

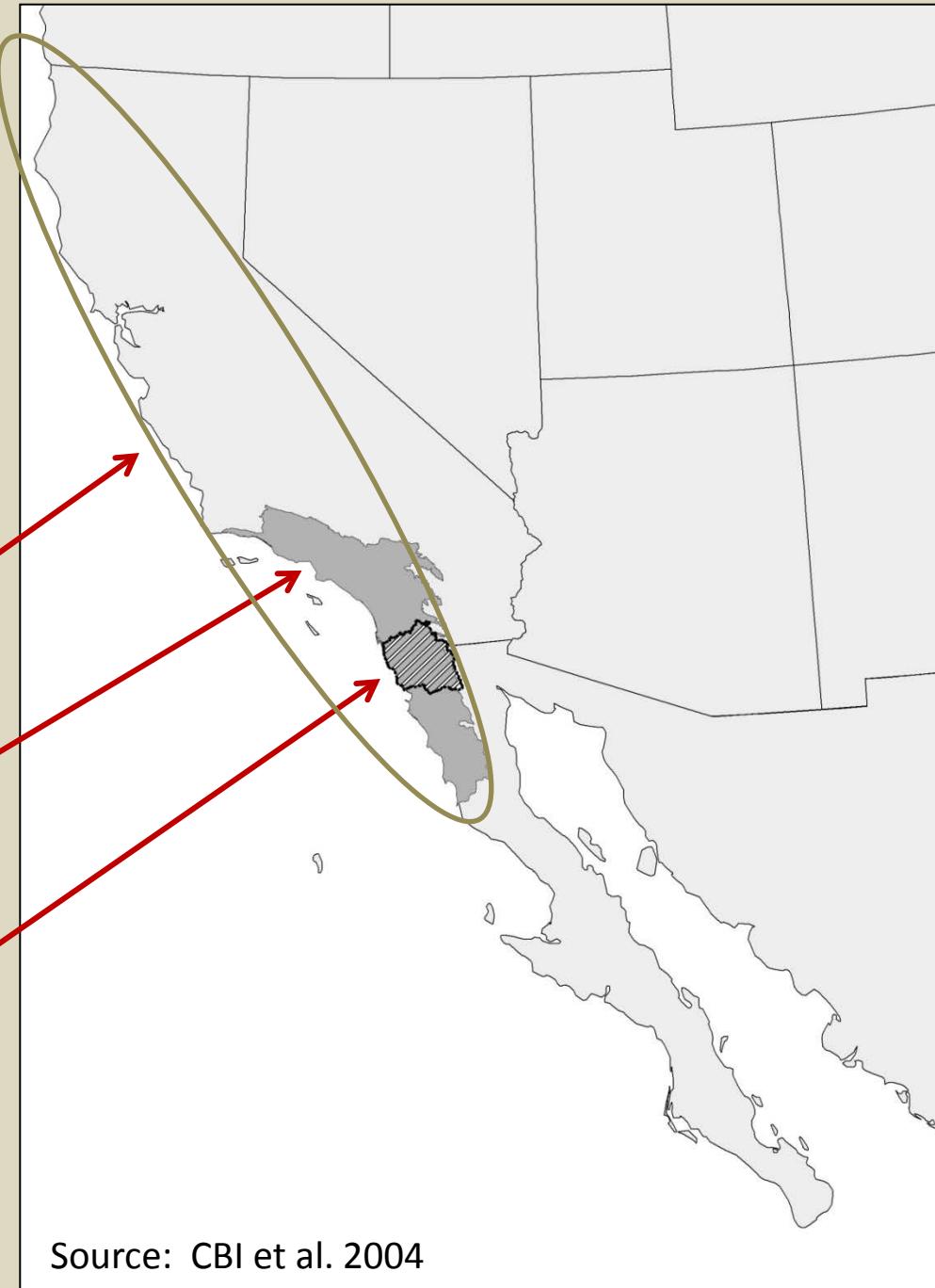
# *Las Californias* *Binational* *Conservation* *Initiative* 2004-2014



# Shared ecosystem, shared responsibility

## Biodiversity hotspot of global significance

- California Floristic Province— one of 25 recognized hotspots of biodiversity in the world
- South Coast Ecoregion — defined by Transverse and Peninsular Ranges
- *Las Californias* region— more than 400 rare or endemic species



# Elevational gradient

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## Climate

- Mediterranean

## Geology

- Peninsular ranges
- Desert escarpment
- Volcanic cones

## Vegetation

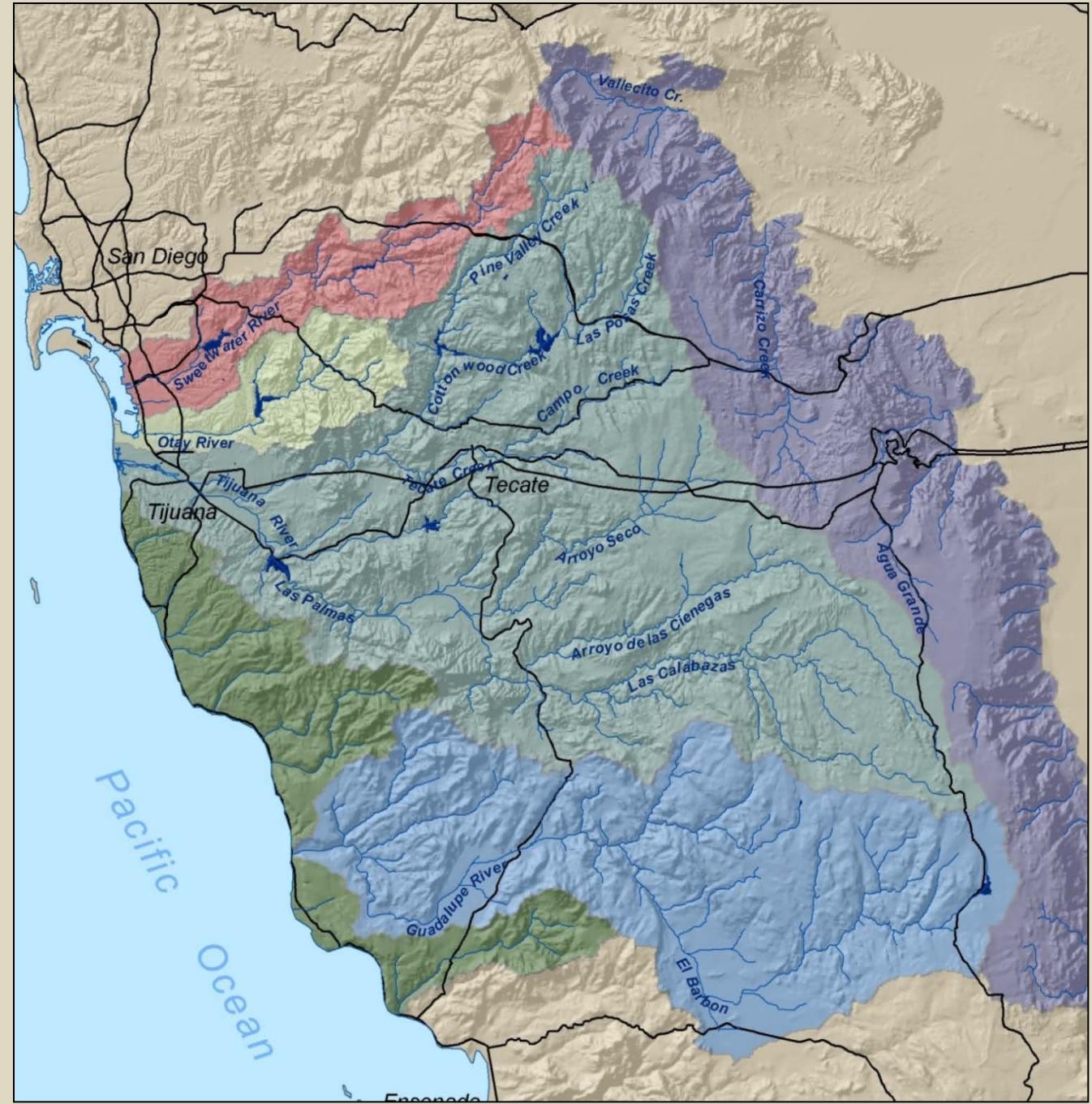
- Coastal
- Valleys
- Mountains
- Desert





