habitat quality (mitigation through restoration and management). The Habitat Reserve and Adaptive Management Program will allow for the mitigation of impacts of proposed incidental take such that the *net habitat value* of the subregion for Identified Species will be maintained on a long-term basis.

The following general policies address the first two planning elements of the conservation strategy for the Southern Subregion NCCP /HCP– creation of a Habitat Reserve and assurances of connectivity. Included are policies concerning the urban/wildland interface, fuel management areas, and grazing management designed to be applied throughout the planning area such that the goals of the NCCP/HCP will be met. This planning area guidance is intended to be supplemented by the more specific sub-basin recommendations and policies set forth in Section 5 that are designed to guide protection, management and restoration of habitats and species at the sub-basin scale. With the exception of habitat linkage/corridor recommendations, policies within these topical areas are not generally addressed at the sub-basin scale.

The Adaptive Management Program component of the three key conservation principles will be provided in a separate document.

3.1 General Policy 1: To maintain *net habitat value* over the long term, site and design new development to conserve and manage *major habitat types* and *major and important populations in key locations* through the following policies

- Create a Habitat Reserve that includes all *major habitat types* currently existing within the planning area in a manner that conserves blocks of habitat that constitute a diverse representation of the existing range of physical and environmental conditions within the subregion. *Major habitat types* are the generalized natural vegetation communities and include coastal sage scrub, chaparral, grassland, riparian, streamcourses, woodland, forest, lakes and reservoirs, freshwater marsh, vernal pools, and rock & cliff.
- Create a Habitat Reserve that protects habitat supporting listed and selected planning species (see discussion in General Policy 2).
- Create a Habitat Reserve that can be adaptively managed, by a single management entity, as recommended by the State’s NCCP Conservation Guidelines (1993) and the NCCP Science Advisors (1998). The Southern Subregion NCCP shall either designate or provide for the creation of a management entity capable of overseeing adaptive management of the entire Habitat Reserve.

3.2 General Policy 2: Identify habitat areas necessary for the conservation and management of NCCP/HCP “planning species.” Species ultimately selected as Identified Species shall be designated based on the extent to which the Habitat

Reserve provides for the conservation and management of the species consistent with applicable regulatory requirements

- Because the NCCP/HCP addresses a broad range of habitats, the suite of “planning species” has been expanded from the original suite of three NCCP target species: California gnatcatcher, cactus wren and orange-throated whiptail. These planning species, which include both listed and unlisted species, serve as the conservation planning surrogates for identifying habitat areas that should be considered for inclusion in the Habitat Reserve. The planning species selected for the Southern Subregion NCCP/HCPz are the California gnatcatcher, least Bell’s vireo, southwestern willow flycatcher, arroyo toad, Riverside fairy shrimp, San Diego fairy shrimp, thread-leaved brodiaea, cactus wren, tricolored blackbird, yellow-breasted chat, yellow warbler, grasshopper sparrow, white tailed kite, Cooper’s hawk, merlin (foraging areas), western spadefoot toad, southwestern pond turtle, San Diego horned lizard, orange-throated whiptail, golden eagle, mountain lion, mule deer, and all California Native Plant Society (CNPS) List 1B and List 2 sensitive species known from the planning area, including many-stemmed dudleya, intermediate mariposa lily, southern tarplant, Coulter’s saltbush, chaparral beargrass, Salt Spring checkerbloom, and mud nama. In addition, all historic raptor nest sites will be considered in the reserve design process.

In order to prepare and implement sub-basin guidelines for NCCP/HCP planning species, it is necessary to gain an understanding of each of the species’ regional and subregional distribution, specific habitat affinities (including edaphic requirements) and the life history characteristic of each species. In this context, the following issues need to be addressed:

- The species’ regional and subregional distribution;
- The relative importance of the Southern Subregion for the continued survival or recovery of the species;
- Key and important habitat characteristics of the species;
- Key and important life history characteristics (e.g., plant pollinators, dispersal, response to fire); and
- Response to management (including enhancement and restoration).

