

Regional Conservation Planning in California: a Tool for Adapting to Climate Change

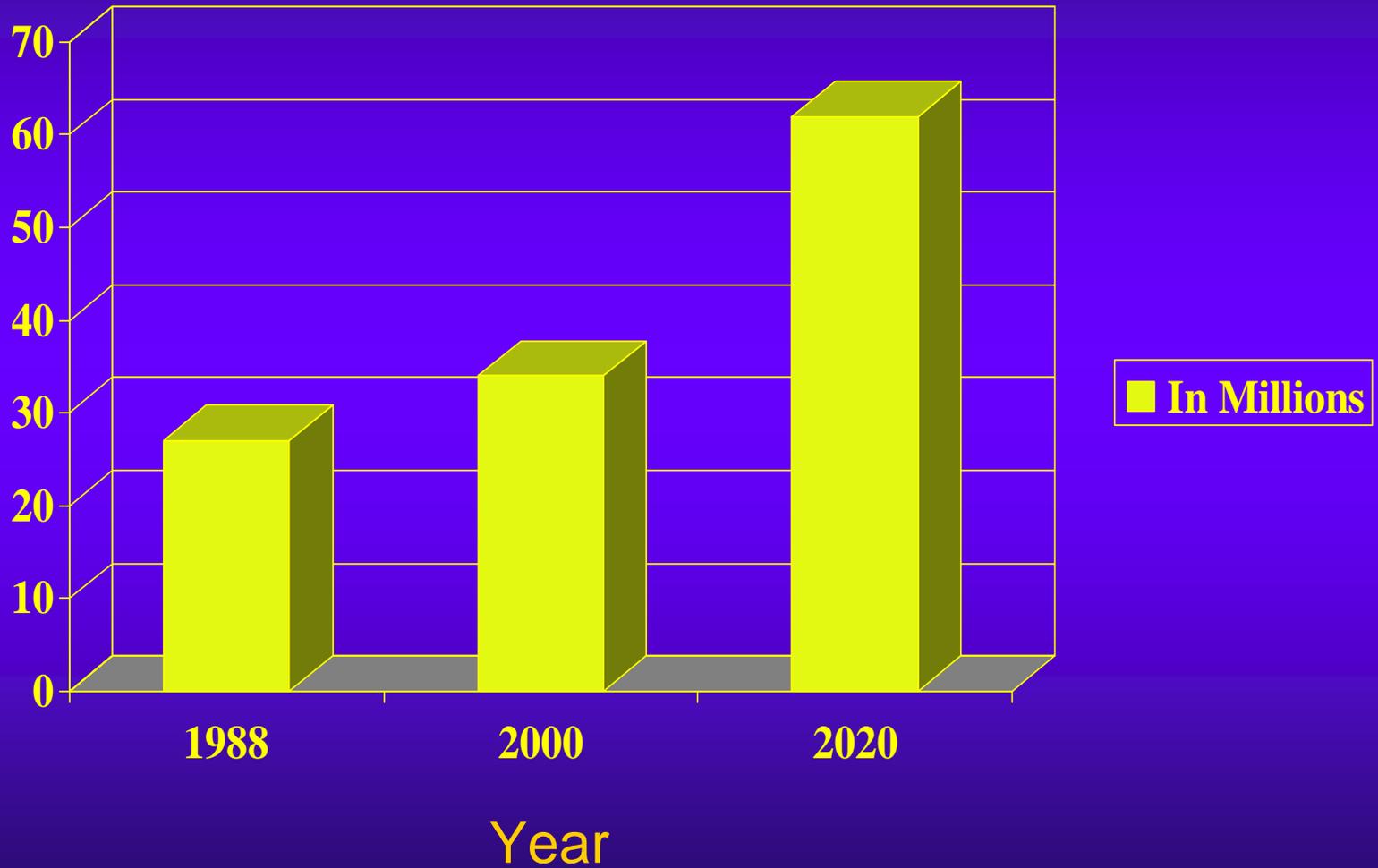
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California's Human Population Growth



Man vs Bird



Species at Risk in California



400+ Listed plants

200+ Listed animals

200+ Species of Special Concern

1000+ Sensitive plants (CNPS)

Expected Effects of Climate Change

- ◆ Movement to higher cooler elevations
- ◆ Movement to higher cooler latitudes
- ◆ Increase in invasive non-native species
- ◆ Exacerbation of existing stressors



CALIFORNIA

Natural Community Conservation Planning Act

(1991, 2000, 2003)

California Fish and Game Code
Chapter 10, Sections 2800-2835



UNITED STATES

Endangered Species Act

(1973)

Section 10(a) (HCPs) 1982
Five-Point Policy 2000



Regional Conservation Plans



CALIFORNIA FISH AND GAME CODE SECTION 2800-2835

NATURAL COMMUNITY CONSERVATION PLANNING ACT

- ◆ (A) Conserving, restoring, and managing representative natural and seminatural landscapes to maintain the ecological integrity of large habitat blocks, ecosystem function, and biological diversity.
- ◆ (B) Establishing one or more reserves or other measures that provide equivalent conservation of covered species within the plan area and linkages between them and adjacent habitat areas outside of the plan area.
- ◆ (C) Protecting and maintaining habitat areas that are large enough to support sustainable populations of covered species.
- ◆ (D) Incorporating a range of environmental gradients (such as slope, elevation, aspect, and coastal or inland characteristics) and high habitat diversity to provide for shifting species distributions due to changed circumstances. (i.e., climate change....)
- ◆ (E) Sustaining the effective movement and interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the habitat areas within the plan area.