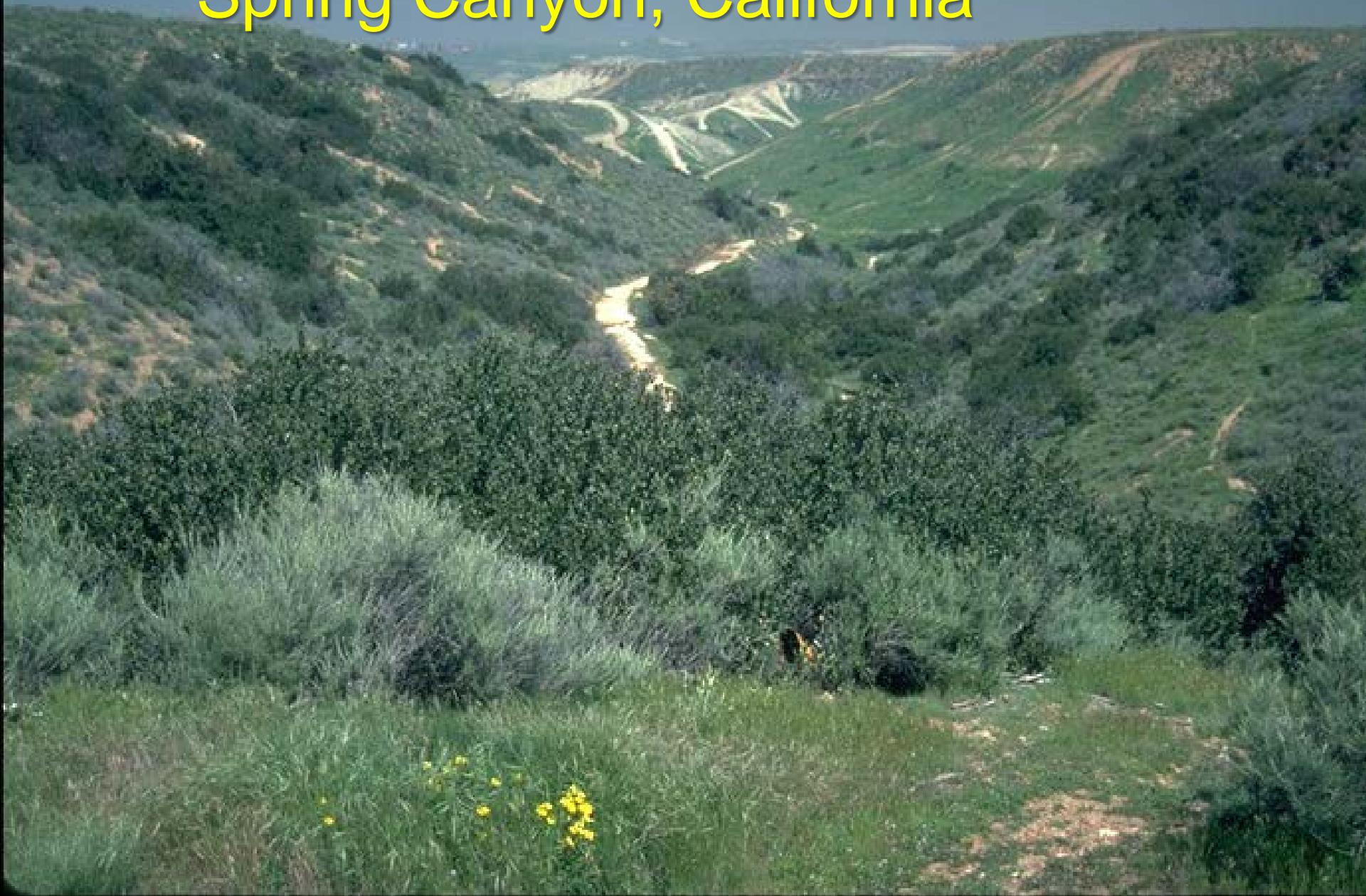
# Watershed boundaries

- Sweetwater
- Otay
- Tijuana
- Guadalupe
- Coast
- Desert



Source: CBI et al. 2004

# Coastal sage scrub, Spring Canyon, California





A. Rodriguez

Martirian succulent  
scrub, Salsipuedes,  
Baja California



Manzanita,  
Cerro Bola, Baja CA

Tecate cypress,  
Tecate Peak,  
Baja California



# Knobcone pines, Sierra Blanca, Baja California



Jeffrey pines,  
Sierra de Juárez,  
Baja California





Desert succulent scrub,  
Jacumba, California



Eastern escarpment,  
Sawtooth Mountains—  
Critical Habitat for bighorn sheep

# A highly threatened landscape — imminently at risk of being severed



# Conservation vision 2004: goals and strategies for conservation and management

## Categories of potential opportunities

**A**—Conserve intactness and biodiversity

**B**—Maintain ecological processes

**C**—Protect ecosystem services and wildlife permeability

**D**—Improve public health, provide urban greenspace, and protect restricted species

Source: CBI et al. 2004





# Changes 2004-2014

- Border infrastructure
- Urban and rural development
- Agriculture
- Renewable energy
- Increased recreation
- Catastrophic wildfires
- Invasive species
- Climate change
- Land use policies
- Conservation and management

