Definitions and Designs for Effective Protected Lands Networks

Management of Protected Lands
Lecture 2

ENVS 196

Grey Hayes

July 31, 2013

Quiz 1

According to Grumbine, which of the following is **the primary threat** to biodiversity? (check one)

A. Unenforced regulations
B. Habitat fragmentation
C. Overpopulation
D. Logging
E. Invasive wood peonies

According to Grumbine, which of these is evidence of edge effects? (list all that apply)

A. Decline of forest interior birds
B. Increased nest predation
C. Increased populations of opossums, raccoons, skunks, and other middle-sized omnivores
D. Increased resilience of core habitat
E. Predator viability collapse (PVC)
F. A and B only
G. B, C, and D only

Which of the following are concepts did Grumbine NOT mention as related to ecological disturbance regimes? (check one)

A. Fire
B. Continental drift
C. Bear ripping into a log looking for termites
D. Tree fall
E. Floods
F. Avalanches
G. C AND F

Which of the following factors were NOT listed by Grumbine to consider with biological corridors? (list all that apply)

A. Swaths of natural habitat that allow animals and plants to move between otherwise isolated territories
B. Allowance for recolonization of abandoned territory
C. Enhancement of genetic exchange
D. Patterns of circadian rhythm
E. Facilitation of the spread of disease

What should be protected on California's central coast?

How would you know how that protection is going?

Steps to Design Effective Reserves

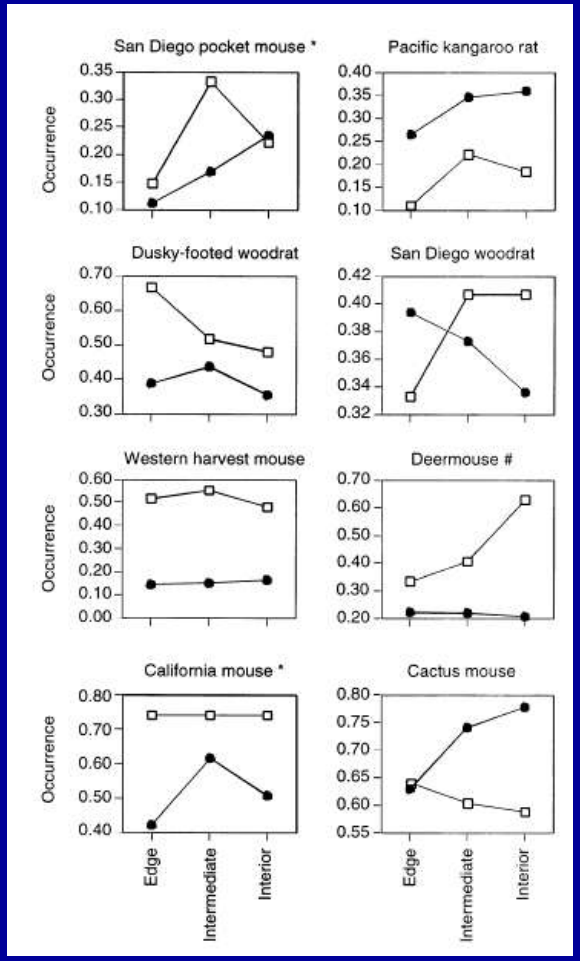
1) Identify and Protect Core Habitat Areas

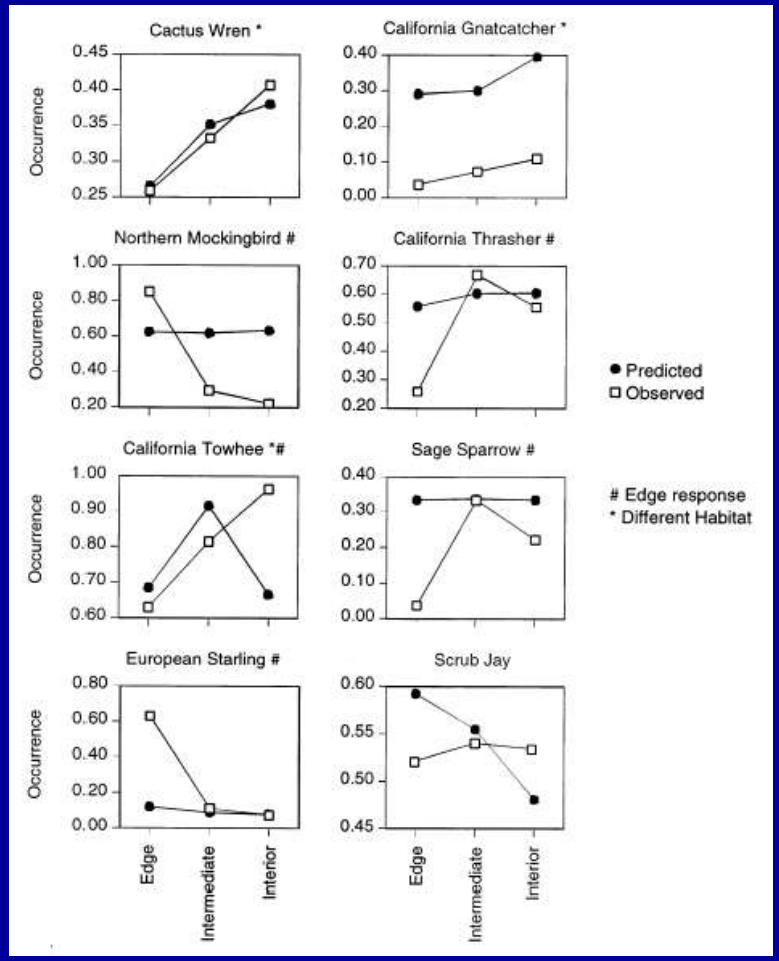
2) Maintain Corridors

Core Areas

- Reduce Edge Effects
- Avoid Fragmentation
- Maintain Minimum Viable Populations

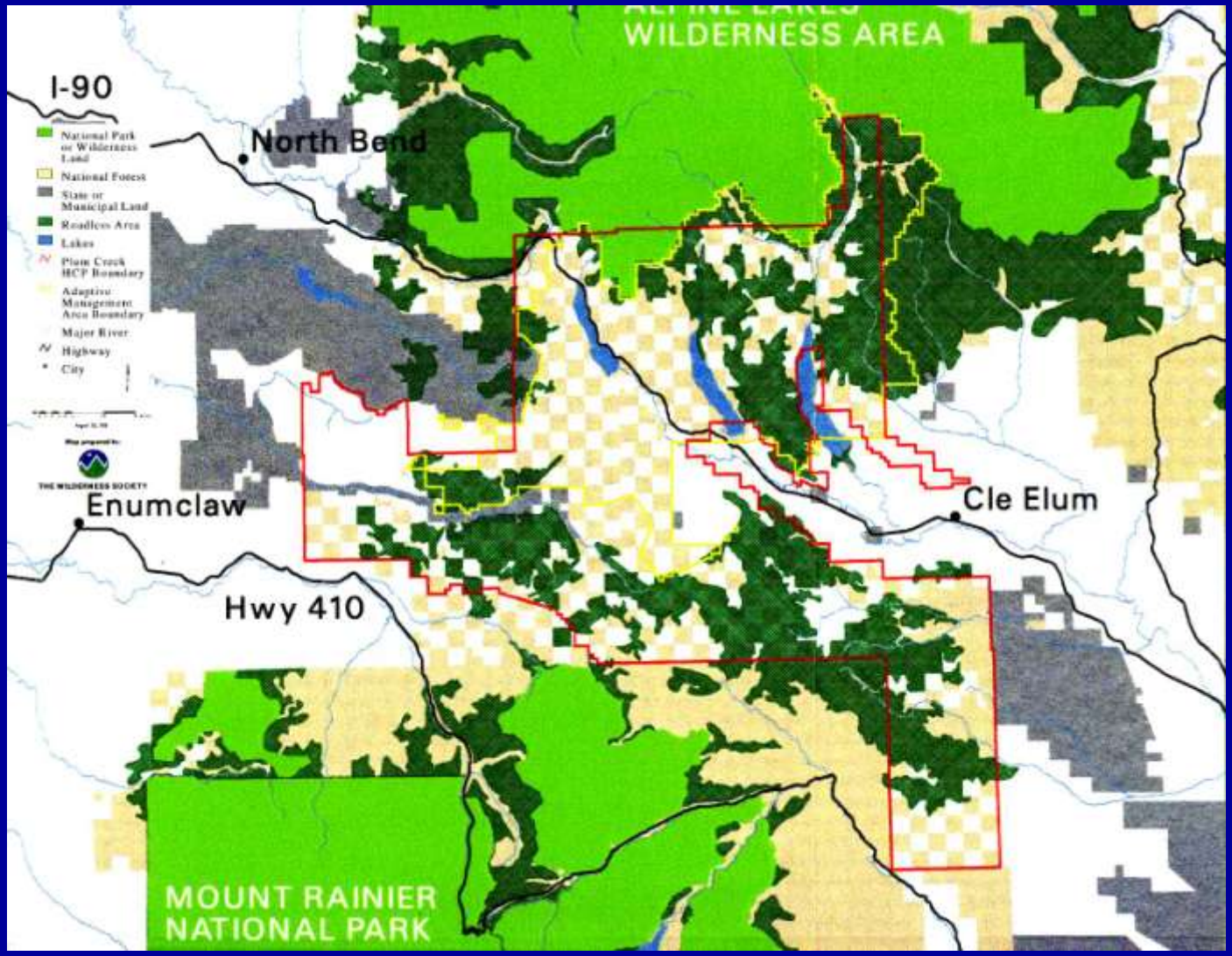
Edge Effects



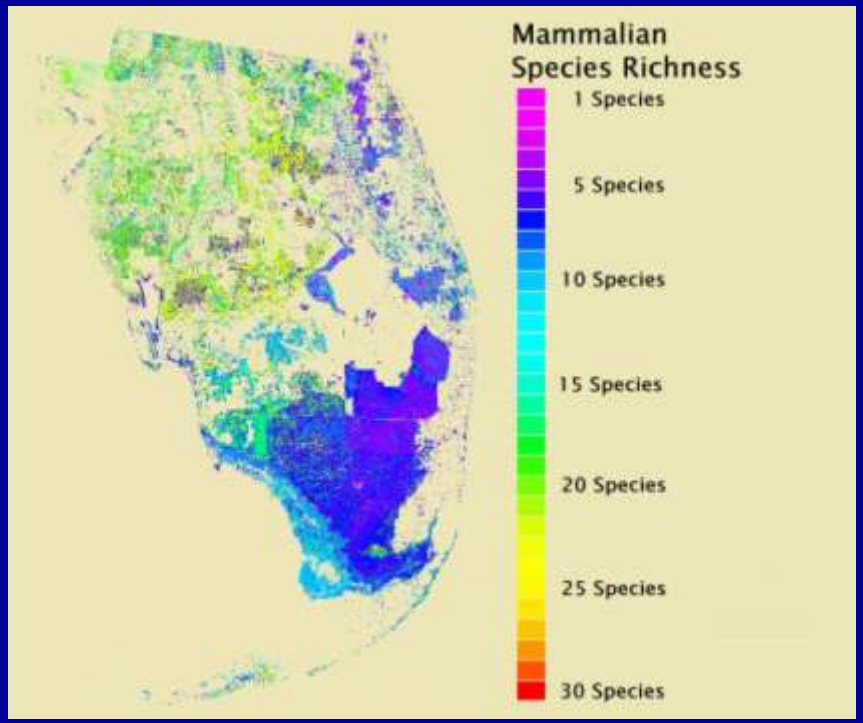


From: Kristan W.B. III, Lynam A.J., Price M.V., and Rotenberry, J.T.. 2003.