With the above information, *major populations* and *important populations* of the planning species will be identified. *Major populations* are those considered sufficiently large to be self-sustaining with a minimum of active or intensive management intervention or that at least support enough breeding individuals to contribute reliably to the overall metapopulation stability

of the species. *Important populations* may not meet the relative size standards of *major populations*, but may nonetheless be important to the species' long-term survival. For example, a smaller population in a key habitat linkage may be important for breeding success and exchange of genetic material and thus would be considered to be an *important population*, even though it would not be considered a *major population*.

To facilitate reserve design, *key locations* will be defined for some planning species. For planning purposes, *key locations* are those locations that are deemed necessary for the conservation of the species in the subregion. For example, populations of a species that are concentrated in a single or few locations would be *key locations*. *Key locations* may not be identifiable for some species that are widely scattered and lack population concentrations. *Major populations*, or some portion thereof, may be *key locations*, but not all *major populations*, or portions thereof, are necessarily *key locations*. With respect to *important populations*, most *important populations* would also be in *key locations*. An *important population* may not be a *key location* where, for example, more than one *important population* can fulfill a desired reserve design and species sustainability function (e.g., connectivity). The identification of a *key location* within a *major* or *important population* defines that portion of the population that is necessary for conservation of the species in the subregion. Portions of *major* or *important populations* that are not identified as *key locations* may be impacted consistent with the conservation of the species within the subregion. For listed species with critical habitat identified or proposed within the subregion, the designation or proposed designation for a particular listed species will be reviewed to determine whether the habitat designation should be proposed to be revised and whether special management considerations should be changed or amplified in light of the proposed Southern Subregion NCCP Conservation Strategy. For any listed species for which critical habitat has yet to be designated, habitat essential to the conservation of the species within the subregion and any special management considerations should be identified.

With regard to federally-listed species and other species ultimately designated as Identified Species in the final Southern NCCP/HCP, a main purpose of the final Conservation Strategy is to provide for the protection of those physical and biological features essential to the conservation of Identified Species in a manner consistent with the definitions set forth in FESA Section 3(5)(A)(i) and (ii). As indicated above, the Draft Southern NCCP/HCP Guidelines have been formulated to identify *key locations* for listed and other species that are deemed necessary for the conservation of the species in the Subregion. These *key location* determinations, as well as specific connectivity, management and restoration recommendations, are provided for each planning area sub-basin, as well as for the overall planning area. In relation to FESA critical habitat considerations, the Southern NCCP/HCP thus provides the opportunity for a more focused analysis of species protection needs, including a more detailed analysis of special management considerations and habitat protection, consistent with FESA Section 3(5)(A)(i),

than that which can be undertaken on a species-wide critical habitat designation (see discussion in footnote one below).¹

Accordingly, the EIR/EIS for the Southern NCCP/HCP will evaluate the extent to which the proposed Conservation Strategy (including Habitat Reserve Alternatives) will provide protection for occupied habitat of the gnatcatcher on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection; and unoccupied habitat that is essential for the conservation of the species, consistent with FESA Section 3(5)(A)(i) and (ii). To the extent the recommended final Conservation Strategy differs from the existing and proposed critical habitat designation for the gnatcatcher, USFWS will consider all available information, including information from the final EIR/EIS, in developing the final rule for designating critical habitat for coastal California gnatcatcher. For all other federally listed species found in the Subregion and other Identified Species for which Species Accounts have been finalized pursuant to Sections 3 and 4 of these Guidelines, the EIR/EIS for the Southern NCCP/HCP will evaluate the extent to which the proposed Conservation Strategy (including Habitat Reserve Alternatives) will provide protection for occupied habitat of the species on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection; and unoccupied habitat that is essential for the conservation of the species, consistent with FESA Section 3(5)(A)(i) and (ii).

The subregional guidelines set forth in the following sections should reflect an overall planning area assessment for each of the planning species using the above criteria. The geographic application of the subregional guidelines should result in a preliminary reserve design alternative. In turn, the preliminary reserve design should be reviewed from the perspective of the NCCP tenets of reserve design and overall program purposes. The planning area habitats required for the protection of planning species serve as the primary indicator of habitats to be considered for inclusion in the Habitat Reserve. The needs of other species considered to be “sensitive species” pursuant to CEQA that are not planning species will be reviewed in conjunction with the reserve design process.