Why NCCP/HCPs?

- ◆ Integrates conservation with land-use planning (*directs where development occurs; controls urban sprawl; reduces greenhouse gas emissions*)



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- ◆ Funding



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- ◆ Funding
- ◆ **Efficiency**



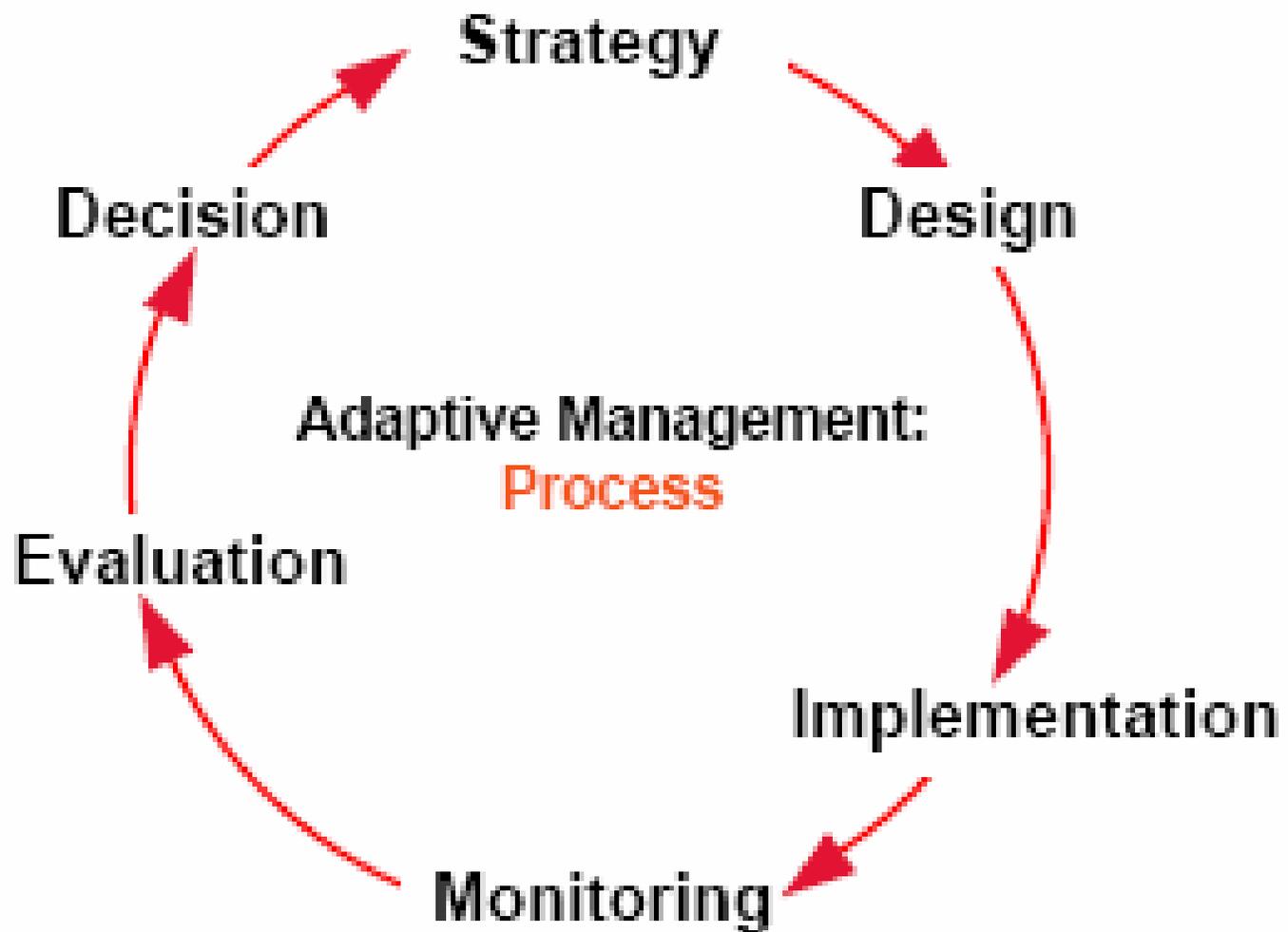


NCCP/HCP Goals

- ◆ Protect and recover biological diversity
- ◆ Prevent future species listings
- ◆ Allow compatible and appropriate land use
- ◆ Accommodate environmental change