Fragmentation



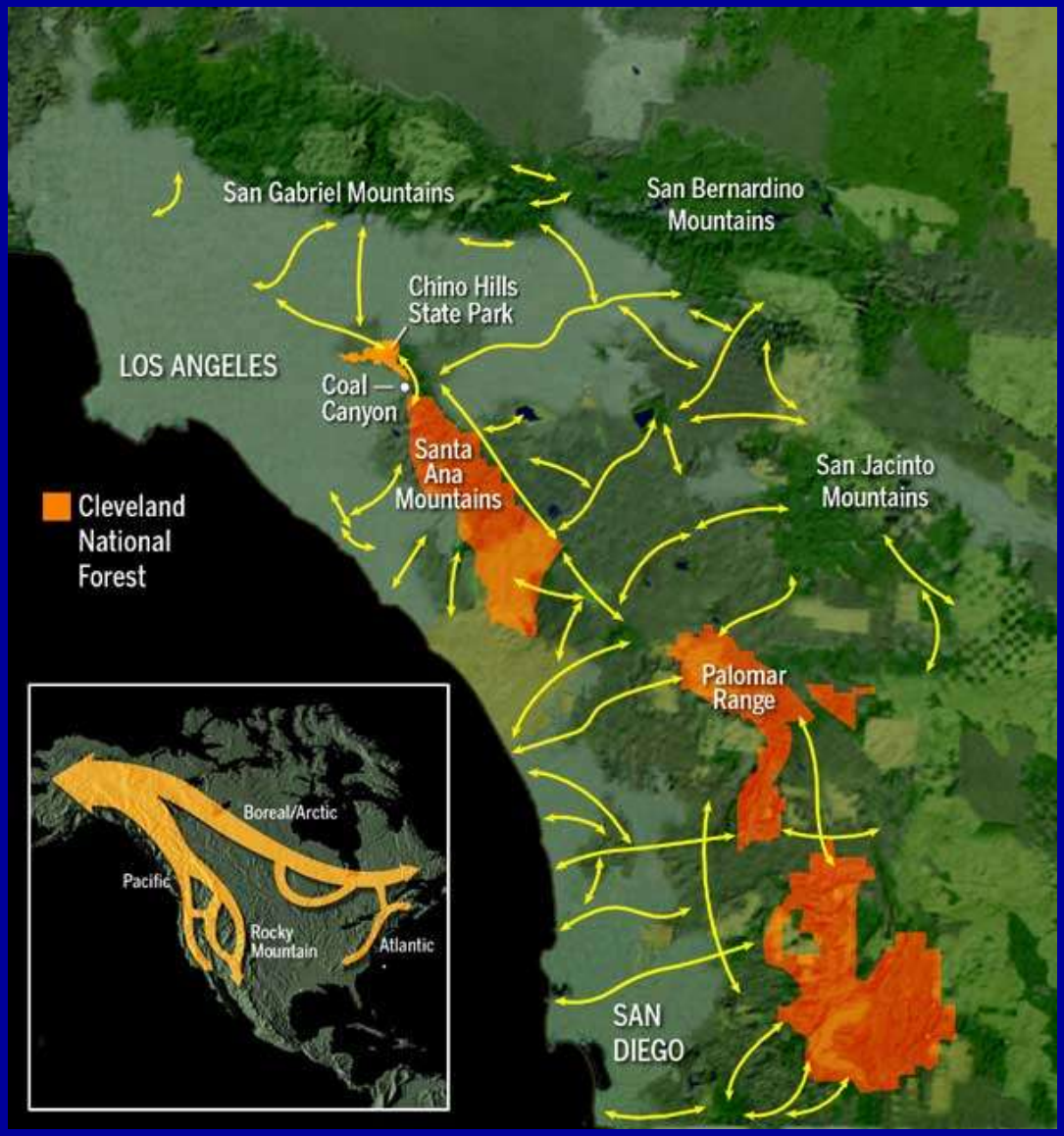
Minimum Viable Populations



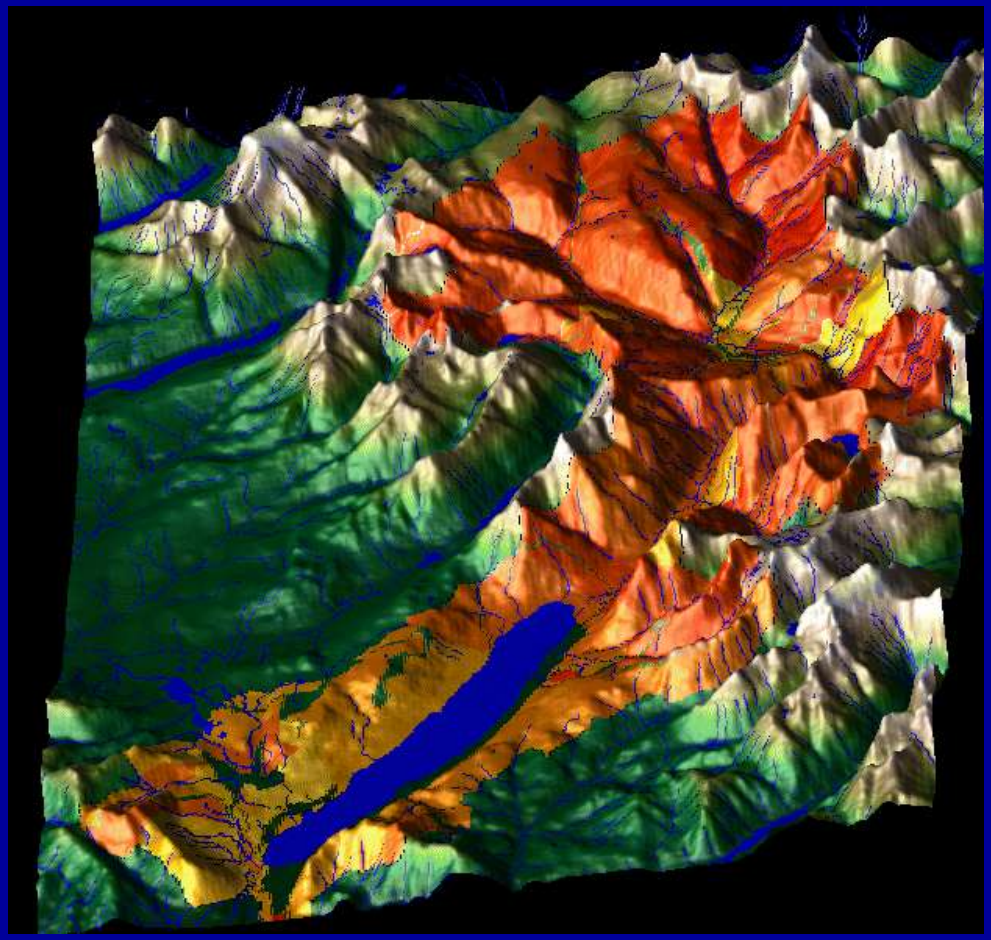
Corridors

- Genetic Exchange
- Climate Change

Genetic Exchange

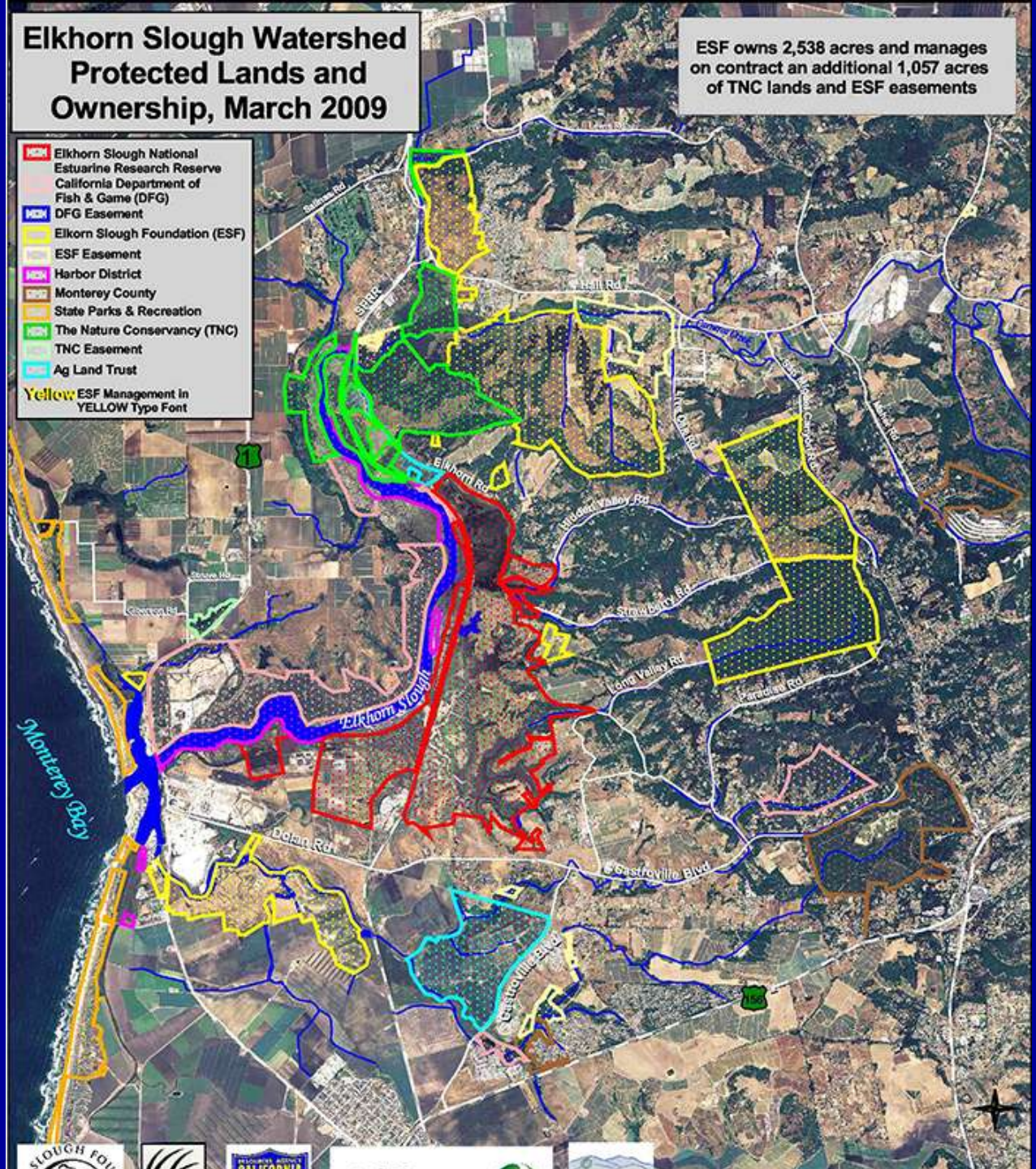


Climate Change



Protected Areas of the Elkhorn Slough

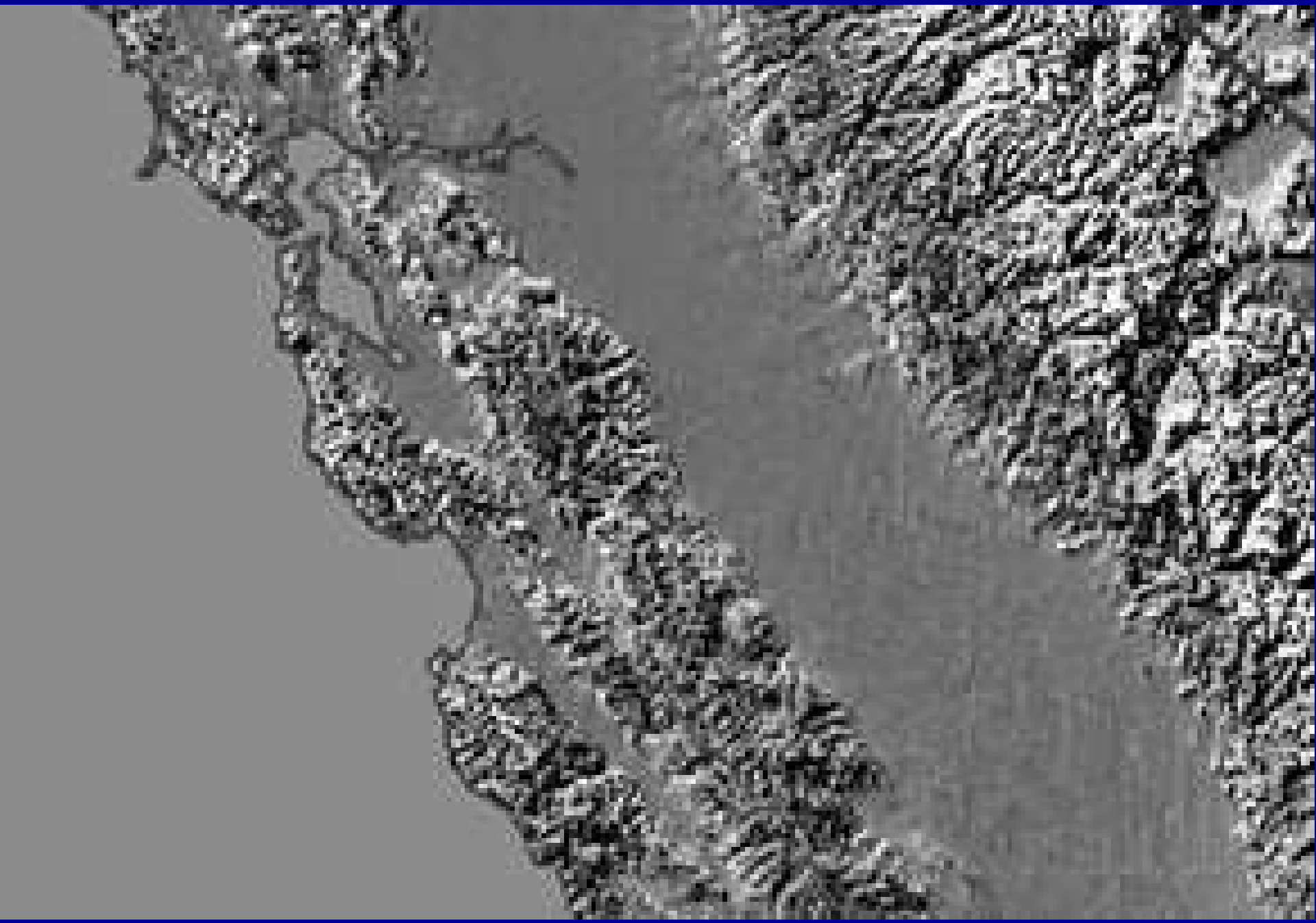
Protected Areas of the Elkhorn Slough

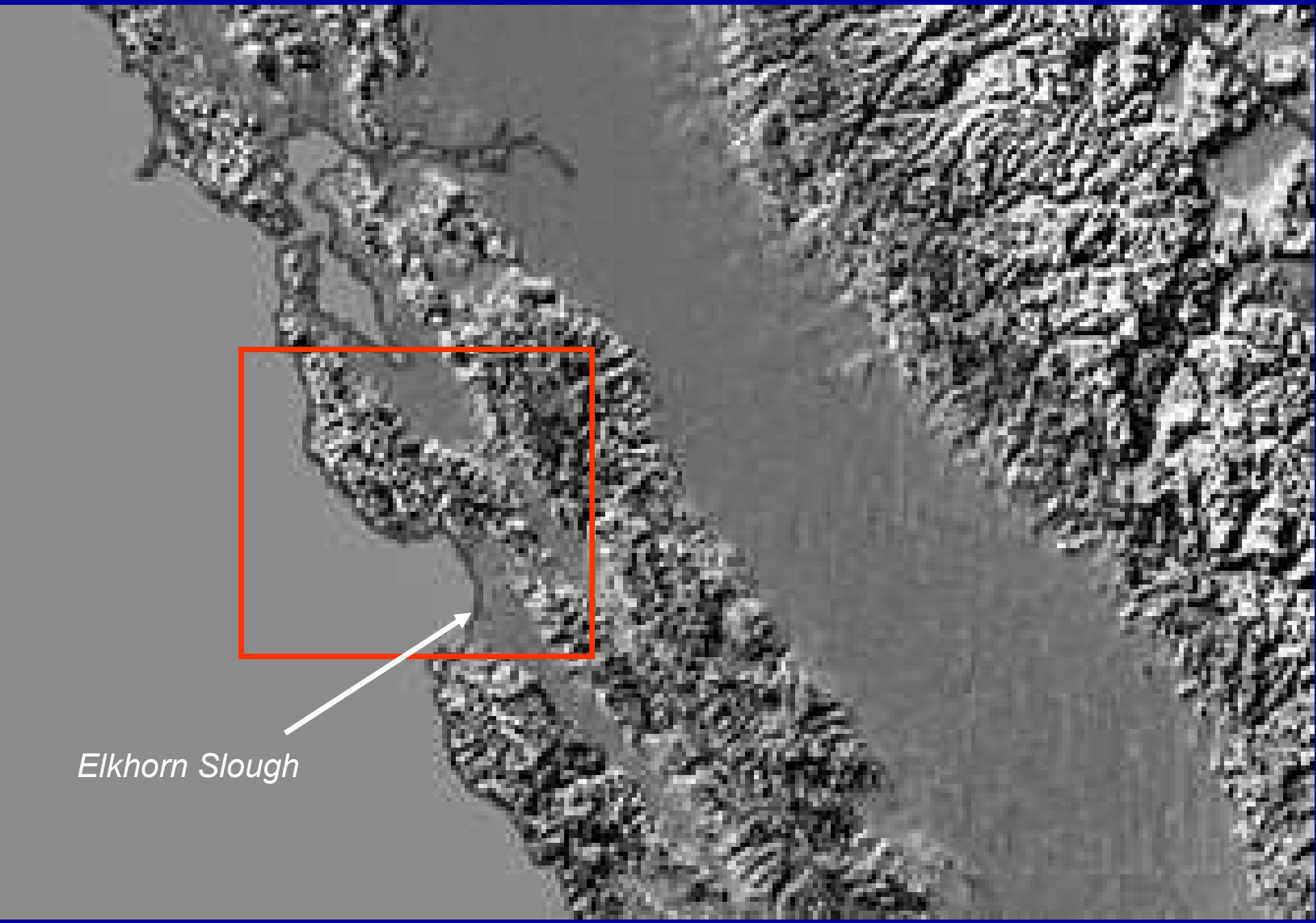

Elkhorn Slough Watershed Protected Lands and Ownership, March 2009
ESF owns 2,538 acres and manages on contract an additional 1,057 acres of TNC lands and ESF easements
Elkhorn Slough National Estuarine Research Reserve
California Department of Fish & Game (DFG)
DFG Easement
Elkorn Slough Foundation (ESF)
ESF Easement
Harbor District
Monterey County
State Parks & Recreation
The Nature Conservancy (TNC)
TNC Easement
Ag Land Trust
Yellow: ESF Management in YELLOW Type Font
Monterey Bay
Elkhorn Slough
Elkhorn Rd
Hall Rd
Hidden Valley Rd
Strawberry Rd
Long Valley Rd
Paradise Rd
Dolan Rd
Castroville Blvd
Salinas Rd
Struve Rd
Claraday Rd
SPRR