Once a preliminary proposed Habitat Reserve design is identified and a proposed long-term adaptive management program has been formulated, species proposed for regulatory coverage will be designated as proposed “Identified Species.” The basis for regulatory coverage for each Identified Species will be derived from applicable state and federal regulatory requirements.

¹ “The HCP development process provides an opportunity for more intensive data collection and analyses regarding the use of particular habitat areas by the gnatcatcher. The process also enables us to conduct detailed evaluations of the importance of such lands to the long-term survival of the species in the context of constructing a biologically configured system of interlinked habitat blocks. We will provide technical assistance and work closely with applicants throughout the development of future HCPs to identify lands essential for the long-term conservation of the gnatcatcher and appropriate management for those lands. By definition, if the gnatcatcher is a covered species under future HCPs, the plans should provide for the long-term conservation of the species.” (Fed.Reg. Vol. 65, No. 206, 10/24/00, 63693)

3.3 General Policy 3: Assure wildlife and habitat connectivity within the subregion and to other subregions. Site and design new development to assure wildlife and habitat connectivity between *major* and *important populations in key locations*, within the subregion and between those populations and *major populations in other contiguous subregions*

The planning area is partially urbanized and partially open space. In urbanized areas, there are varying opportunities for wildlife movement, ranging from highly constrained settings such as Mission Viejo where wildlife movement may be restricted to a man-made culvert, to more expansive areas, such as the Arroyo Trabuco, that afford “live-in habitat” for some species while conveying movement between surrounding development for a broader suite of species. Areas presently in open space generally facilitate wildlife movement in multiple directions and provide “live-in habitat” for many species, but can show constrained movement (e.g., along narrow vectors) where the open space is contiguous with already urbanized areas. The identification of the most important movement wildlife corridors and habitat linkages, as defined below, which will continue to support effective movement in a future environment that supports development depends on animal behavior, habitat affinities and local geography.

For broad wildlife movement areas that presently allow for unconstrained movement, future development scenarios will restrict movement patterns to some extent. To weigh the merits of alternative development configurations/reserve designs, there is a need to preliminarily identify wildlife movement opportunities that are likely important to retain for ecosystem function. Identification of the areas most important for retaining effective wildlife movement in a future environment with development requires consideration of available wildlife movement data, existing species distributions, habitat affinities, animal behavior and local geography. To provide guidance for the planning process, these factors were considered to identify the areas discussed below that are considered important for maintaining wildlife movement functions under any reserve alternative.

To the extent feasible, important broad wildlife movement areas will be retained in the Habitat Reserve. Where conservation of an entire wildlife movement area within the Habitat Reserve is not feasible, a reduced or more constrained habitat linkage or wildlife corridor would still be conserved and managed. In addition, the function of habitat linkages will be conserved and managed to facilitate wildlife movement in multiple directions. The linkages will be managed to provide “live-in” habitat for a variety of species such that the overall function of the wildlife movement area is maintained.