Characteristics of Regional Conservation Plans

- ◆ Locally-driven collaborative partnerships
- ◆ Broad geographic scope
- ◆ Science-based ecosystem approach
- ◆ Conservation, management, monitoring
in perpetuity



Modified from Sit and Taylor 1998

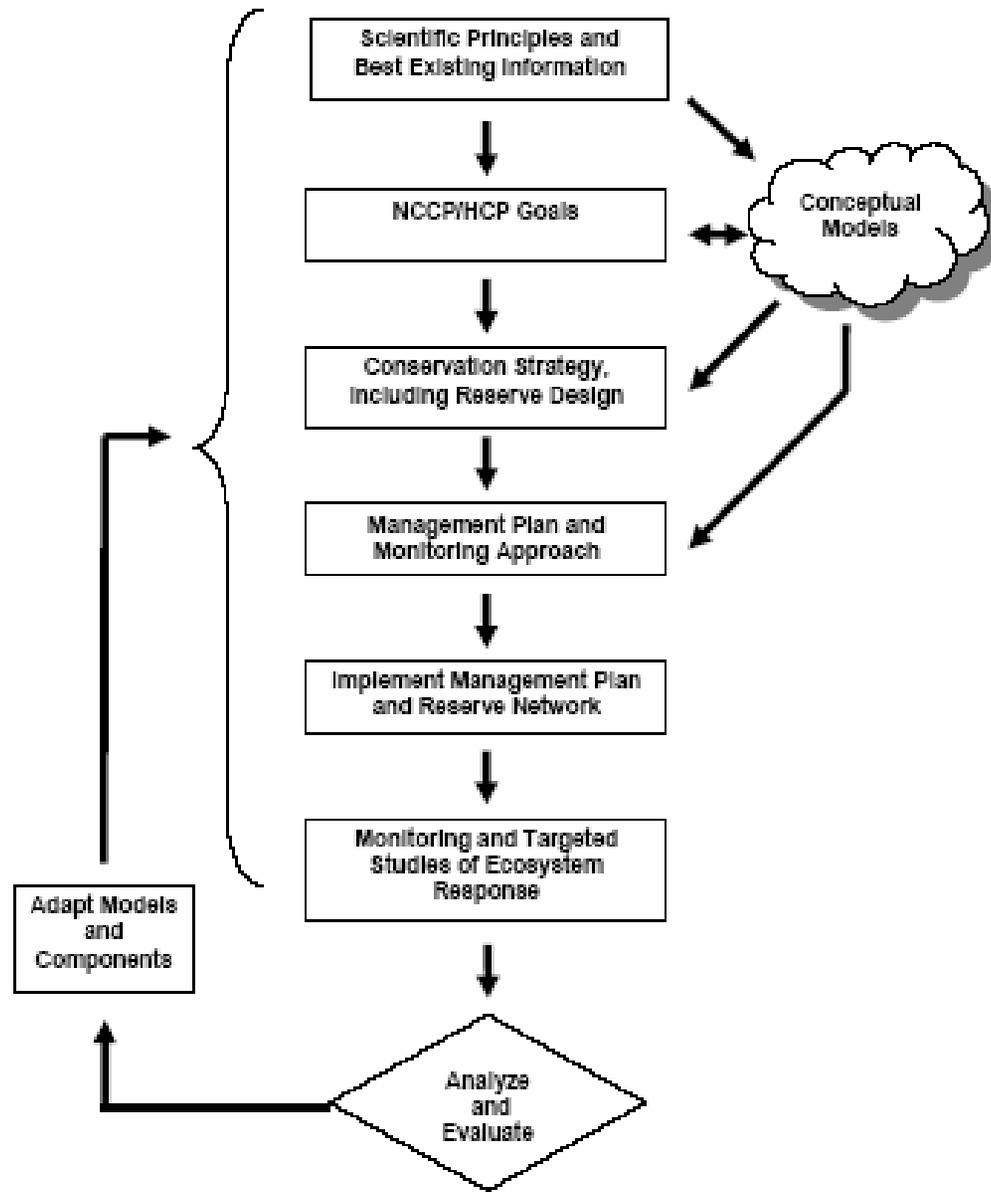


Figure 1. NCCP/HCP adaptive management feedback loop.