Otay Mountain Wilderness Area

© Nathan Trotter, [ibtrotter@gmail.com](mailto:ibtrotter@gmail.com)

# Direct habitat loss 2004-2014

48,658 ha/120,238 acres urban, ag, rural development

Zone	Category A		Category B		Category C		Category D		TOTAL LOSS	
	ha	%	ha	%	ha	%	ha	%	ha	%
Coastal	-5,911	8	-899	1	-15,468	21	-61	<1	<b>-22,339</b>	7
Inland	-1,152	1	-4,660	2	-16,386	10	-603	1	<b>-22,802</b>	4
Mountain	-167	<1	-702	<1	-2,458	9	-191	9	<b>-3,518</b>	1
<b>TOTAL LOSS</b>	<b>-7,230</b>	<b>2</b>	<b>-6,621</b>	<b>2</b>	<b>-34,312</b>	<b>13</b>	<b>-855</b>	<b>1</b>	<b>-48,658</b>	<b>4</b>

~50% of habitat loss comprises rare communities

40% CA—60% BC



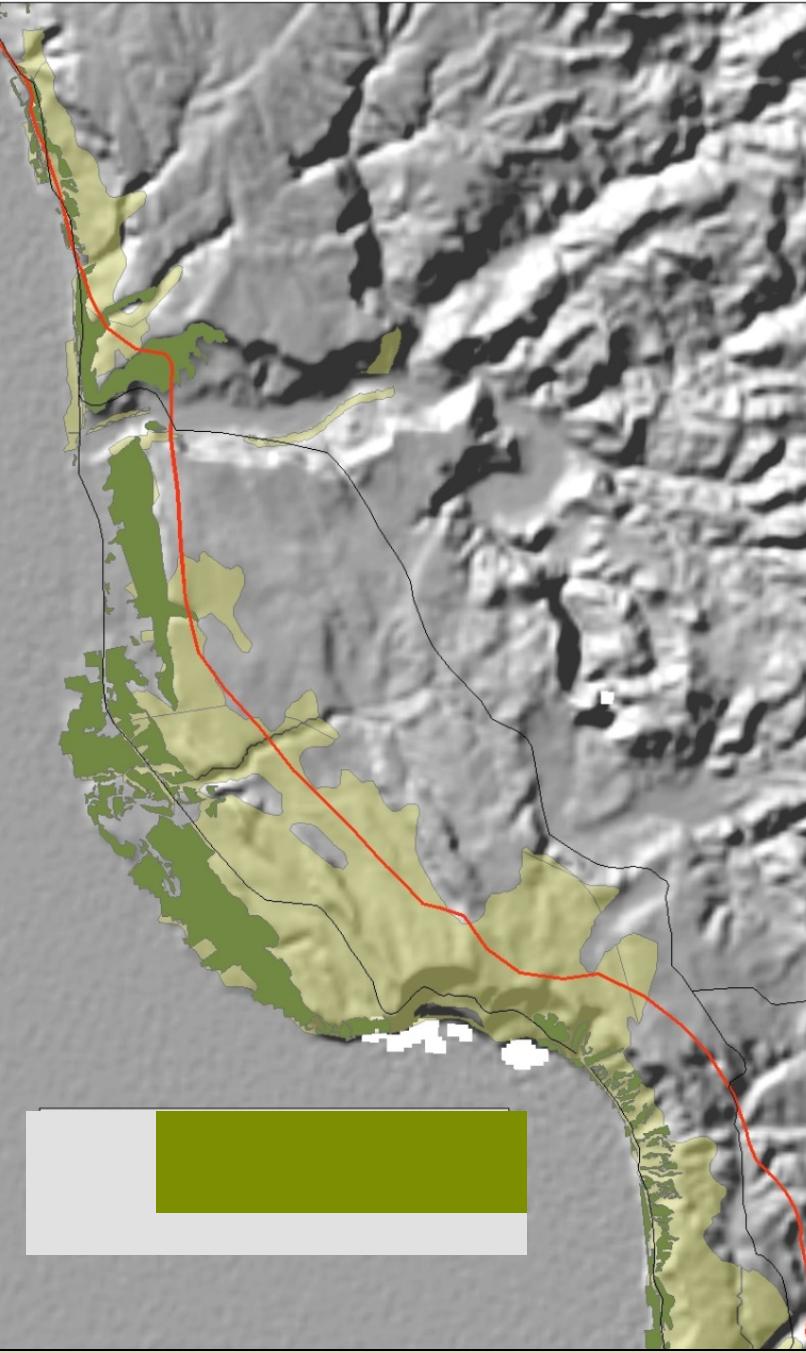
## Loss of maritime succulent scrub in study area

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- 36% loss of maritime succulent scrub
  - 234 ha remaining
  - 183 ha (78%) conserved
- 



Example:  
Dennerly Canyon, Otay Mesa



# 72% loss of matorral rosetofilo costero Baja California

- Loss of 6,883 ha in study area (Rosarito—Ensenada)
- 2,688 ha remaining in study area, fragmented into 7 sites (N to S):
  - Rosarito (93 ha)
  - Calafia (165 ha)
  - El Vigía (31 ha)
  - La Misión (1,878 ha)
  - Puerto Nuevo (95 ha)
  - Salsipuedes (300 ha)
  - San Miguel (126 ha)

Source: Delgadillo and Ceballos 2014, INEGI 2006

# Fire and habitat type conversion (example)

## Rancho Jamul Ecological Reserve



Coastal sage scrub (green)



Coastal sage scrub converted  
to annual grassland (red)

# Indirect impacts: habitat fragmentation and degradation



- Habitat fragmentation
- Unnatural fire regimes
- Water quality/quantity
- Habitat type conversion
- Noise, air, light pollution