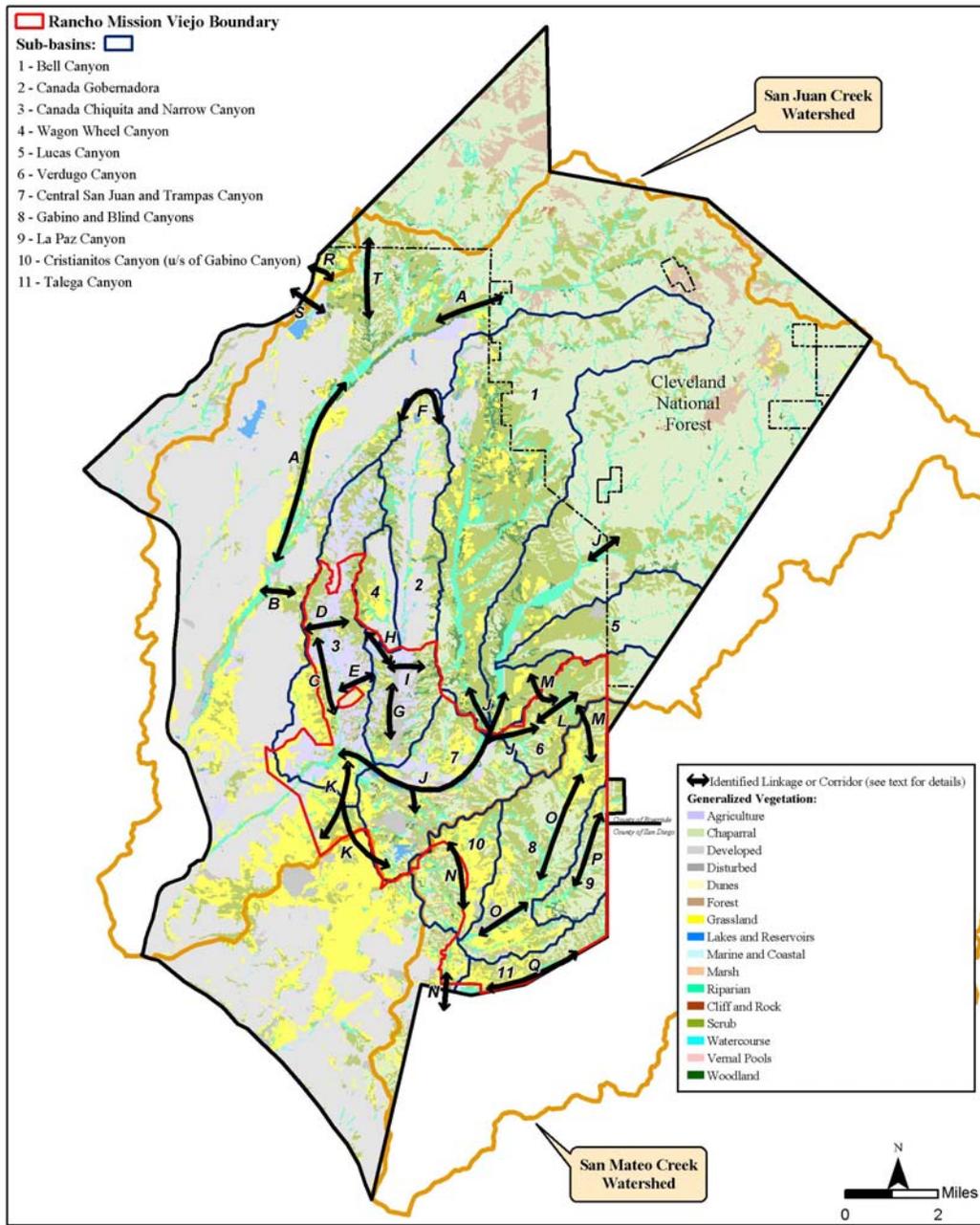
In order to provide guidance for the planning process, important areas for maintaining wildlife movement functions under any reserve designs are described in this subsection. For purposes of General Policy 3, a distinction is drawn between habitat linkages and wildlife corridors:

- *Habitat linkages*: Following Soule and Terborgh's (1999) use of the term "landscape linkage," habitat linkages are areas of natural habitat that function to join two larger blocks of habitat. They serve as connections between habitat blocks and help reduce the adverse effects of habitat fragmentation by providing a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as "live-in" habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages also provide for the transit of larger species, but as contrasted with wildlife corridors, as defined below, also may be "live-in" habitat for larger species (i.e., support breeding sites, frequent use areas, etc.). Habitat linkages also may be represented by continuous habitat or by closely spaced habitat "islands" that function as stepping stones for dispersal and movement (especially for birds and flying insects).
- *Wildlife corridors*: As defined here, wildlife corridors tend to be linear features that connect large blocks of habitat and provide avenues for frequent movement, dispersal or migration of larger animals. Because of their more narrow configuration wildlife corridors generally serve a more limited function than habitat linkages and primarily are used for transit of larger species rather than as live-in habitat for a broader suite of species. Wildlife corridors may also contain "choke-points" (e.g., hourglass or funnel shapes) or man-made structures such as culverts and flood control channels that wildlife quickly move through.