Landscape Conservation Goals

◆ Ecosystem approach

- Natural communities
- Ecological processes



Landscape Conservation Goals

- ◆ Ecosystem approach
 - Natural communities
 - Ecological processes
- ◆ Multiple species



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- ◆ Ecosystem approach
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- ◆ Multiple species
- ◆ **Contribute to recovery**



Landscape Conservation Goals

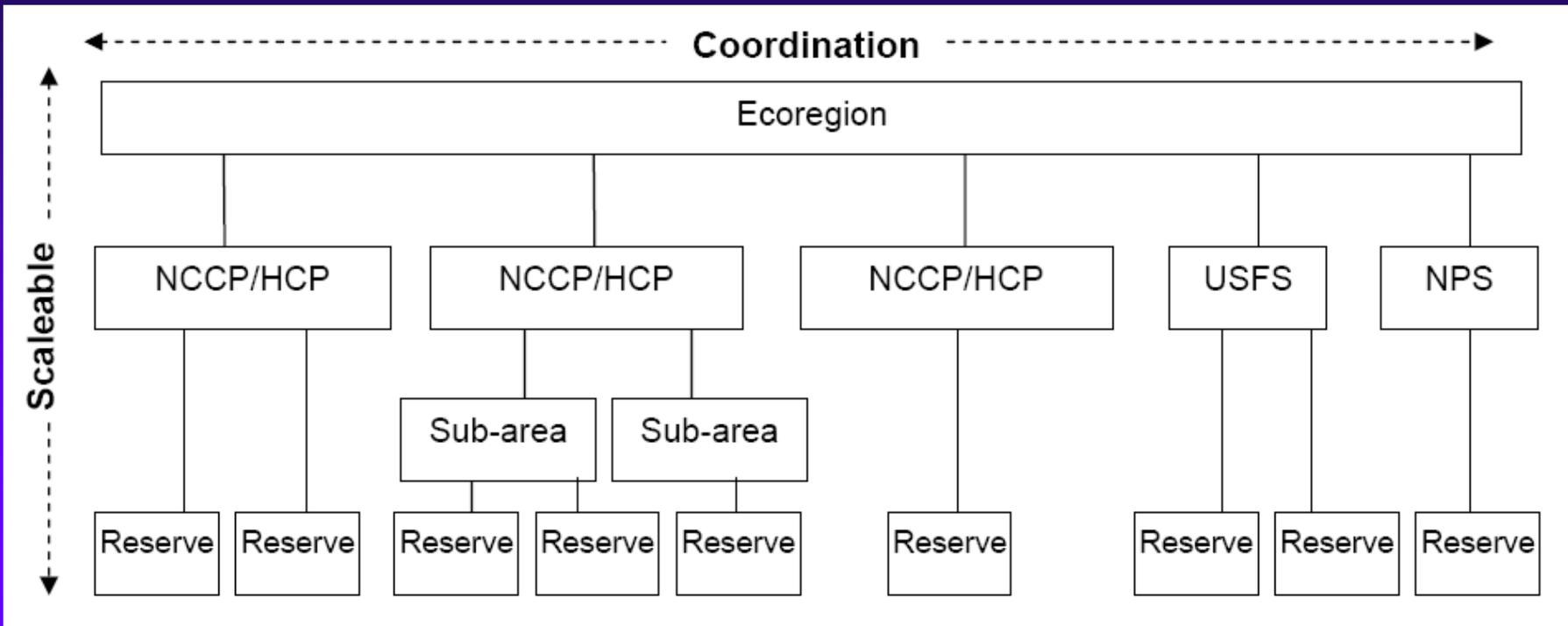
- ◆ Ecosystem approach
 - Natural communities
 - Ecological processes
- ◆ Multiple species
- ◆ Contribute to recovery
- ◆ Prevent future declines



Reserve Design

- ◆ Conservation biology principles
- ◆ Land ownership patterns
- ◆ Species and habitat distribution





San Diego Multiple Species Conservation Program (MSCP)



Regional Conservation Plans





- NCCP Region
- Subregional Planning Areas
- Camp Pendleton Resource Management Plan
- Coastal/Central Orange County NCCP
- Northern Orange County Subregion
- Palos Verdes Peninsula NCCP
- San Bernardino Valley-wide Multi-Species Habitat Conservation Plan
- San Diego Multiple Habitat Conservation and Open Space Program (MHCOSP)
- San Diego Multiple Species Conservation Program (MSCP)
- San Diego Multiple Habitat Conservation Program (MHCP)
- San Diego Northern MSCP Subarea
- Southern Orange County NCCP
- Western Riverside County Multiple Species Habitat Conservation Plan

San Diego Multiple Species Conservation Program (MSCP)

- ◆ Approved in 1997
- ◆ 582,000 acres in planning area
- ◆ 172,000 acre reserve system
- ◆ 85 species covered
- ◆ 23 vegetation types conserved