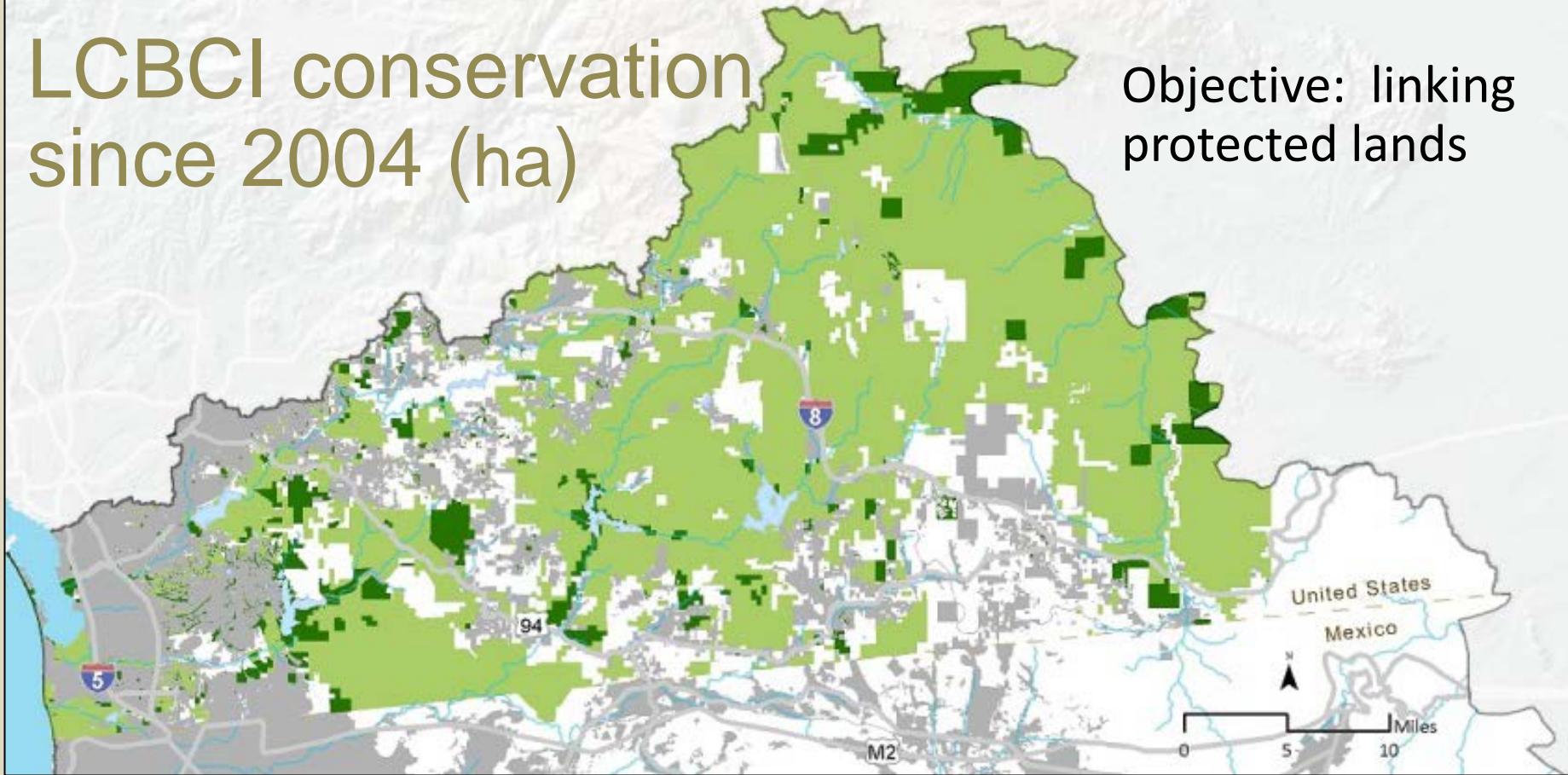
- Clearing and logging
- Invasive species
- Climate change and drought



Photos: J. Randall, Sierra de Juárez

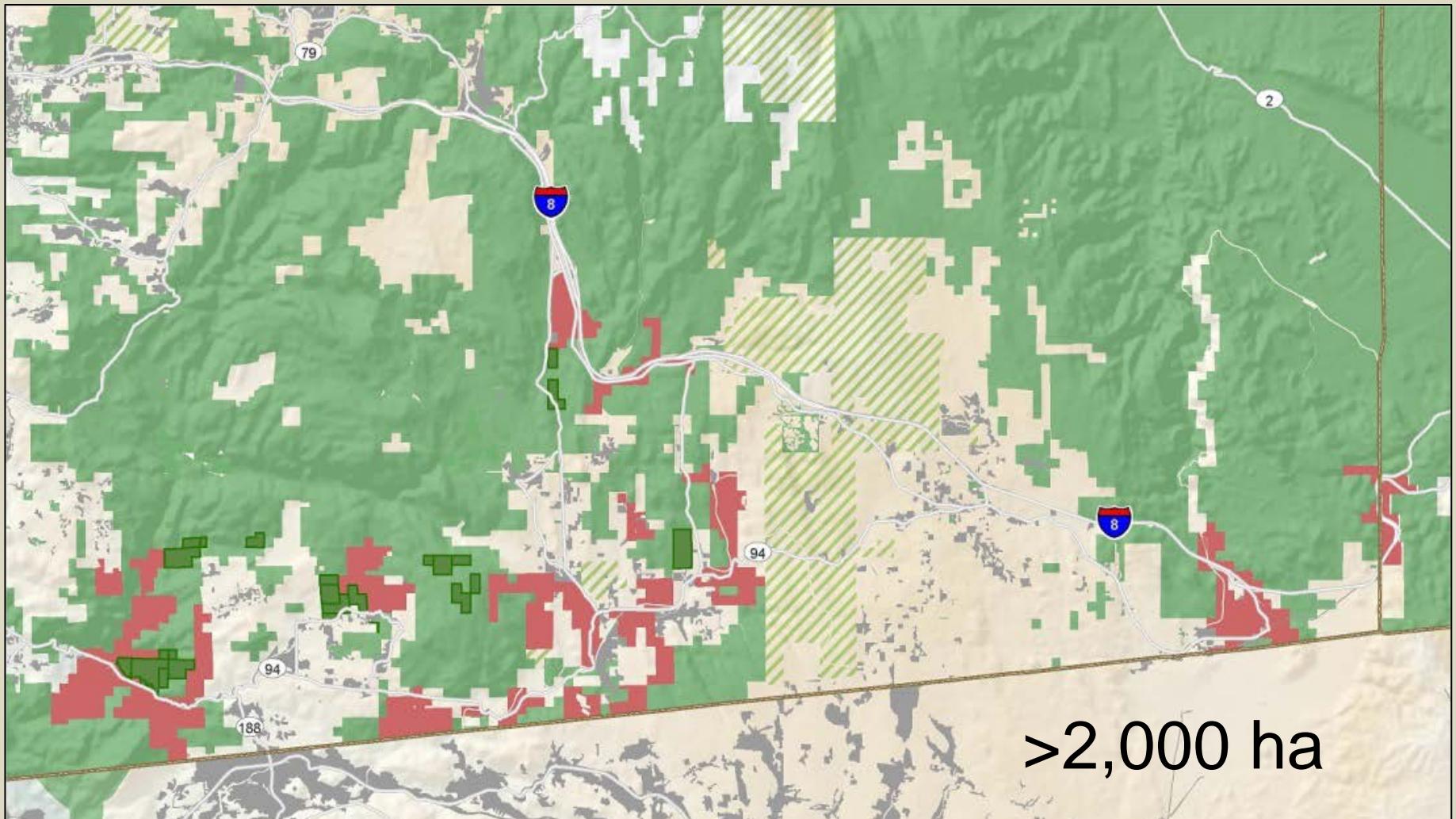
# LCBCI conservation since 2004 (ha)