© 2004 BKatzung


© 2004 BKatzung

Habitat Fragmentation in our Region




Elkhorn Slough

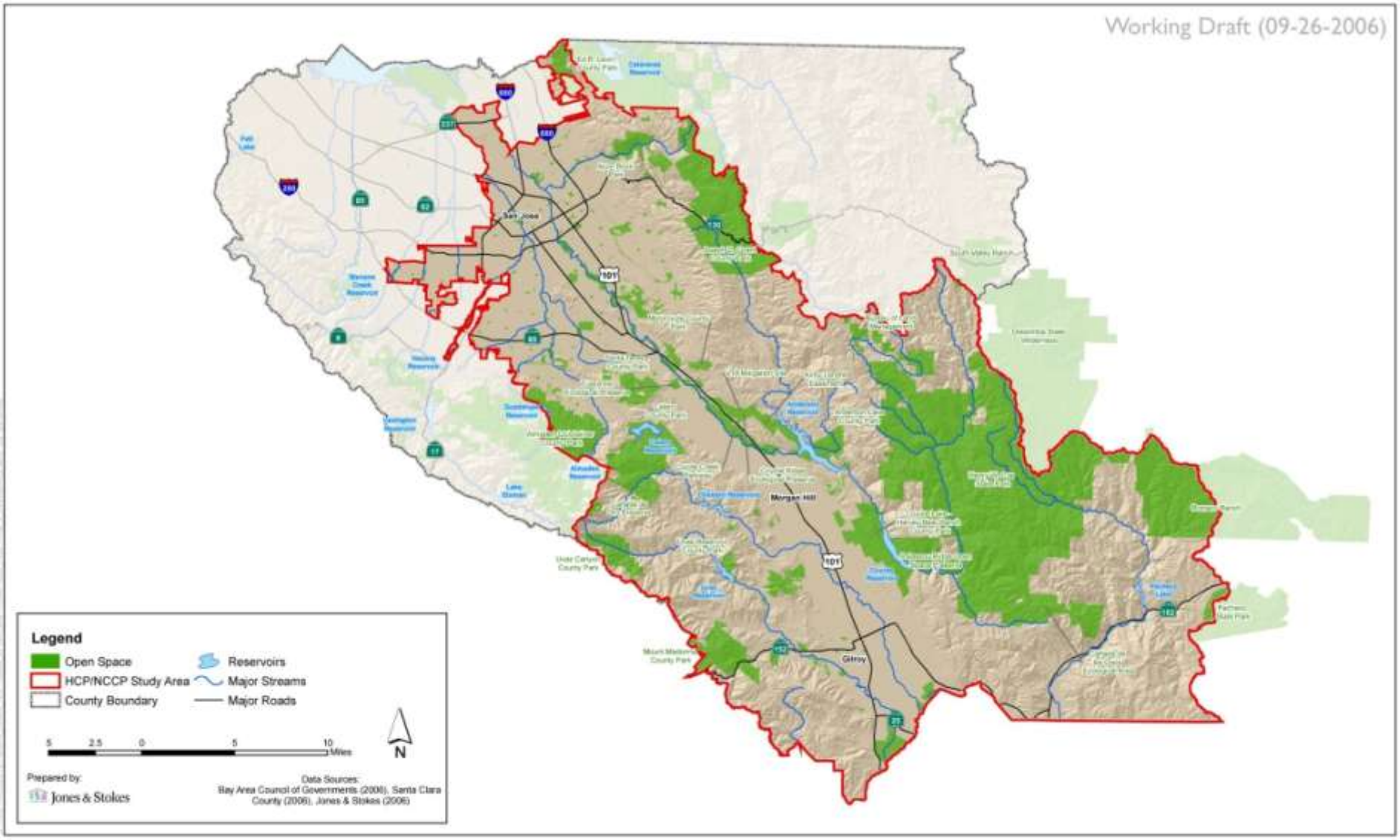
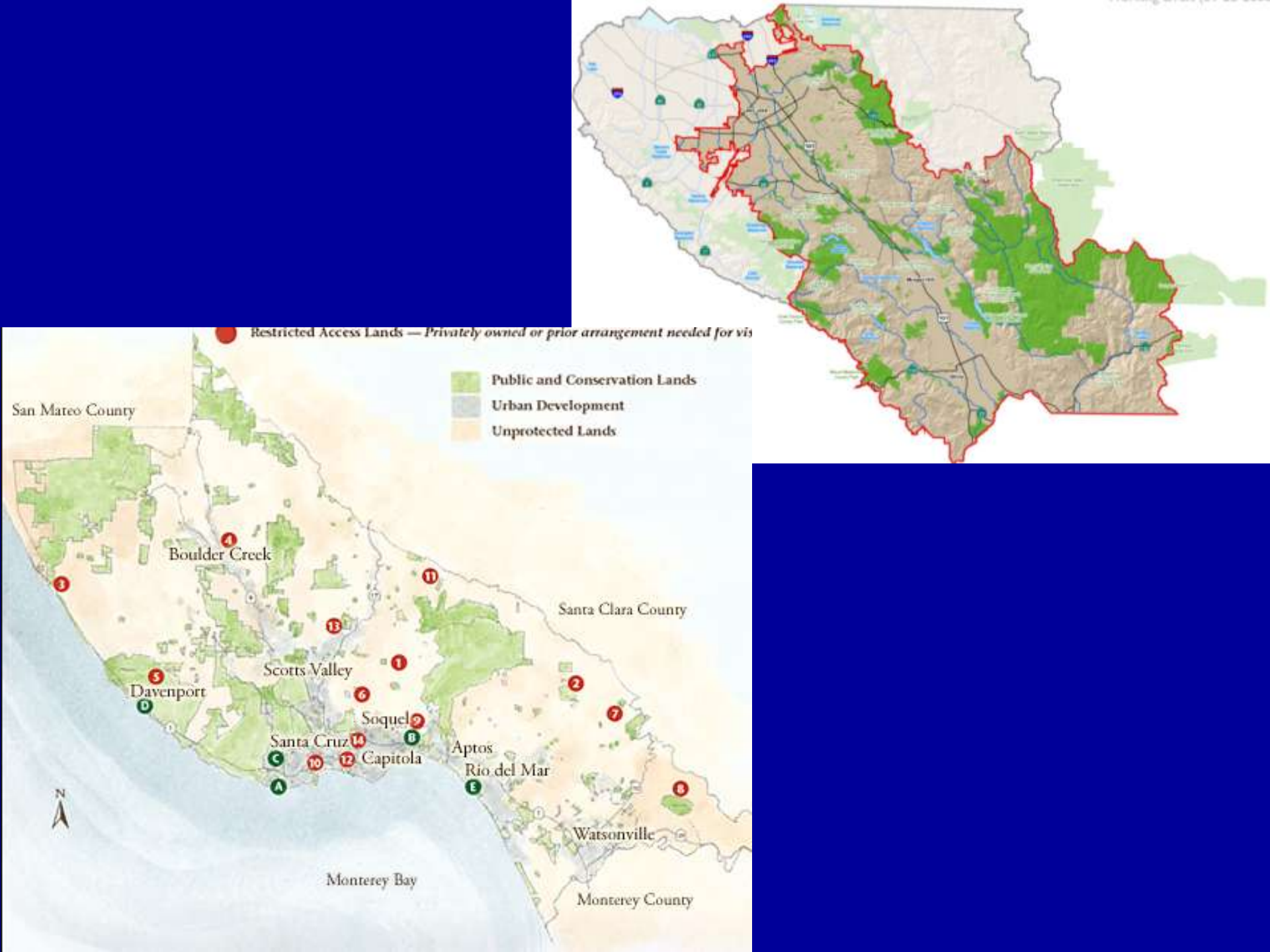
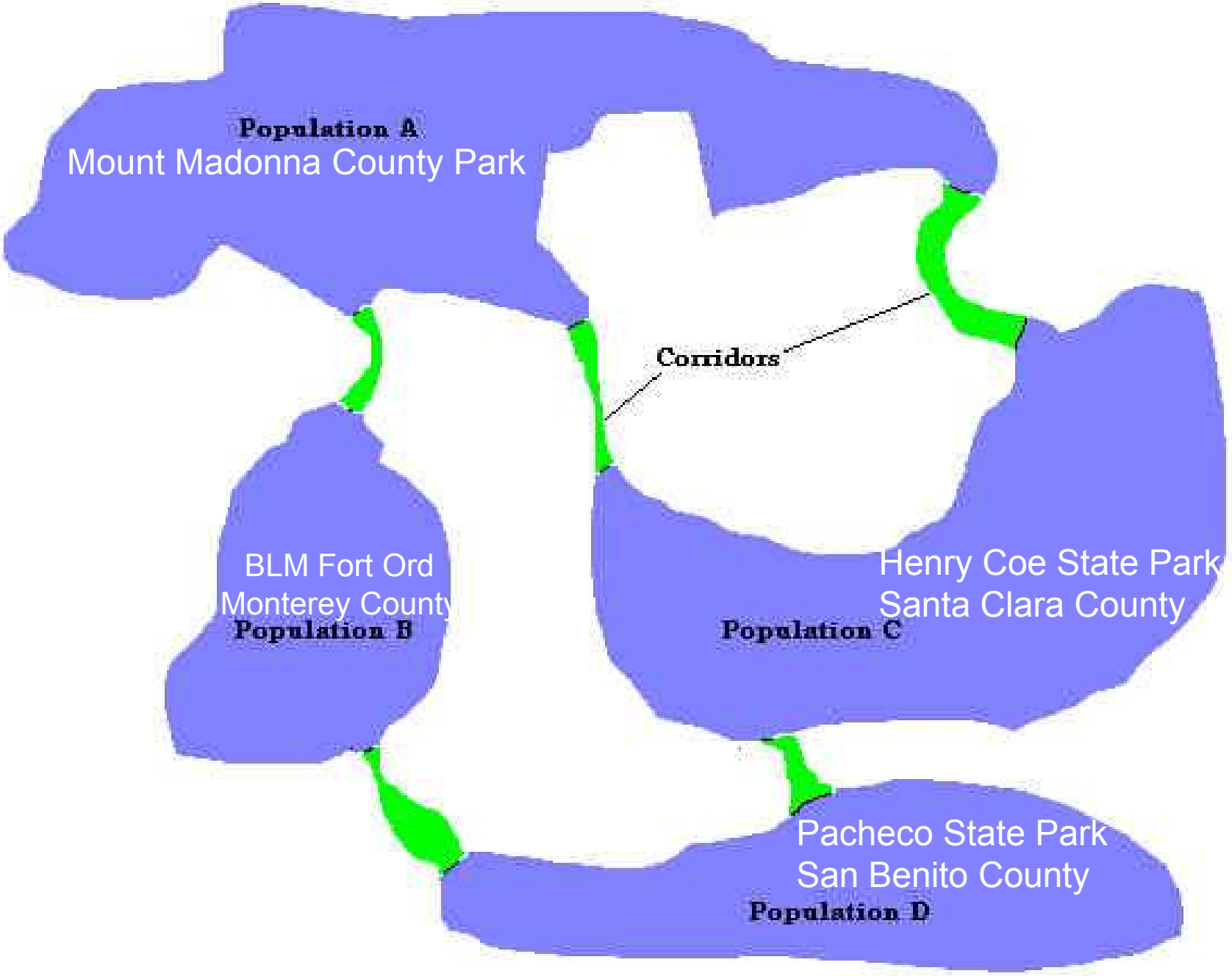