CSS NCCP Scientific Review Panel

1993

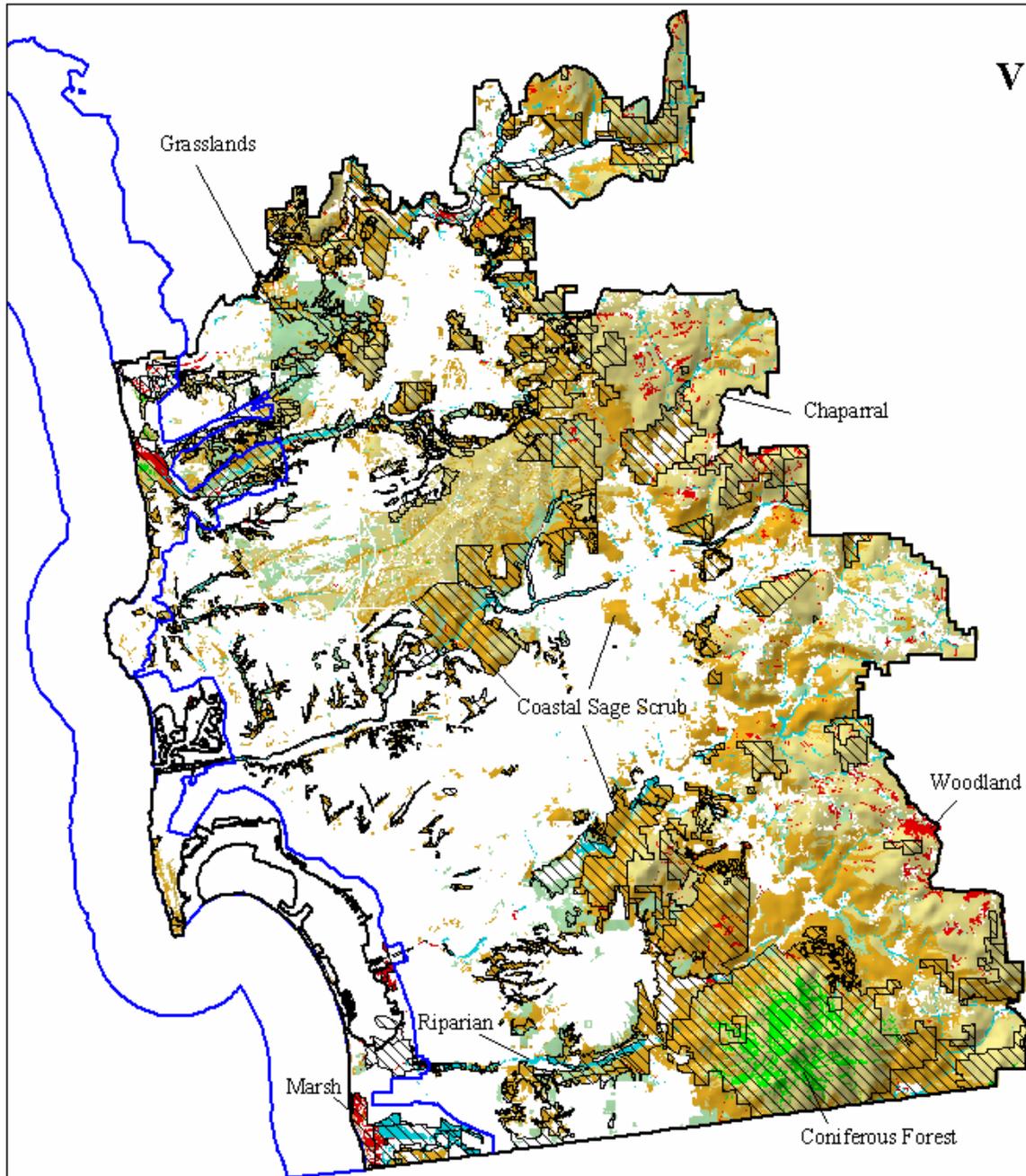
- ◆ Conserve target species throughout the planning area
- ◆ Larger reserves are better
- ◆ Keep reserve areas close
- ◆ Keep habitat contiguous
- ◆ Link reserves with corridors
- ◆ Reserves should be diverse
- ◆ Protect reserves from encroachment
- ◆ Maintain ecosystem processes and structure



Working Within the Existing Landscape



Vegetation Communities & Conservation Areas in San Diego MSHCP



-  San Diego Multiple Planning Area-Habitat Preserve Footprint
-  San Diego County Multiple Species Conservation Plan (MSCP) Boundary

San Diego Natural Vegetation Communities

-  32-Coastal Scrub
-  37-Chaparral
-  42-Valley and Foothill Grassland
-  45-Meadow
-  52-Marsh
-  60-Riparian
-  71-Woodland
-  83-Coniferous Forest
-  Coastal Zone - Calif. Coastal Comm.