Objective: linking  
protected lands



Zone	Category A	Category B	Category C	Category D	TOTAL
Coastal	2,677	42	1,249	141	<b>4,109</b>
Inland	1,536	917	1,589	39	<b>4,082</b>
Mountain	896	1,615	514	1	<b>3,028</b>
<b>TOTAL</b>	<b>5,110</b>	<b>2,575</b>	<b>3,353</b>	<b>181</b>	<b>11,219</b>

# Conservation of Las Californias cross-border priorities since 2004



# Conservation vision 2004: goals and strategies for conservation and management

## Categories of potential opportunities

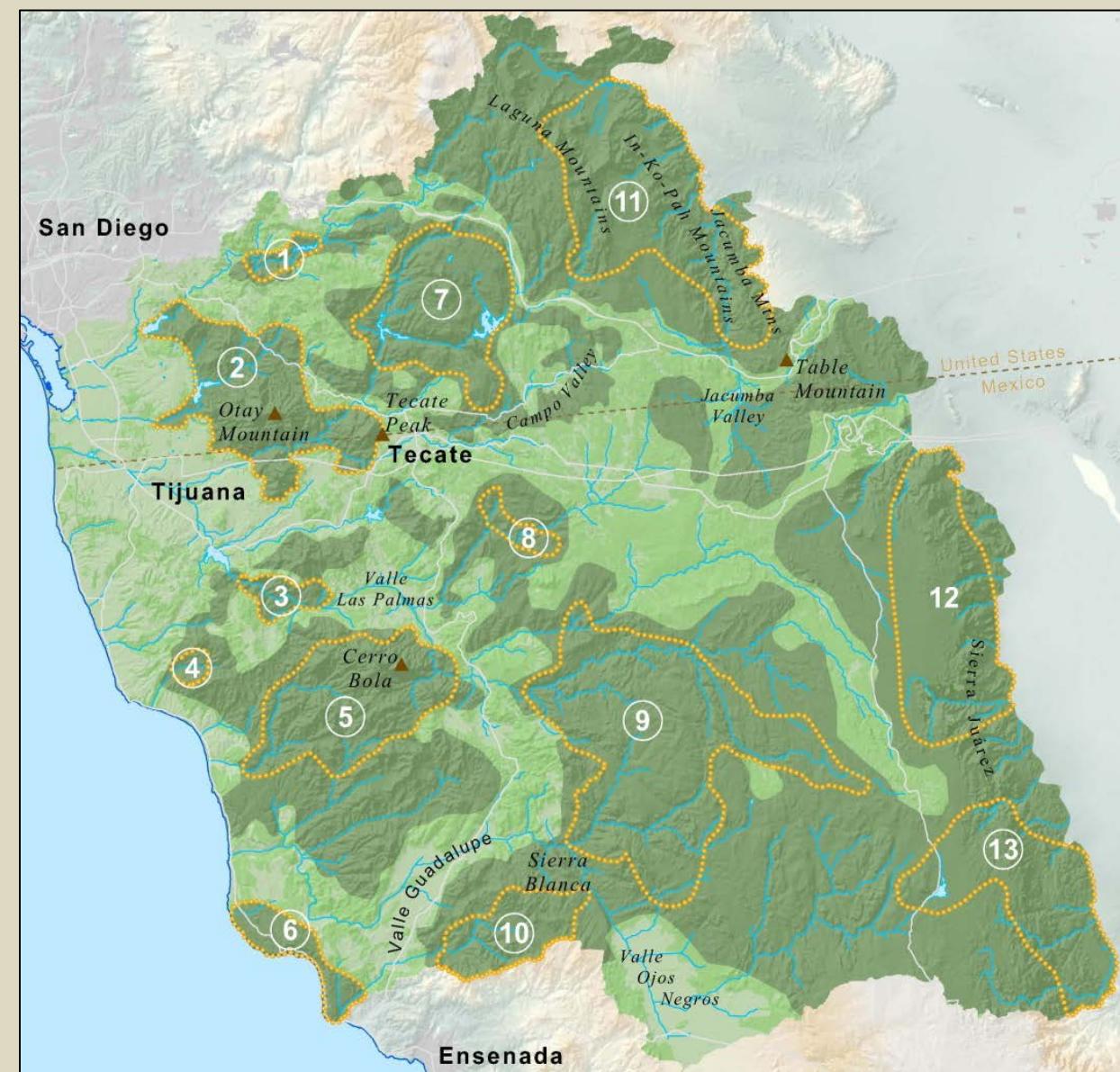
**A**—Conserve intactness and biodiversity