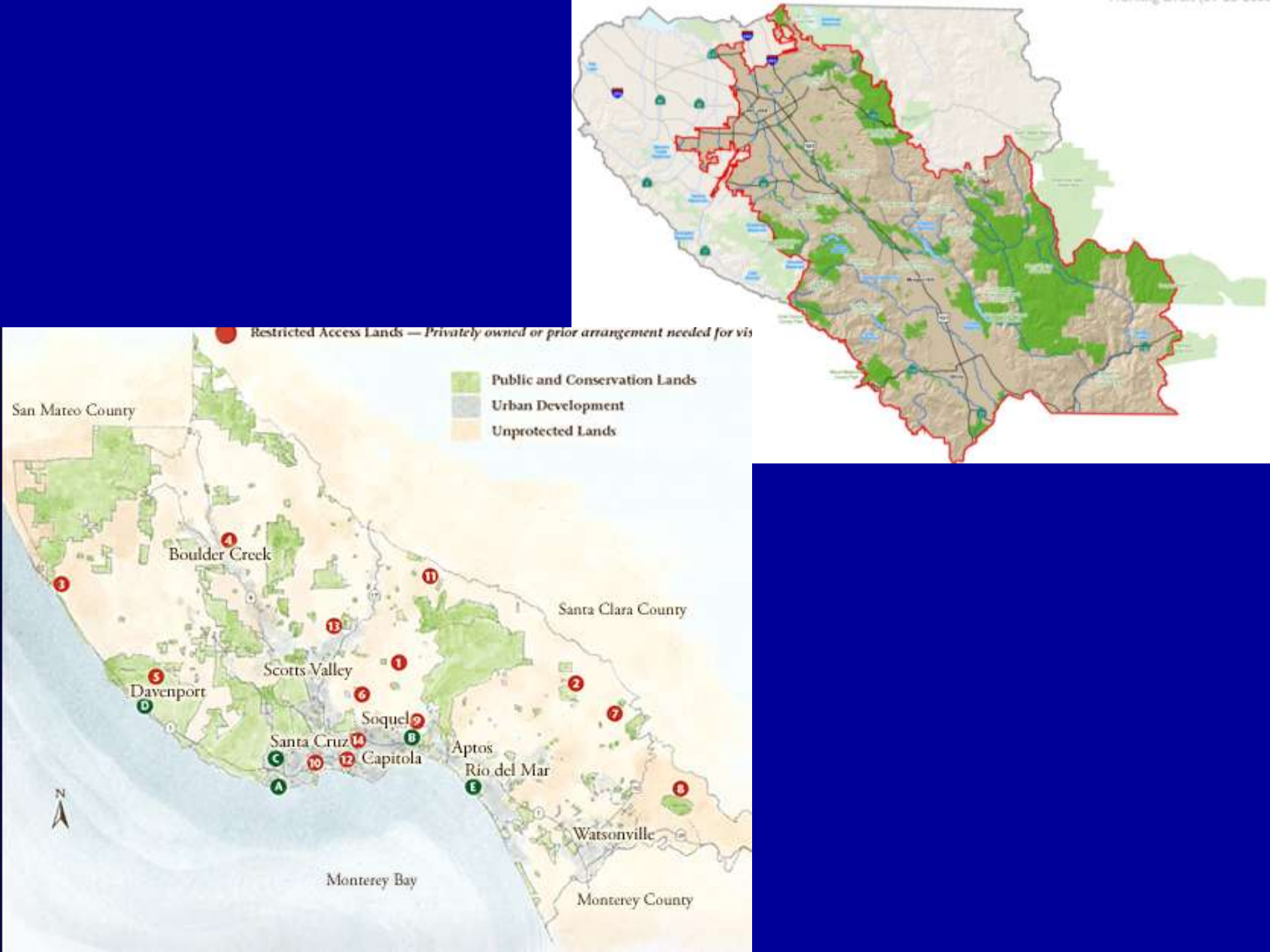
Figure 2-2
Protected Open Space in the Study Area


Santa Cruz County Public and Conservation Lands
Map Prepared for The Land Trust of Santa Cruz County
Land Trust Properties
Public Access Lands — Open to the public without prior arrangement
Restricted Access Lands — Privately owned or prior arrangement needed for visit
Public and Conservation Lands
Urban Development
Unprotected Lands
San Mateo County
Boulder Creek
Santa Clara County
Scotts Valley
Davenport
Soquel
Santa Cruz
Capitola
Aptos
Rio del Mar
Watsonville
Monterey Bay
Monterey County
N


Restricted Access Lands — Privately owned or prior arrangement needed for vis
Public and Conservation Lands
Urban Development
Unprotected Lands
San Mateo County
Boulder Creek
Santa Clara County
Scotts Valley
Davenport
Soquel
Santa Cruz
Capitola
Aptos
Rio del Mar
Watsonville
Monterey Bay
Monterey County
N

What does badger need?

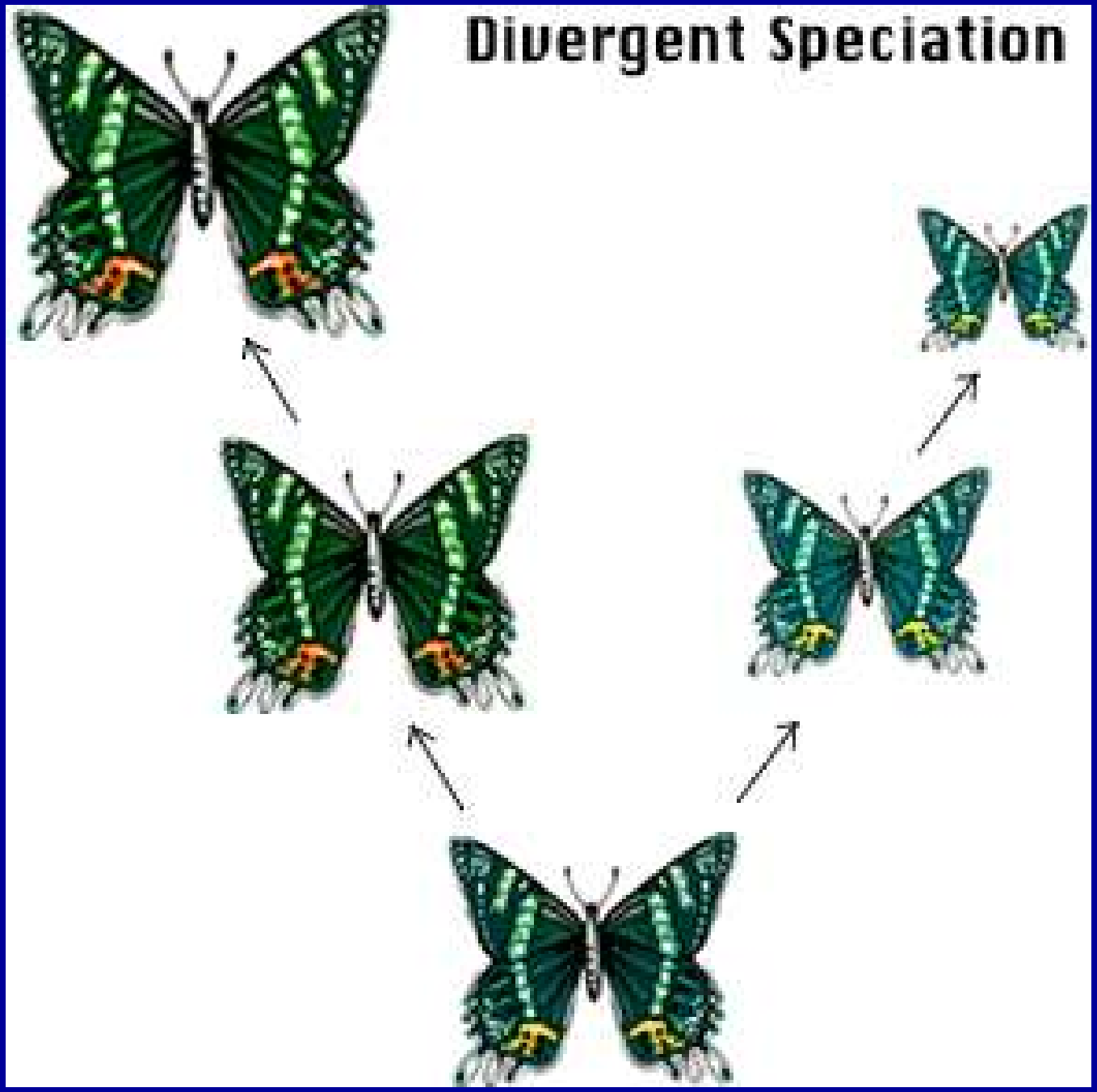

Population A
Mount Madonna County Park
Corridors
BLM Fort Ord
Monterey County
Population B
Henry Coe State Park
Santa Clara County
Population C
Pacheco State Park
San Benito County
Population D