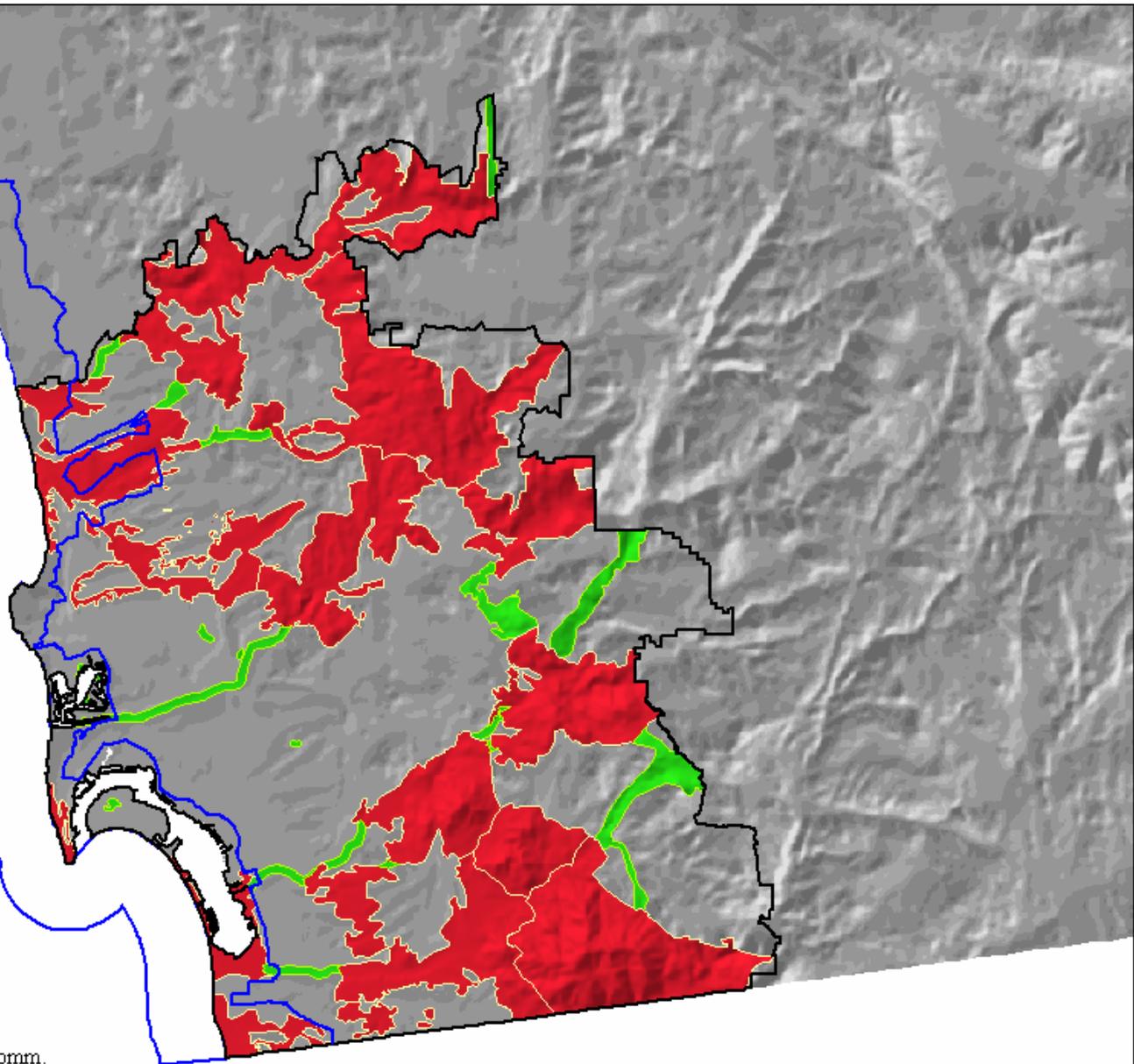
*Agricultural areas not shown.