**B**—Maintain ecological processes

**C**—Protect ecosystem services and wildlife permeability

**D**—Improve public health, provide urban greenspace, and protect restricted species

Source: CBI et al. 2004



# Conservation strategies (examples)

## Federal/State park designation (A/B)

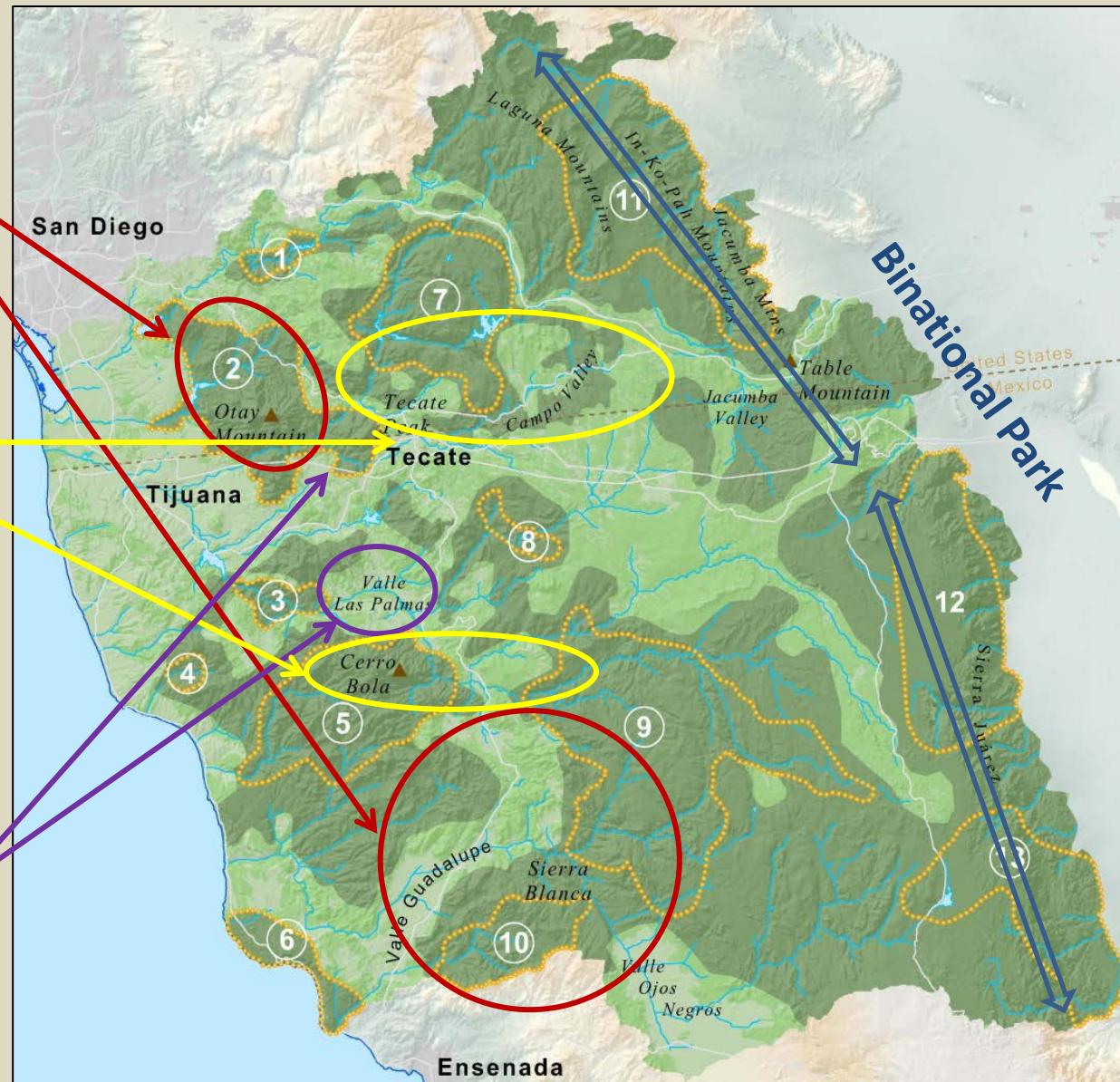
- Otay-Sweetwater
- Sierra Blanca complex

## Working Landscape Easements (C)

- East San Diego County
- Valle de Guadalupe

## Urban green space and university “adoption” for research, restoration, and management (D)

- Rio Tecate
- Valle de las Palmas



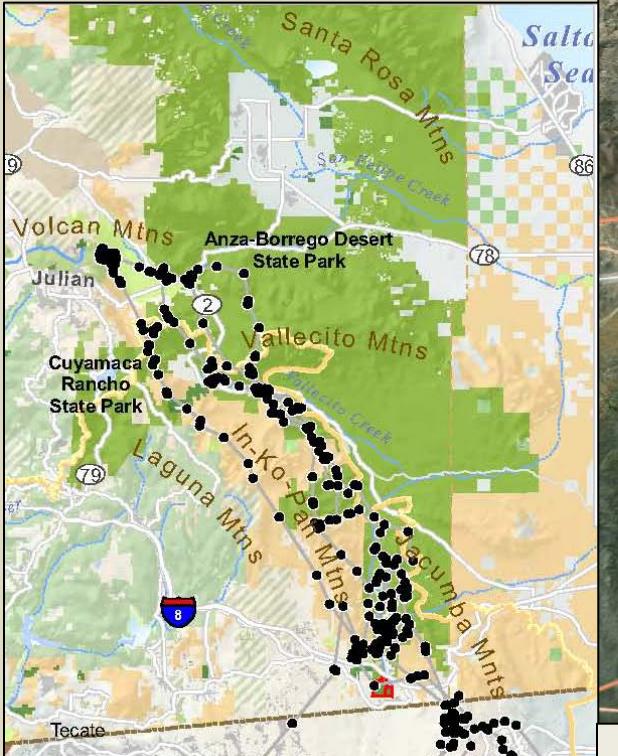
# Parque-to-Park Binational Linkage

Iconic spine of a shared  
conservation vision

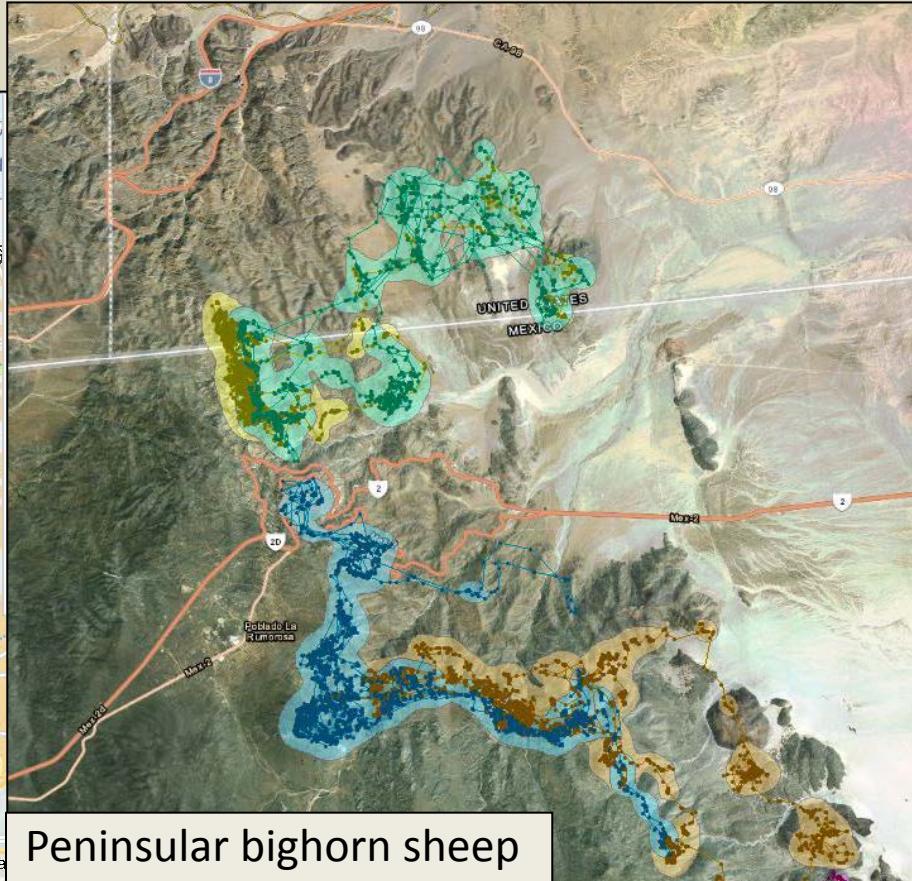
- Peninsular bighorn sheep
- Mountain lion
- California condor
- Golden eagle
- Cuyamaca cypress
- Gander's pitcher sage
- Dehesa beargrass
- Water