Restricted Access Lands — Privately owned or prior arrangement needed for vis
Public and Conservation Lands
Urban Development
Unprotected Lands
San Mateo County
Boulder Creek
Santa Clara County
Scotts Valley
Davenport
Soquel
Santa Cruz
Capitola
Aptos
Rio del Mar
Watsonville
Monterey Bay
Monterey County
N

Species-Level Effects of Habitat Fragmentation

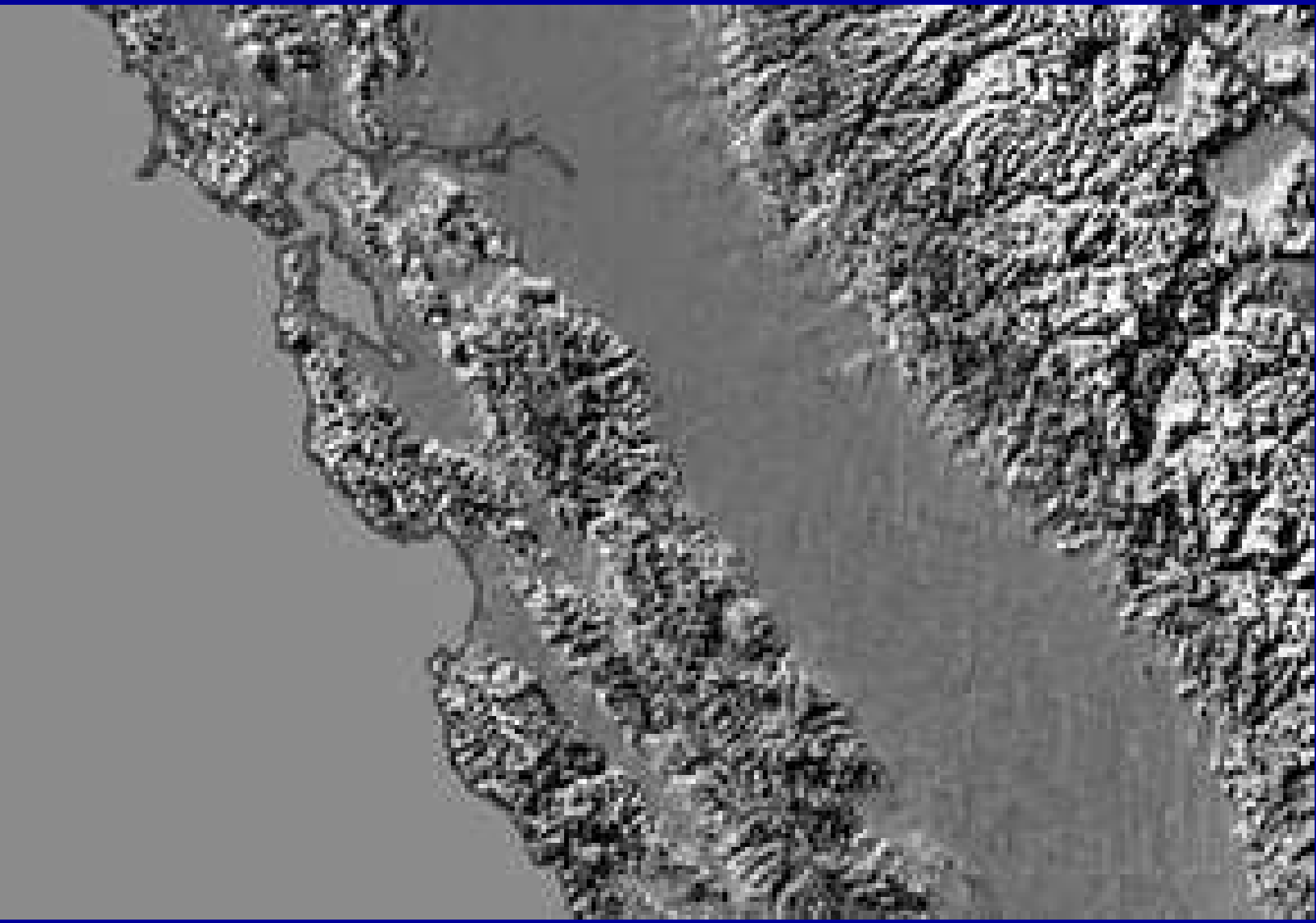
Inbreeding

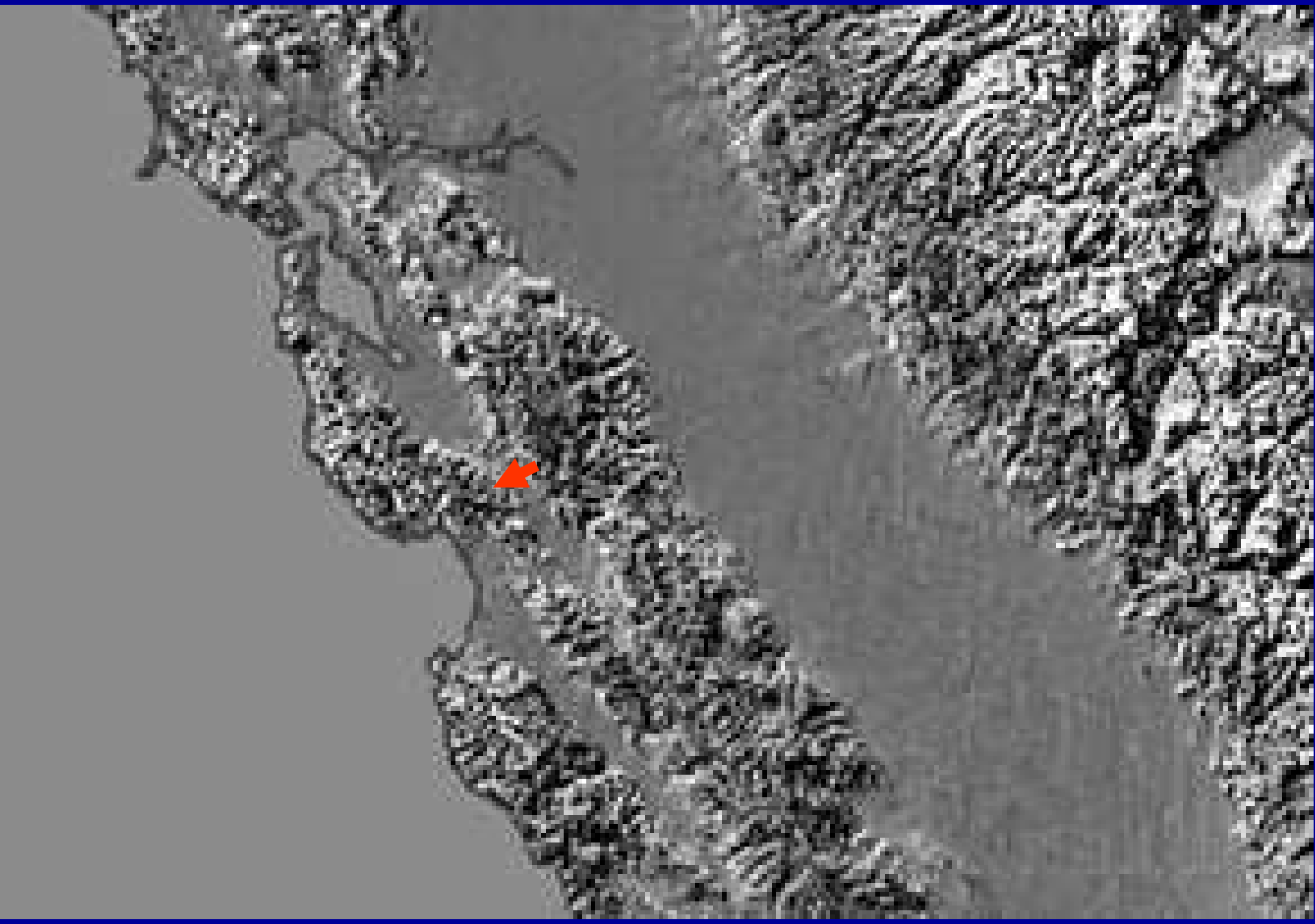
Divergent Speciation

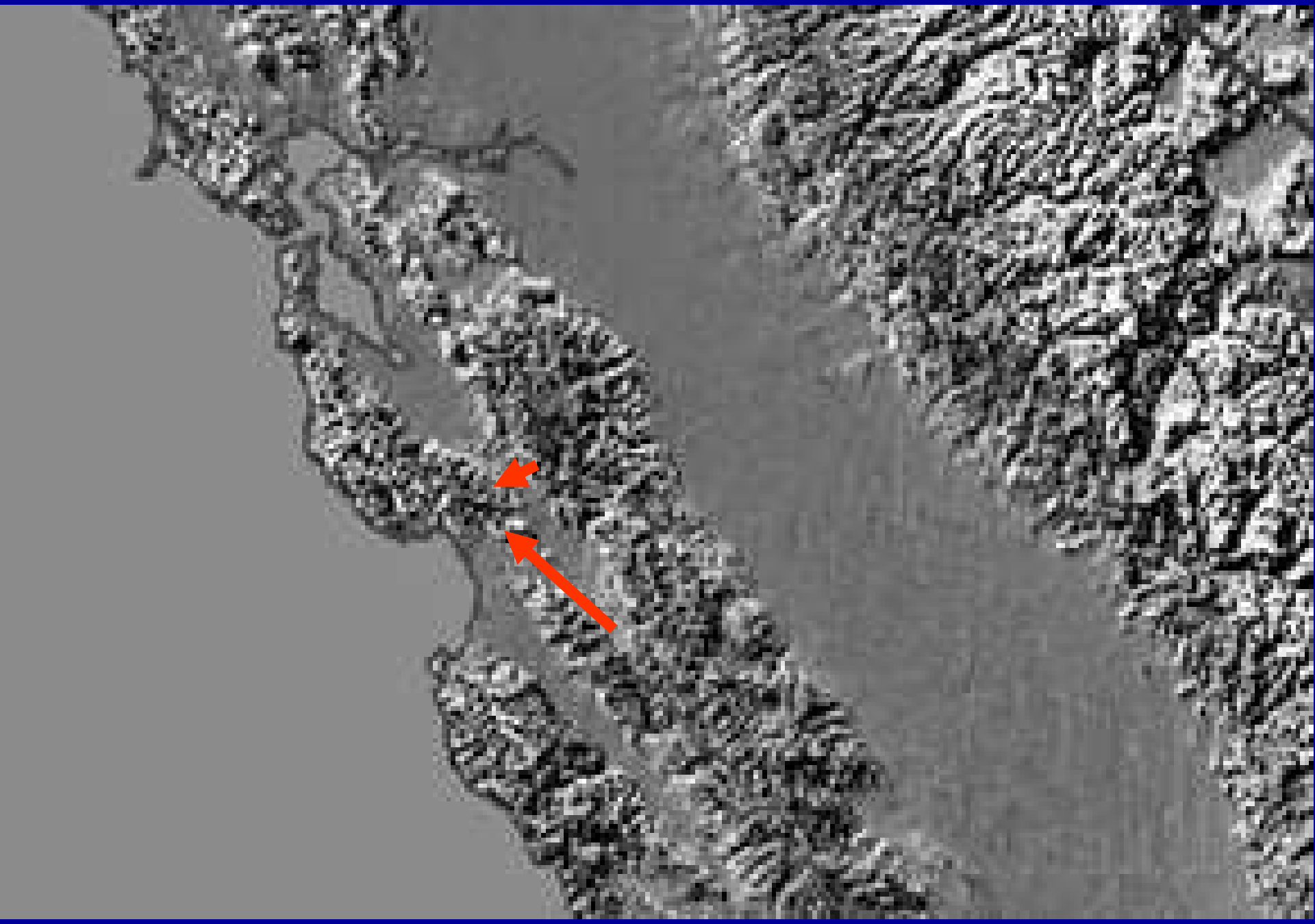


Ecosystem-Level Effects of Habitat Fragmentation

Central Coast Linkages







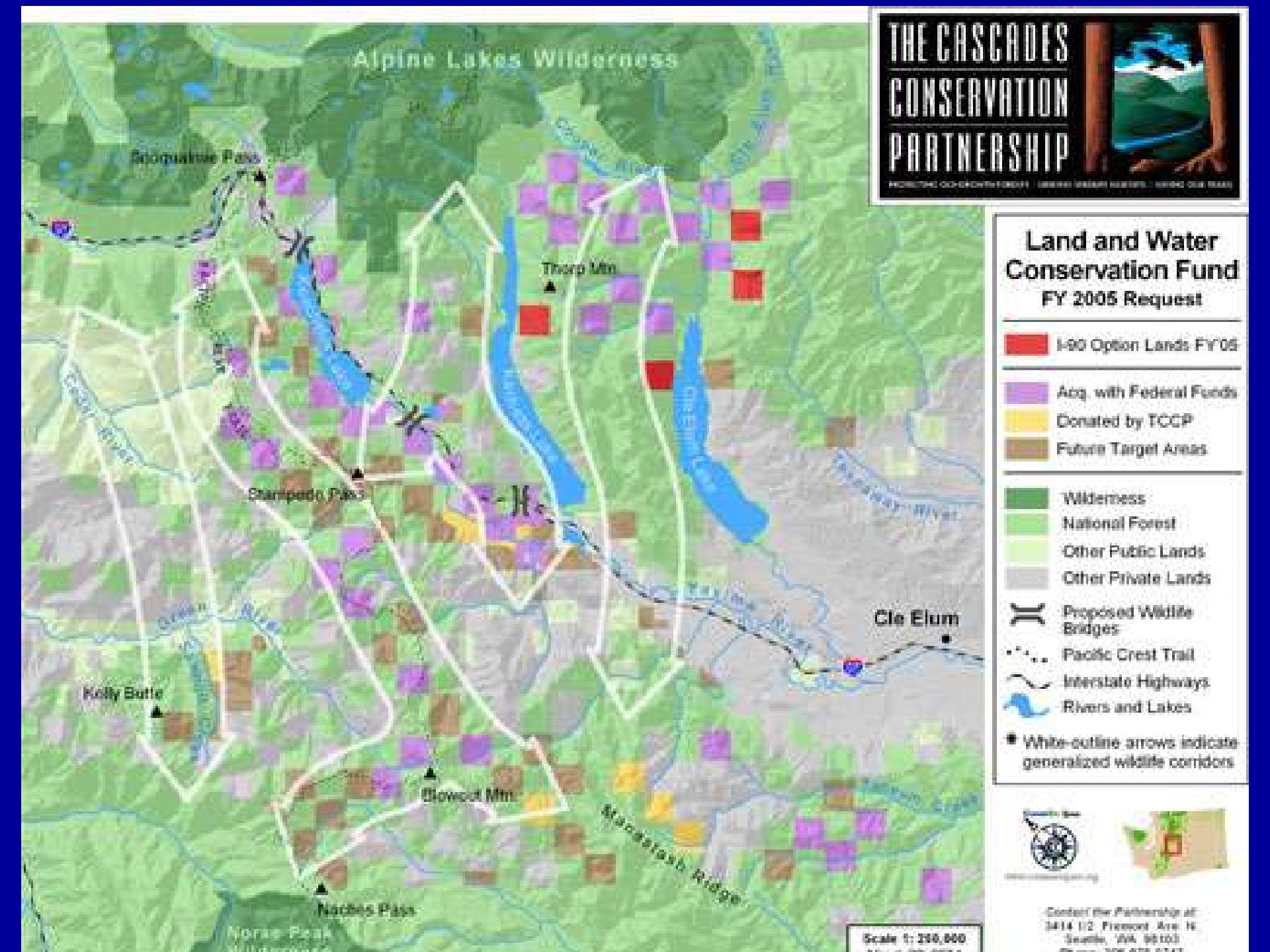
Are Corridors Always Good?