Habitat linkages and wildlife corridors facilitate the dispersal by smaller, less mobile species and frequent movement (e.g., daily, weekly, etc.) by large mammal species such as mountain lion, mule deer, coyote and bobcat. The species identified below only highlight a much broader suite of species served by the habitat linkages and corridors. Accordingly, the species identified should not be interpreted as the only species that benefit from the linkages and corridors. It can be reasonably assumed that habitat linkages and corridors that function for large mammals (except coyote) also function for many other species.

Except where only habitat linkages or corridors currently exist, the following discussion identifies habitat linkage and corridor functions within the general wildlife movement areas that appear to be important to be retained under any reserve alternative. Identification of these linkage and corridor functions are based on field studies of wildlife movement in the planning area (e.g., Beier and Barrett 1993, Dudek 1995; MBA 1996; Padley 1992), input from the Science Advisors and the wildlife agencies, and the consultant team's review and analysis of the species, vegetation, and physiographic information for the subregion. Habitat linkages and wildlife corridors in the planning area are shown in *Figure 3-1* and include:

- The Arroyo Trabuco (A) between about Avery Parkway and the Cleveland National Forest provides a habitat linkage for movement and dispersal of large species, as well as for numerous smaller, less mobile species (e.g., Beier and Barrett 1993; Dudek 1995; Padley 1992; Science Advisors 1998).



Draft NCCP/HCP Planning Guidelines
Habitat Linkages and Wildlife Corridors Map **FIGURE 3-1**

The area (B) between the Las Flores and Ladera Ranch developments connecting Arroyo Trabuco and Chiquita Ridge provides an existing habitat linkage for species such as California gnatcatcher and a wildlife corridor for large mammals (e.g., Beier and Barrett 1993).

- The combined Chiquita Ridge and Creek area (C) provides a north-south wildlife habitat linkage from San Juan Creek to the “horseshoe” of habitat surrounding the northern end of Coto de Caza. This linkage is important for species such as California gnatcatcher and cactus wren and also for movement and dispersal of large mammals (e.g., Beier and Barrett 1993; Dudek 1995; MBA 1996; Padley 1992; Science Advisors 1998).
- The “Narrows” area (D) separating middle and lower Chiquita Canyon consists of oak/riparian and coastal sage scrub habitats, and relatively little dry land farming. This area provides an east-west habitat linkage between Chiquita Ridge and Chiquadora Ridge and Sulphur Canyon for both large mammals and small, mobile species such as the gnatcatcher (e.g., Beier and Barrett 1993; MBA 1996; Padley 1992).
- A mosaic of coastal sage scrub and grassland in lower Chiquita Canyon (E), such as the area adjacent to the wastewater treatment plant, provides an east-west movement corridor for California gnatcatcher dispersal, as well as for dispersal and movement of large mammals.
- The “horseshoe” connection (F) north of Coto de Caza provides a “stepping-stone” habitat linkage for the California gnatcatcher and cactus wren. It probably has limited existing function as a wildlife corridor for large species, although coyotes likely move through the area and bobcat and mule deer may occasionally use the corridor.
- Chiquadora Ridge and adjacent Gobernadora Creek (G) provide a north-south habitat linkage for California gnatcatcher and cactus wren to San Juan Creek, as well for movement and dispersal by large mammals (e.g., Beier and Barrett 1993; MBA 1996; Padley 1992; Science Advisors 1998).
- Sulphur Canyon (H) provides a north-south and east-west habitat linkage for large mammals between Chiquita Canyon and Wagon Wheel Canyon and Canada Gobernadora that allows wildlife to move east to Bell Canyon and Caspers Wilderness Park. It also provides a north-south connection for smaller species such as California gnatcatcher and cactus wren (e.g., Beier and Barrett 1993; MBA 1996; Padley 1992; Science Advisors 1998).
- Canada Gobernadora between Coto de Caza and the mouth of Sulphur Canyon (I) provides an east-west habitat linkage for large mammals between Chiquita Canyon and Wagon Wheel Canyon to the west and Bell Canyon and Caspers Wilderness Park to the east (e.g., Beier and Barrett 1993; MBA 1996).