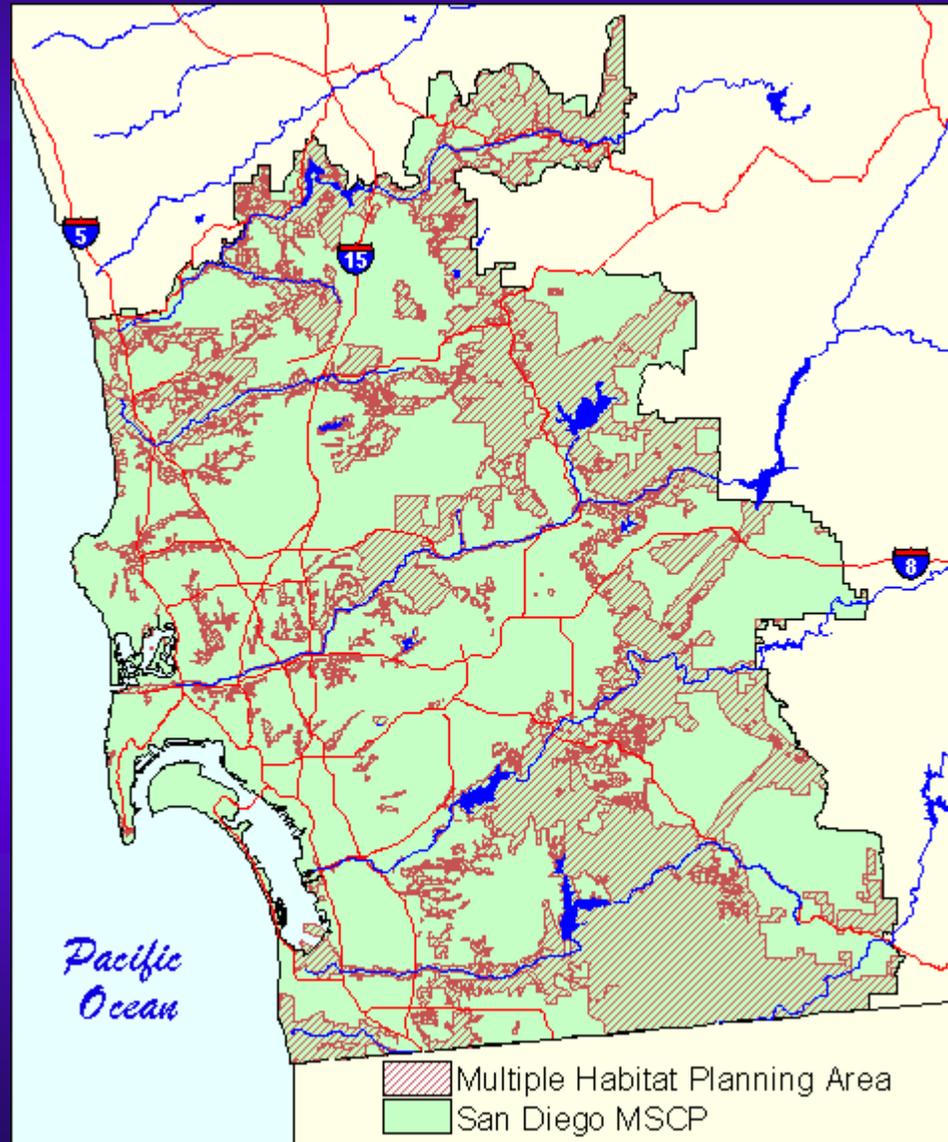


**Multiple Species
Conservation Planning -
Biologically Sensitive Areas**

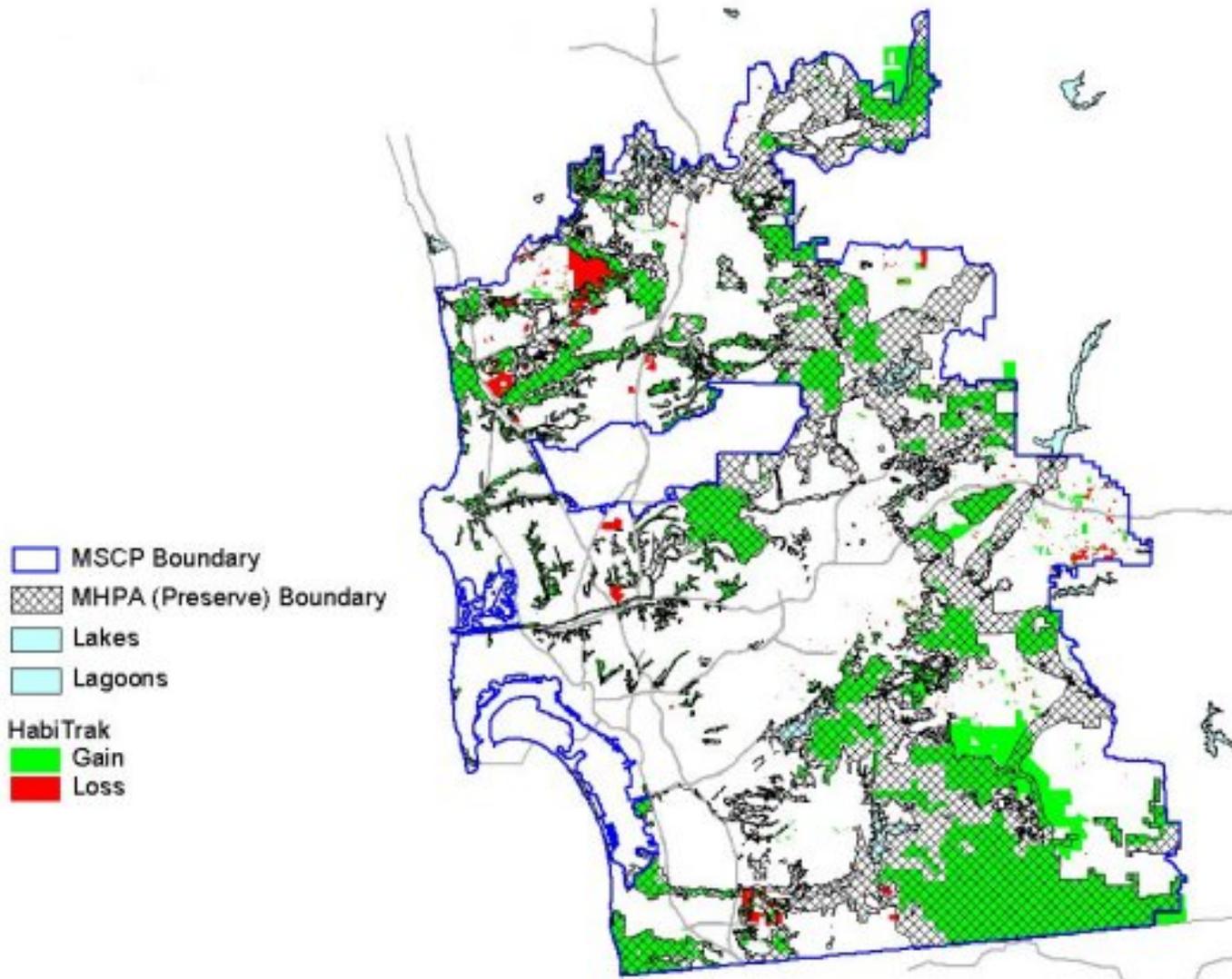
-  Core Biological Areas
-  Habitat Linkages
-  Coastal Zone - Calif. Coastal Comm.