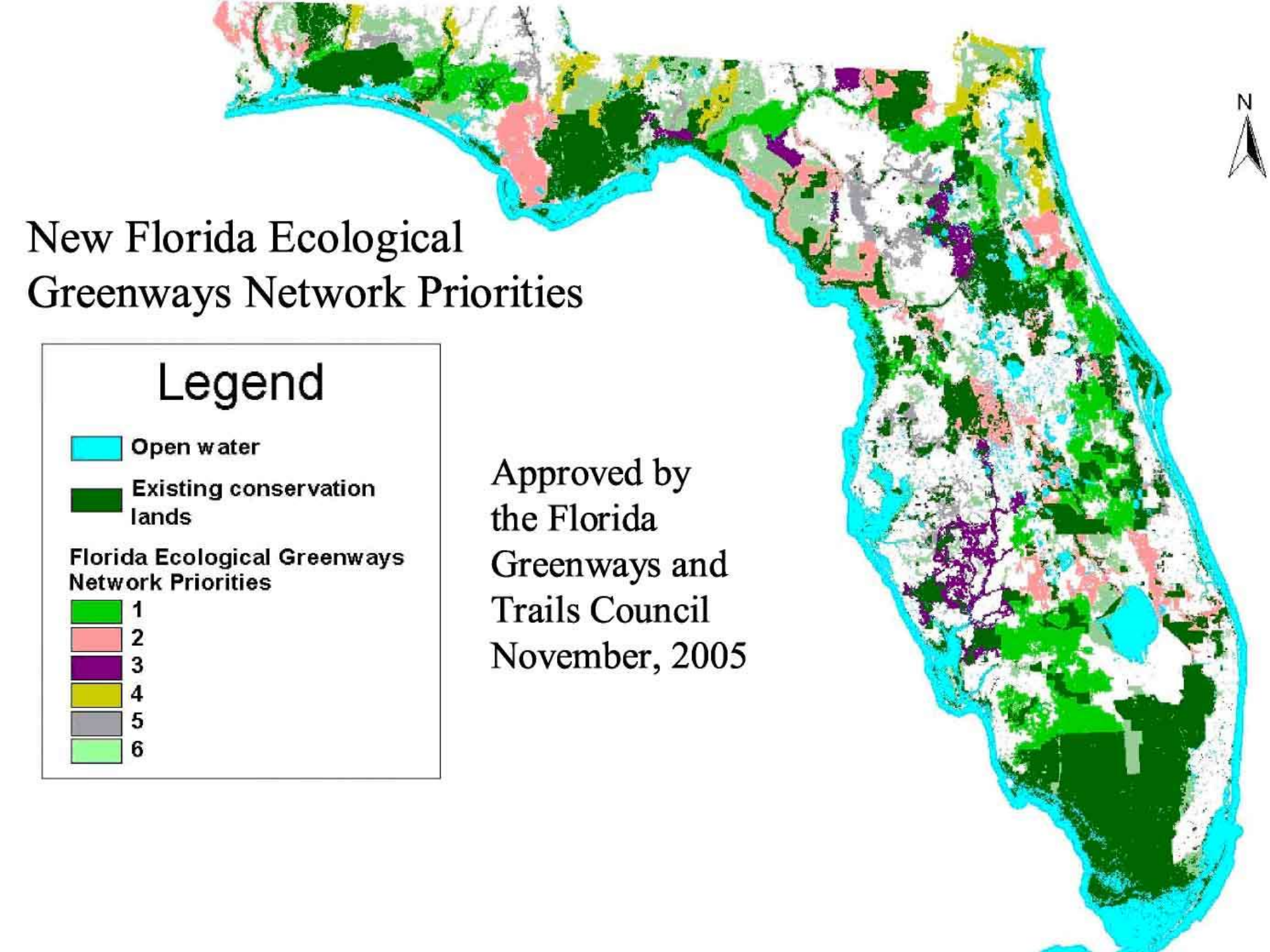
No

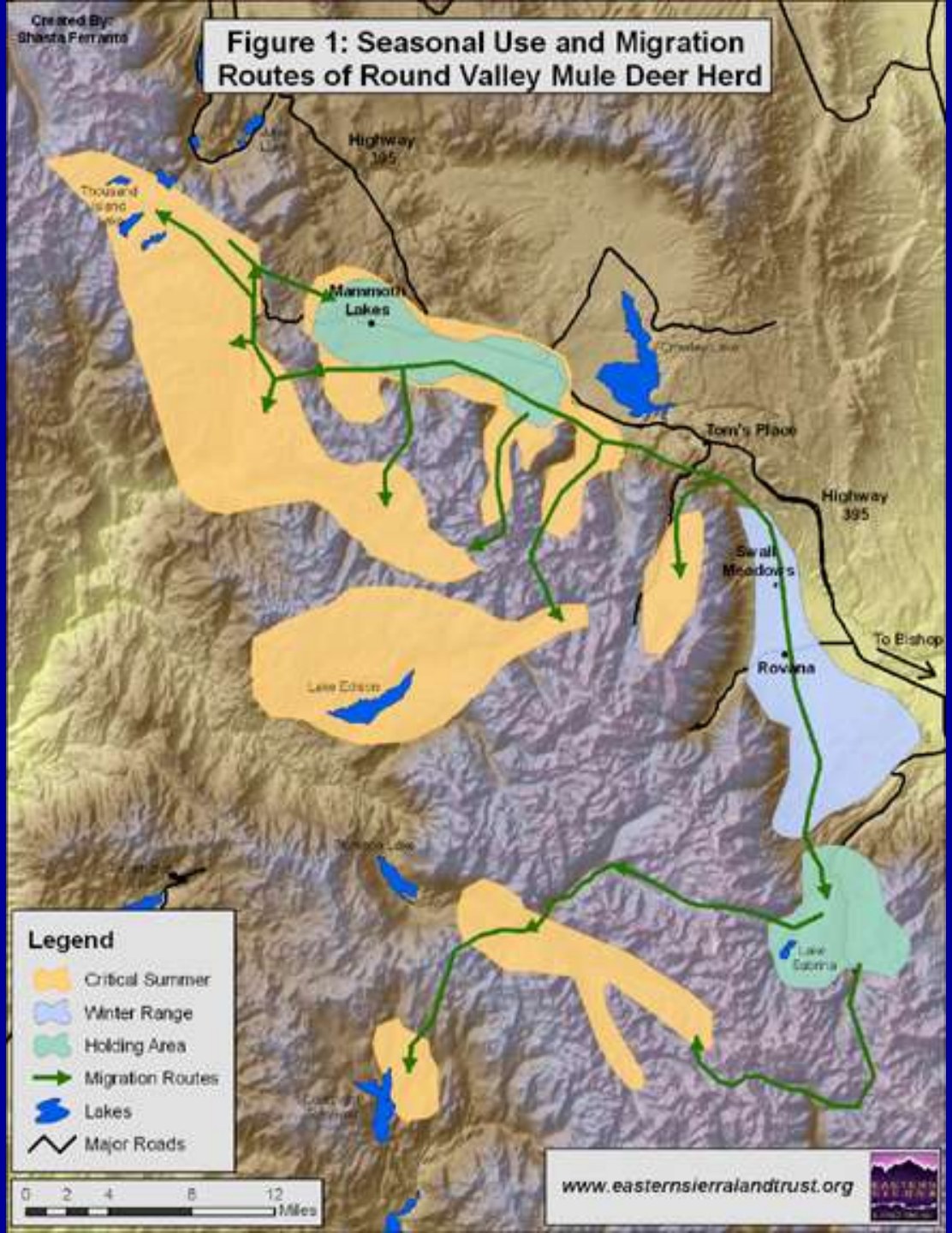
- Disease and weed vectors
- Can lure animals to their death
- May cost a lot, losing funding for conservation elsewhere

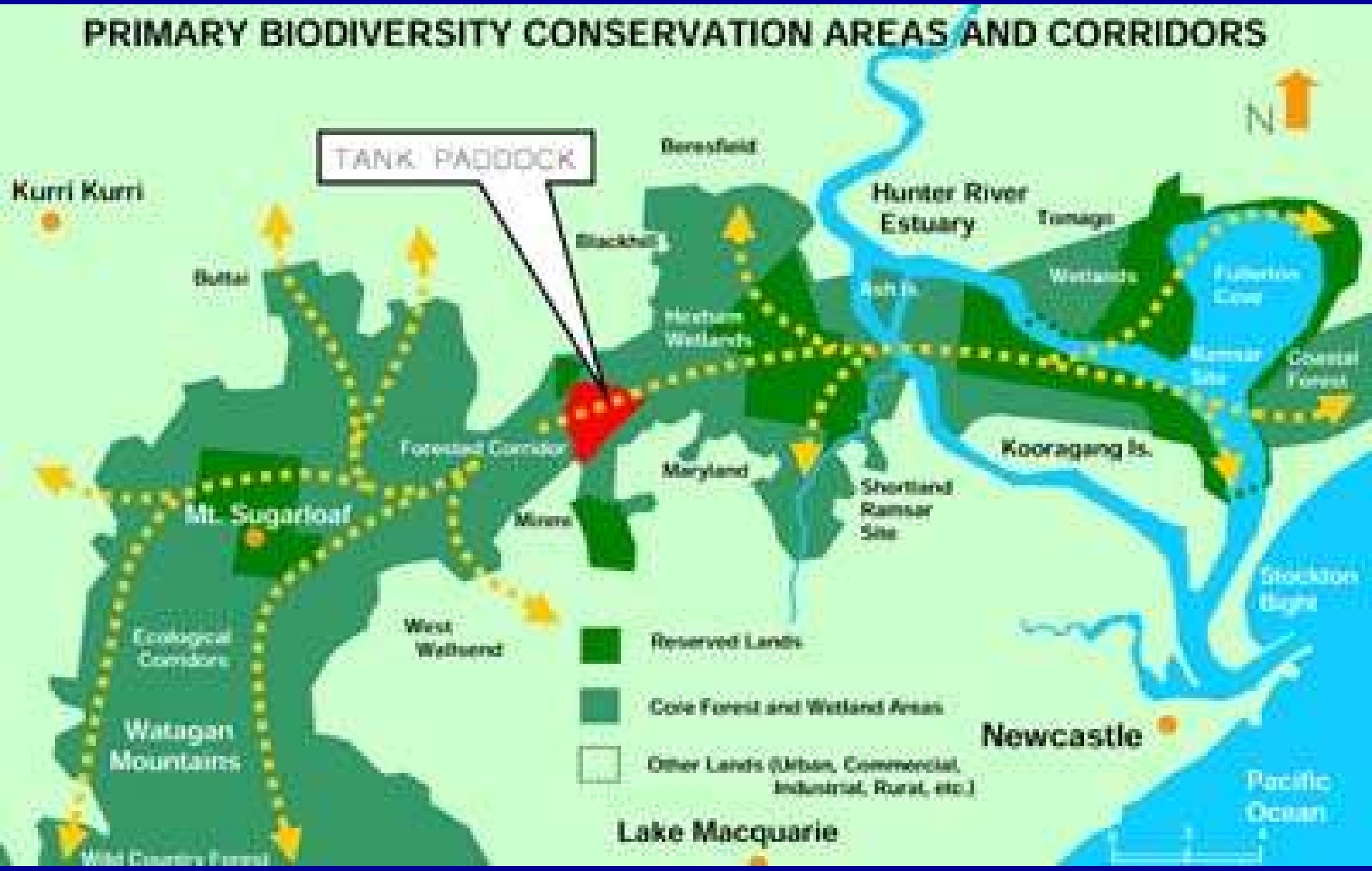
(But, advantages generally outweigh disadvantages)

Planning for Wildlife Movement


THE CASCADES CONSERVATION PARTNERSHIP
Land and Water Conservation Fund
FY 2005 Request
I-90 Option Lands FY'05
Acq. with Federal Funds
Donated by TCCP
Future Target Areas
Wilderness
National Forest
Other Public Lands
Other Private Lands
Proposed Wildlife Bridges
Pacific Crest Trail
Interstate Highways
Rivers and Lakes
White-outline arrows indicate generalized wildlife corridors
Alpine Lakes Wilderness
Snoqualmie Pass
Thorp Mtn
Stampede Pass
Cle Elum
Kelly Butte
Blowout Mtn
Manastash Ridge
Naches Pass
Scale 1: 250,000
Contact the Partnership at:
3414 1/2 Fremont Ave N
Seattle, WA 98103


N
New Florida Ecological
Greenways Network Priorities
Legend
Open water
Existing conservation lands
Florida Ecological Greenways Network Priorities
1
2
3
4
5
6
Approved by
the Florida
Greenways and
Trails Council
November, 2005


Created By:
Shasta Ferranto
Figure 1: Seasonal Use and Migration Routes of Round Valley Mule Deer Herd
Highway 395
Mammoth Lakes
Tom's Place
Highway 395
Swall Meadows
To Bishop
Rovana
Lake Edison
Legend
Critical Summer
Winter Range
Holding Area
Migration Routes
Lakes
Major Roads
0 2 4 8 12
Miles
www.easternsierralandtrust.org


PRIMARY BIODIVERSITY CONSERVATION AREAS AND CORRIDORS
TANK PADDOCK
N
Kurri Kurri
Beresfield
Hunter River Estuary
Tomago
Buttai
Blackhill
Wetlands
Ash Is
Hexham Wetlands
Fullerton Cove
Ramsar Site
Coastal Forest
Koorangang Is.
Forested Corridor
Maryland
Shortland Ramsar Site
Mt. Sugarloaf
Minmi
Stockton Bight
West Wallsend
Ecological Corridors
Reserved Lands
Watagan Mountains
Core Forest and Wetland Areas
Newcastle
Other Lands (Urban, Commercial, Industrial, Rural, etc.)
Pacific Ocean
Lake Macquarie

Engineering for Wildlife Movement

Preparing for Big Basin

- Arrive ON TIME
- Parking charges
- Notecard instructions….

Notecard Questions

You will turn in one question per ~~class~~ **guest presenter** on a 4x6 note card.

This question will be graded on the following criteria:

1) Relevancy to speaker (1 point) – the question should reflect the expertise and position of the person to whom you are asking the question. For instance, if you are asking me, a botanist, a question about reserve design, you might specifically ask about implications of edge area on rare plant species.

2) Intelligence/insight (1 point) – the question should not be so simple as to be mundane (e.g.'why is reserve design important?'); it should also not be answered directly by the reading assigned for the class. You should think hard about an original question that remains in your mind that also reflects your understanding of the reading material that you read in preparing for the visit.

Be warned that all issues of academic integrity apply to this course assignment.

Reading

- Corvid response to human settlements and campgrounds: Causes, consequences, and challenges for conservation (Marzluff and Neatherlin, 2006).

- Big Basin Preliminary General Plan and Draft EIR (CDPR 2012). Sections 4.4 and 4.6

-all reading found on website from Syllabus