South Coast Missing Linkages

Restoring Connectivity to southern California

Kristeen Penrod, Conservation Director, SC Wildlands
Missing Linkages:
Restoring Connectivity to the California Landscape

November 2, 2000
San Diego Zoo, San Diego, California
Identified Connections Among Protected Areas:
232 linkages
8 ecoregions
Missing Linkages Conference: South Coast Ecoregion

- 60 linkages within the ecoregion
- 7 linkages to other US ecoregions
- 2 linkages to Baja California
Of the 69 linkages, 22 scored high on *Irreplaceability*, as defined by:

- size of wildlands connected
- quality of habitat in the smaller wildland
- (restorable) quality of habitat in the linkage
- contribution to other linkages in a chain

Vulnerability:
Of 22 highest value linkages, 15 rated highly vulnerable to road and development impacts.
South Coast Missing Linkages Project

Prioritize the Linkages

Select focal species (2002 Workshops)

Build Partnerships!!

Conservation Design: GIS Analyses & Field Work

Conservation Delivery
South Coast Missing Linkages

Viability depends on connectivity
Connectivity depends on partnerships

Santa Monica Mountains Conservancy

Conabio

Environment Now

Mountain Lion Foundation
Saving America's Lion
South Coast Missing Linkages Project:
Restoring Connectivity to California's South Coast Ecoregion

Biological Foundation Workshops – 5 workshops, 15 linkages
Talks in the morning

Tom Oberbauer: plants
Kathy Williams: invertebrates
Phil Unitt: birds
Esther Rubin: bighorn
Ken Logan: puma

Taxonomic workgroups select focal species in the afternoon
Select Focal Species

- Umbrella species (area-sensitive, sensitive to barriers)
- Range of vagilities & habitat affinities
- Species that need corridors AND species that the corridor needs.

Focal Species Approach
(Beier & Loe 1992)

Steve Loe
San Bernardino NF

Paul Beier
SCWP & NAU
Select a Diversity of Species

- Plants
- Birds
- Mammals
- Invertebrates
- Fish, Amphibians, Reptiles

Illustrations by Toni Inman, David Lee
109 Focal Species Selected

- Mammals 17
- Birds 20
- Amphibians 5
- Reptiles 12
- Fish 4
- Invertebrates 25
- Plants 26
Conservation Design:

*GIS Analyses & Field Work*

- Landscape Permeability Analyses
- Habitat Suitability Analyses
- Patch Size Analyses
- Configuration Analyses
- Field Investigations

= Linkage Design
Landscape Permeability Analysis

Goal: Define area with lowest relative cost of travel for focal species between protected core areas

Walker and Craighead 1997
Craighead et al. 2001
Singleton et al. 2002
Least Cost Corridor for Mountain Lion

- Paved Roads
- Ownership Boundaries
- County Lines
- Highly Permeable
- Less Permeable
Least Cost Corridor for Mule deer
Least Cost Corridor for American badger
Combine the output for all species subject to landscape permeability analysis.
Least Cost Union

Evaluate habitat suitability, patch size, and patch configuration for all focal species in relation to the Union.
GOAL: Evaluate size and distance between suitable habitat patches in the Least-Cost Union for each focal species based on habitat quality, home range size, dispersal distance.
Potential Cores and Patches for Mountain lion
100 meter FRAP vegetation was used to model different patch sizes for Mountain Lions in the entire South Coast Ecoregion.

The size classes are defined by order of magnitude:

- Average Home Range = 381 sq. km
- Core = 10,000 sq. km
- Patch > 200 sq. km and < 10,000 sq. km

Potential Cores & Patches for Mountain Lion

Los Padres, Sierra Madre, and North 12,760 sq. km
Tehachapi Mountains 955 sq. km
Castaic Ranges and San Gabriel Mountains 3,695 sq. km
San Bernardino Mountains 2,384 sq. km
San Jacinto Mountains, Palomar Mountains and South 5,837 sq. km
Santa Ana Mountains 1,637 sq. km
Sierra Nevada and North 66,786 sq. km
Potential Cores & Patches for Mule deer
Potential Cores and Patches for American badger
Potential Cores and Patches for Dusky-footed woodrat
Potential Cores and Patches for Cactus wren
Potential Cores and Patches for Western whiptail
Goals of Each Linkage Design:

- Provide live in and move through habitat for multiple species.
- Support metapopulations of smaller species
- Ensure the availability of key resources
- Buffer against edge effects
- Allow natural process to operate
- Allow species and communities to respond to climatic changes
Field Work - Assess habitat quality, movement barriers and filters, and restoration opportunities.

Coyote Canyon with riparian habitat in Cañada de Los Alamos in the foreground.

Smoky Bear bridged undercrossing near Coyote Canyon

Canton Canyon with Templin Highway underpass at center

San Antonio Creek joining the Ventura River.

Proposed vegetated wildlife crossing

Goal: **Improve** connectivity, not just slow the losses!
Conservation Delivery

• California’s State Wildlife Action Plan
• SCAG Open Space Element of Regional Comprehensive Plan.
• Four Forests (Los Padres, Angeles, San Bernardino, and Cleveland) Resource Management Plans.
• BLM RMP for the South Coast Ecoregion.
• San Diego County North County MSCP; East County MSCP
• Western Riverside County MSHCP
• Coachella Valley MSCP
• Los Angeles County General Plan Significant Ecological Areas.
• City of Santa Clarita Open Space Acquisition Group San Gabriel Castaic Connection.
• Santa Monica Mountains Conservancy priority acquisition areas.
• The Nature Conservancy ecoregional plans
• Caltrans Essential Habitat Connectivity Project
Our approach is a bold step that we can implement now.

For more information: www.scwildlands.org