- San Juan Creek (J) functions as a central nexus for north-south and east-west wildlife movement in the central part of the planning area. It connects Chiquita Ridge and Chiquita Canyon with the Central San Juan Creek and Trampas Canyon sub-basin to allow dispersal and movement to the south via Cristianitos Canyon. It also serves east-west wildlife movement and dispersal from Chiquita Canyon upstream to the Cleveland National Forest and major tributaries such as Canada Gobernadora, Bell Canyon, and Verdugo Canyon (e.g., Beier and Barrett 1993; Dudek 1995; Padley 1992; Science Advisors 1998). It should be noted that under existing conditions, large wildlife species (coyote, mule deer, bobcat and possibly mountain lion) moving between San Juan Creek and Trampas Canyon and the Radio Tower Road area either use existing corrugated steel and concrete box culverts under Ortega Highway (Dudek 1995) or must cross the highway directly.
- Habitat west of the silica mine in Trampas Canyon (K) currently provides dispersal opportunities for California gnatcatchers and other species between Chiquita Ridge and gnatcatcher populations in San Juan Capistrano and San Clemente, as well as eastward dispersal between Trampas Canyon and the Talega development to the RMV Conservancy, Cristianitos Canyon and MCB Camp Pendleton.
- Verdugo Canyon (L) provides an east-west habitat linkage for large mammals between San Juan Creek and the Cleveland National Forest (Beier and Barrett 1993; Padley 1992).
- Upland coastal sage scrub and chaparral habitats adjacent to Verdugo Canyon (M) may provide north-south movement opportunities for the cactus wren and other species, although it is likely that these species also disperse along San Juan Creek.
- Local gnatcatcher populations in the Southeast Quadrant are relatively small, compared with the remainder of the planning area, and are concentrated along the Cristianitos Creek corridor and overlooking lower Talega Creek. Although there is the potential for gnatcatcher dispersal through coastal sage scrub patches throughout the Southeast Quadrant, an important habitat linkage for gnatcatchers within the Southeast Quadrant appears to be Cristianitos Canyon (N), which links San Juan Creek with local populations in lower Gabino Creek and Camp Pendleton along lower Cristianitos/San Mateo Creek.
- Gabino Canyon (O) provides a north-south habitat linkage between the planning area and the Cleveland National Forest for large mammals (Beier and Barrett 1993; MBA 1996; Padley 1992; Science Advisors 1998) and may support dispersal by the cactus wren and other species.
- La Paz Canyon (P) provides a north-south habitat linkage between the planning area and the Cleveland National Forest for large mammals (Beier and Barrett 1993; Padley 1992) and possibly a habitat linkage for dispersal by the cactus wren and other species.

- Talega Canyon (Q) provides for east-west and north-south movement between the planning area and MCB Camp Pendleton for large mammals (Beier and Barrett 1993; Padley 1992), cactus wren and other species.
- The Saddleback Meadows (R) area provides a lower elevation habitat linkage between the Southern Subregion planning area and the Central Subarea component of the Central and Coastal Subregion NCCP/HCP Habitat Reserve. This area also provides a very limited wildlife corridor between the Central and Southern subregions via two 300-ft long corrugated steel pipes that cross under El Toro Road (Dudek 1995). This crossing may be used by smaller animals such as coyote, gray fox and raccoons, but likely is not used by bobcat, mule deer or mountain lion because the pipes are long and confining, and preclude visual contact between the two ends because they have a slight bend.
- The area north of Oso Reservoir (S), including O’Neill Regional Park and the nursery provides a lower elevation “stepping stone” habitat linkage between the Southern Subregion planning area and the Central Subarea component of the Central and Coastal Subregion NCCP/HCP Habitat Reserve. With habitat restoration, this linkage likely would be suitable for the California gnatcatcher.
- The Foothill-Trabuco Specific Plan (1985) identified the locations of several habitat linkages and wildlife corridors, generally shown as (T), within the upper Arroyo Trabuco area. The precise locations of extant linkages and corridors needs to be refined and based on information developed through the review of existing developments and recently submitted specific project plans.