MSCP Reserve Footprint (MHPA)



MSCP Reserve Acquisition



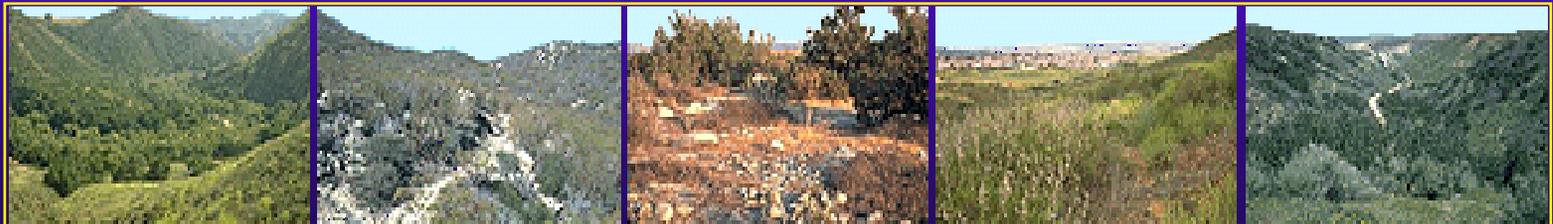
Potential of NCCP/HCPs to Mediate Climate Change

- ◆ Contribute to a statewide reserve network
- ◆ High level of connectivity
- ◆ Full range of environmental gradients
- ◆ Provide natural refugia
- ◆ Allow natural movements
- ◆ Allow species and habitat distributional shifts
- ◆ Link large blocks of public land (cornerstones)
- ◆ Build collaborative and scientific capacities



Elevating Climate Change in NCCP/HCPs

- ◆ Grant proposals (Sec 6 NT for HCPs)
- ◆ NCCP planning agreement template
- ◆ Awareness, training
- ◆ Targeted studies
- ◆ Consistent with state and federal Climate Adaptation Strategies



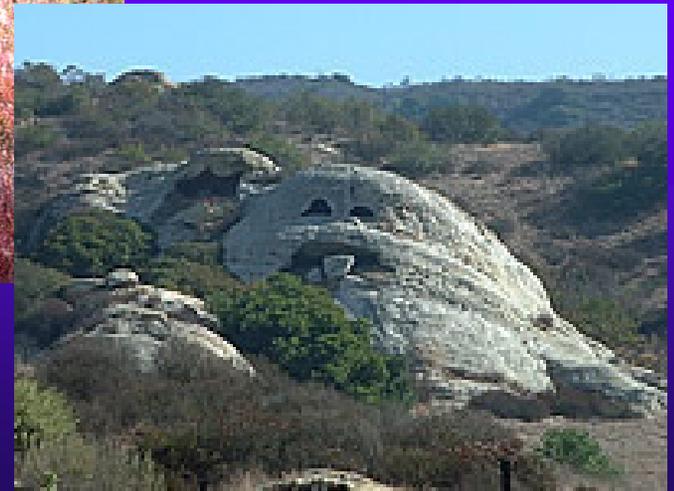
Future Challenges for Conservation Plans in the Face of Climate Change

- ◆ Increase habitat linkages and connectivity
- ◆ Remove barriers to movement
- ◆ Ensure key ecological processes
- ◆ Control invasive species
- ◆ Emergency salvage of species
- ◆ Facilitated migration?
- ◆ Allow natural disturbance regimes





www.dfg.ca.gov/habcon/nccp/



END