The Nature Conservancy  
Protecting nature. Preserving life.™



Mountain lion

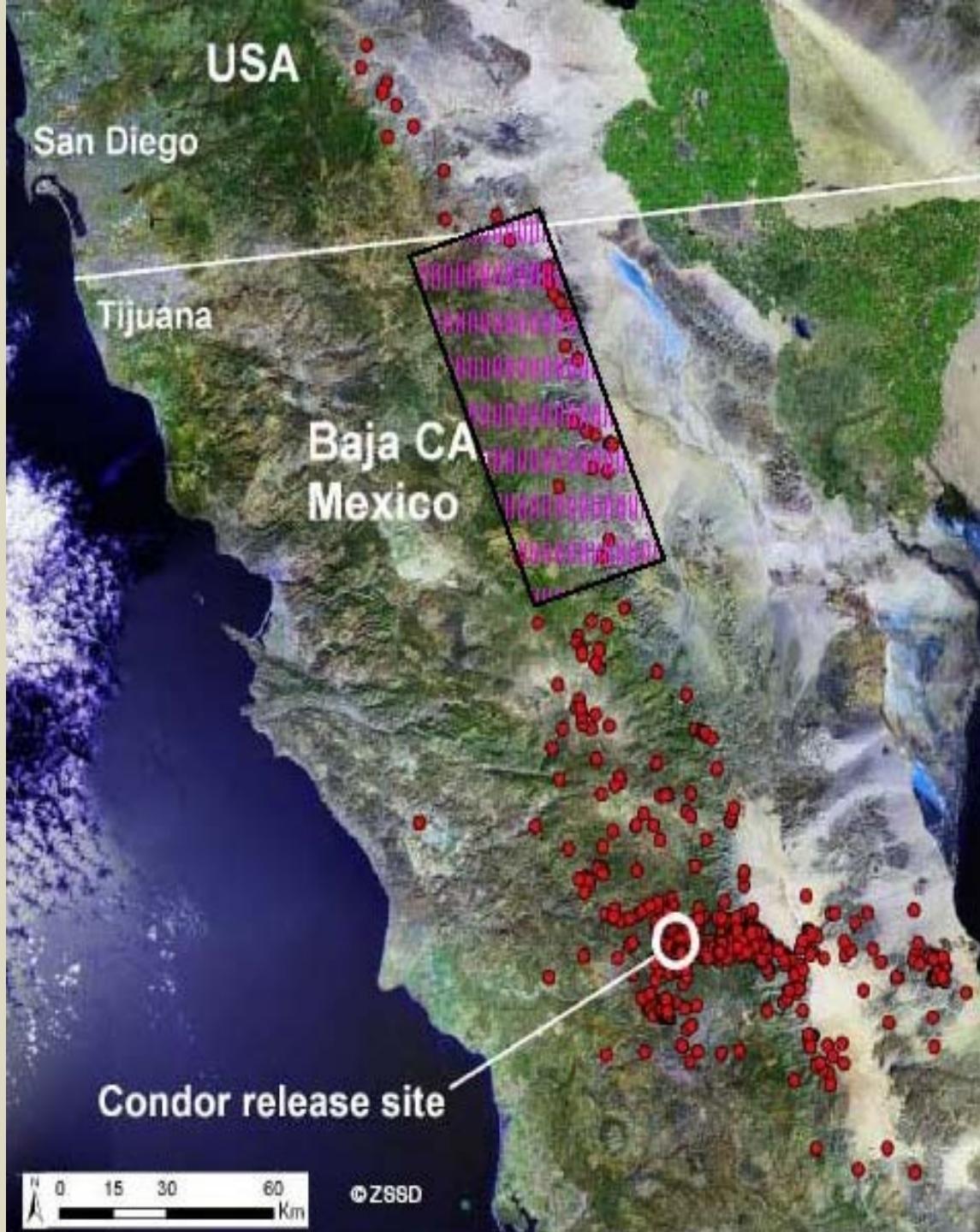


Peninsular bighorn sheep

# Parque-to-Park Binational Linkage

Source: The Nature Conservancy  
and San Diego Zoo Global

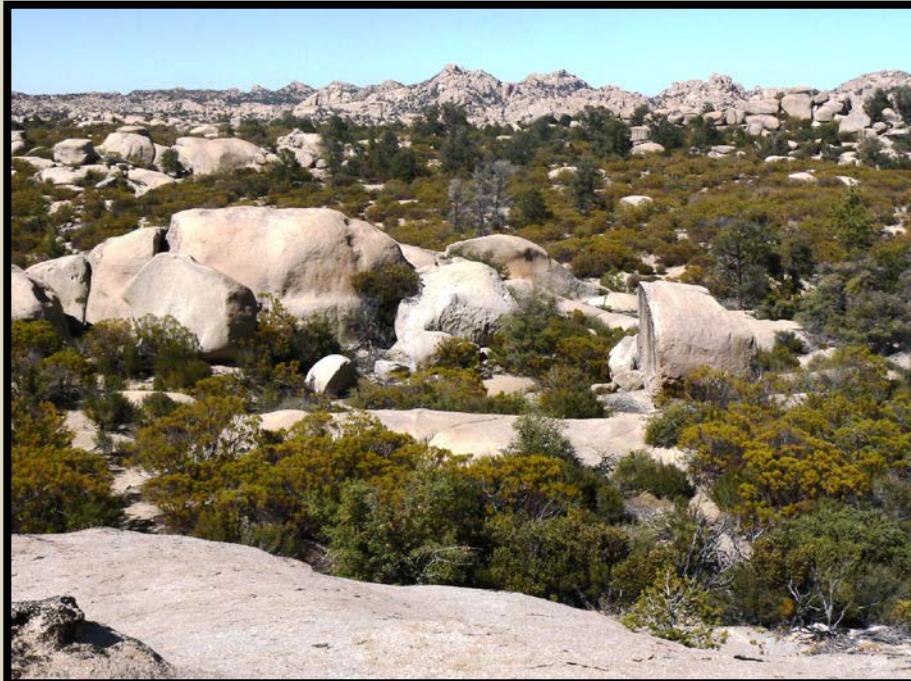
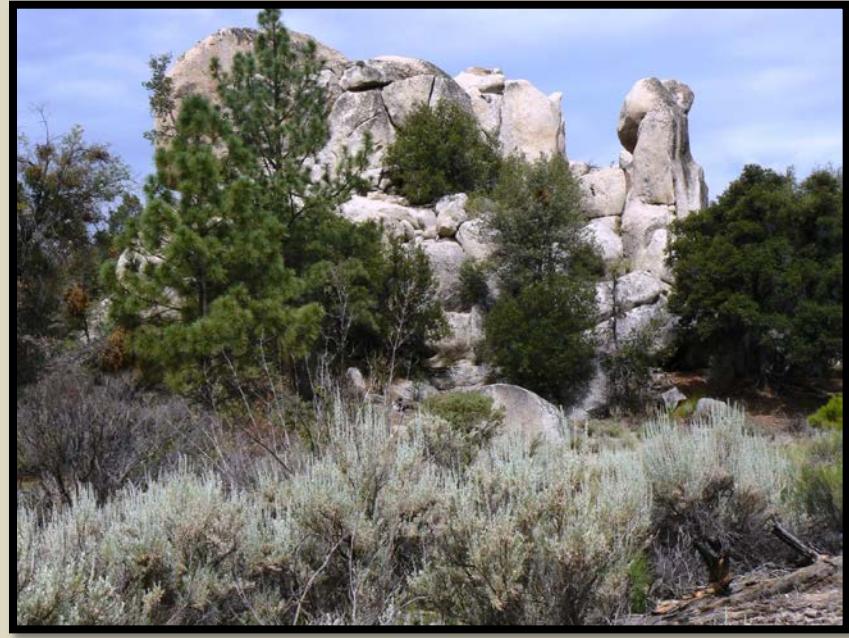
# Condors and Energía Sierra Juárez



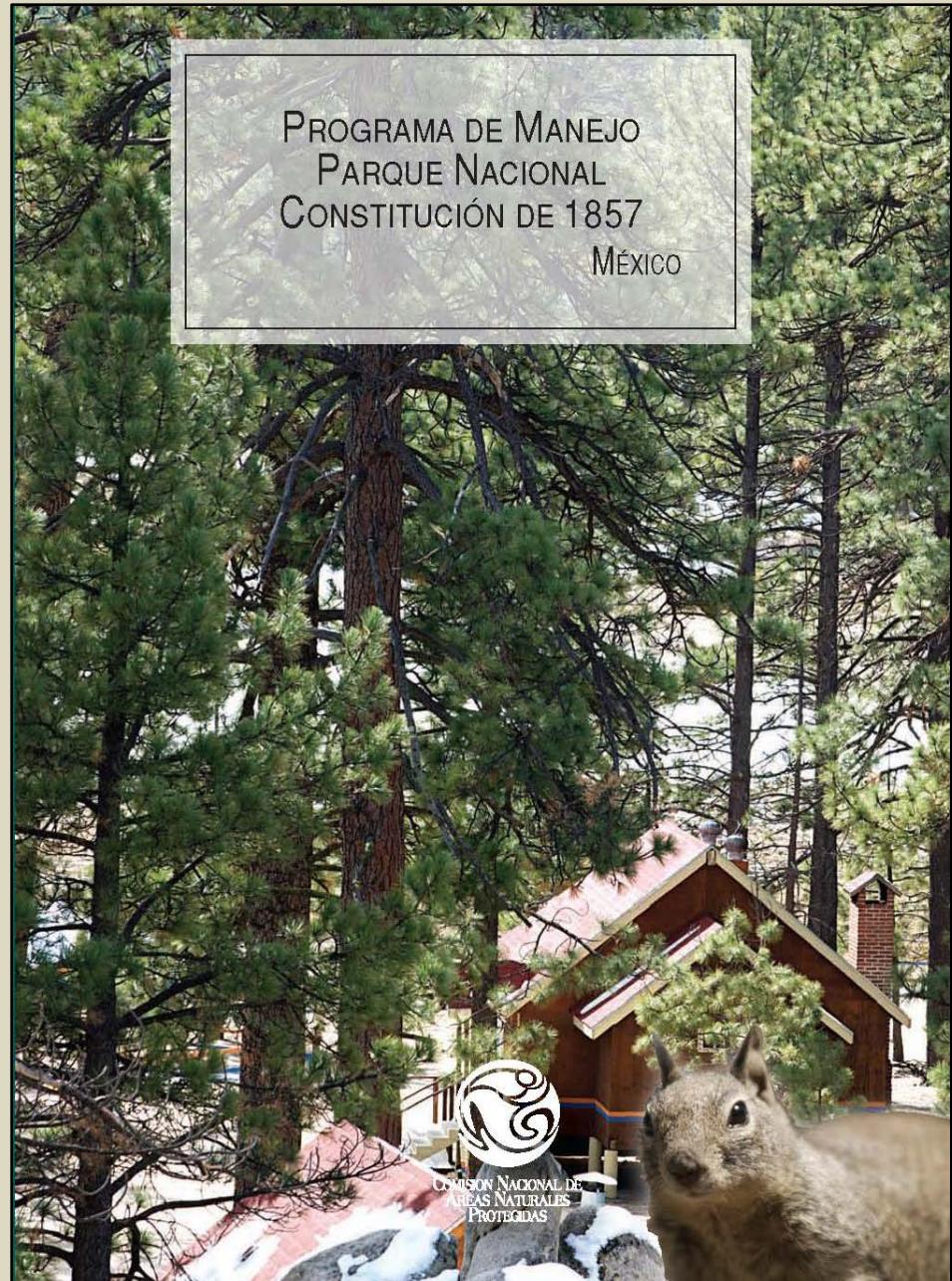
Source: San Diego Zoo Global 2008



# Parque-to-Park Binational Linkage



# Management Partnerships



# Incentives for landowner conservation



Photos: J. Stallcup

A sepia-toned photograph of a landscape featuring several large, rounded boulders in the foreground. In the background, there are tall evergreen trees and a hazy sky.

# Acknowledgments

- Hector Ceballos
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