3.4 General Policy 4: Roads and infrastructure should be located outside the Habitat Reserve to the maximum extent feasible. The siting and design of roads and infrastructure should provide for protection of habitat linkages and movement corridors.

- To the maximum extent feasible, roads and infrastructure should be located outside the Habitat Reserve.
- Roads that are necessary to serve approved land and water uses located inside or outside the Habitat Reserve shall be designed and sited to minimize impacts on designated Identified Species, to accommodate wildlife movement to the maximum extent feasible, and to minimize impacts to habitat and associated species. Where roads are necessary, under the approved NCCP/HCP, they will be designed consistent with safety, roadway design criteria that are appropriate for the setting and desired roadway function. Roadway design shall include bridges and/or culverts large enough to accommodate fish and wildlife movement and, where appropriate and feasible, wildlife over crossings. In addition, bridges and culverts should maintain appropriate sediment movement for existing streams. As appropriate, fencing, grading and plant cover will be provided to

serve wildlife crossings consistent with conservation principles and the adaptive management program. Where feasible and safe, lighting along roadways within the Habitat Reserve should be avoided. Where roadway lighting within the Habitat Reserve is necessary for public safety reasons, it should be low-sodium or similar low intensity lighting that is directed away or shielded from the Habitat Reserve.

- Other infrastructure facilities (e.g., pipelines, transmission lines, etc.) that are necessary to serve approved uses or regional needs also shall be sited and designed to accommodate wildlife movement and, to the extent feasible, to minimize impacts to habitats and designated Identified Species located inside and outside the Habitat Reserve. To the extent feasible, infrastructure facilities within the Habitat Reserve should be located within or immediately adjacent to existing roadways or other developed landscapes.

3.5 General Policy 5: Long-term indirect impacts to the Habitat Reserve and other areas being preserved for species protection shall be managed through creation of an urban/wildlands interface zone separating the Habitat Reserve and the non-reserve/urban areas. Management within the interface zone would:

- Create fuel management zones combining irrigated and non-irrigated native plantings separating the Habitat Reserve from adjacent urban uses.
- To the extent that fuel management zones are composed of native habitats and can support Identified Species and other species, or be enhanced or managed to support Identified Species and other species, this should be encouraged. For example, using prickly-pear in the fuel management zone may provide habitat for the cactus wren, as well as enhance the buffering effect between the Habitat Reserve and developed areas.
- Fuel management zones and practices will be set forth in a “fuel management plan” as part of the NCCP/HCP and aquatic resources protection program.
- Prohibit plants identified by the California Exotic Pest Plant Council as an invasive risk in Southern California from development and fuel management zones adjoining the Habitat Reserve;
- Manage pesticide and herbicide use and fertilizer application techniques in landscaped areas, including golf courses, located adjacent to the Habitat Reserve or preserved wetlands and provide comprehensive water quality treatment, which may include, but not be limited to, the use of natural treatment systems, prior to discharge of urban runoff into the Habitat Reserve;
- Shield and/or direct lighting away from habitat areas through the use of low-sodium or similar intensity lights, light shields, native shrubs, berms, and other shielding methods; and

- Provide barriers, fencing, signs, walls, etc. to manage and direct access by the public and domestic animals (e.g., pets) to protect sensitive habitat and species.

3.6 General Policy 6: Cattle grazing shall be permitted within the Rancho Mission Viejo portion of the Habitat Reserve provided that grazing activities are consistent with a “grazing management plan” approved as part of the certified NCCP/HCP

- The grazing management plan (GMP) approved as part of the NCCP/HCP shall identify suitable grazing areas and allowable grazing practices that are consistent with certified NCCP/HCP policies and the aquatic resource management program. The GMP will address grazing practices following approval of the NCCP/HCP and prior to transfer of lands to the Habitat Reserve.
- The GMP will incorporate grazing management techniques designed to address the needs of species and habitat identified for protection, promote perennial grasses including native grasses, allow for continued cattle grazing sufficient to support cattle operations and, where appropriate, reduce fuel loads for fire.