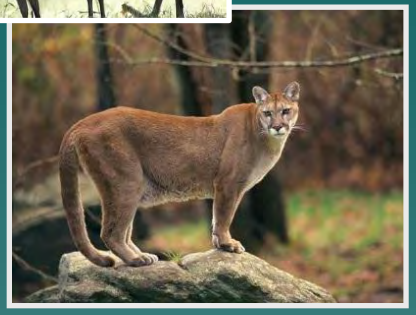


Conservation Partners Meeting

Sierra Nevada Foothills Wildlife Connectivity Project

April 5, 2013

Biogeographic Data Branch
California Department of Fish and Wildlife

Photos courtesy of the National Digital Image library

Background

Habitat connectivity: paths for movement in the landscape

- Finding food, cover, mates
- Migration
- Adaptation to climate change

Barriers

- roads, development, habitat conversion

Model Purpose: identify connectivity areas to prioritize for conservation

Photos courtesy of the National Digital Image library

2010 California Essential Habitat Connectivity (CEHC) Project

Natural Landscape "Blocks"

- contiguous natural habitat
- >2000-acre
- ecological integrity

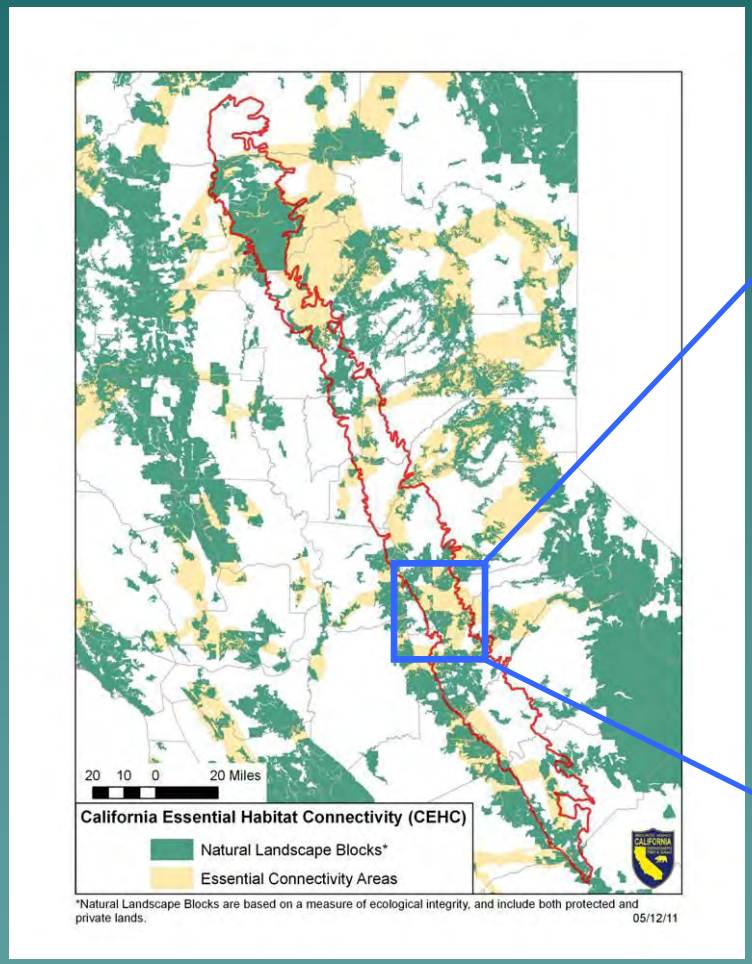
Connections

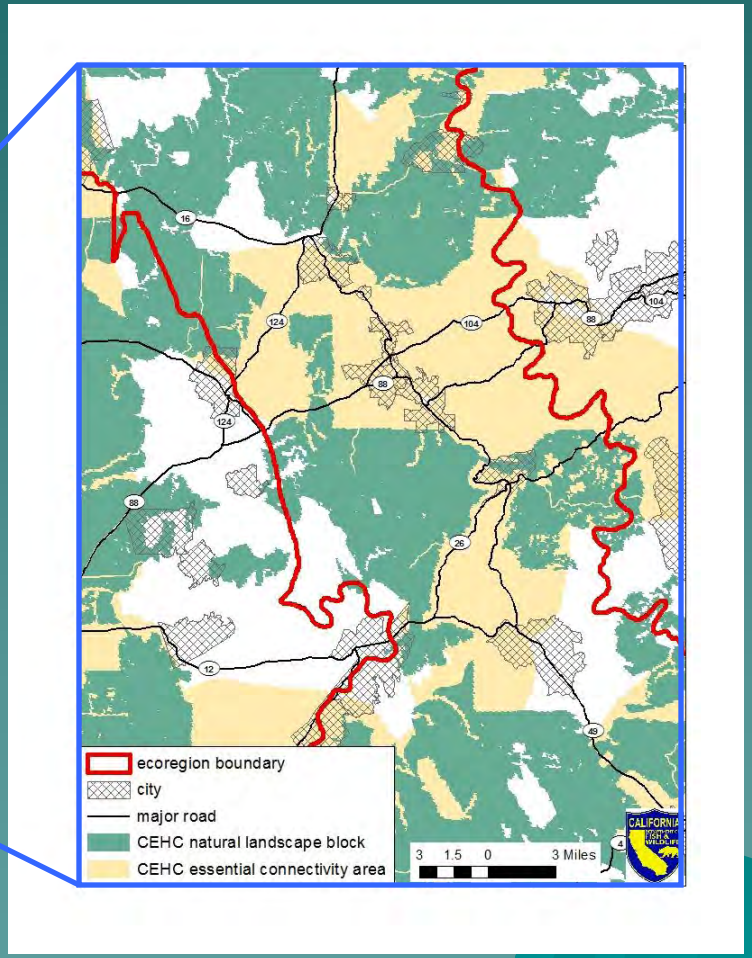
- Between blocks >10,000 ac
- Least-cost modeling

Fine-scale connectivity mapping

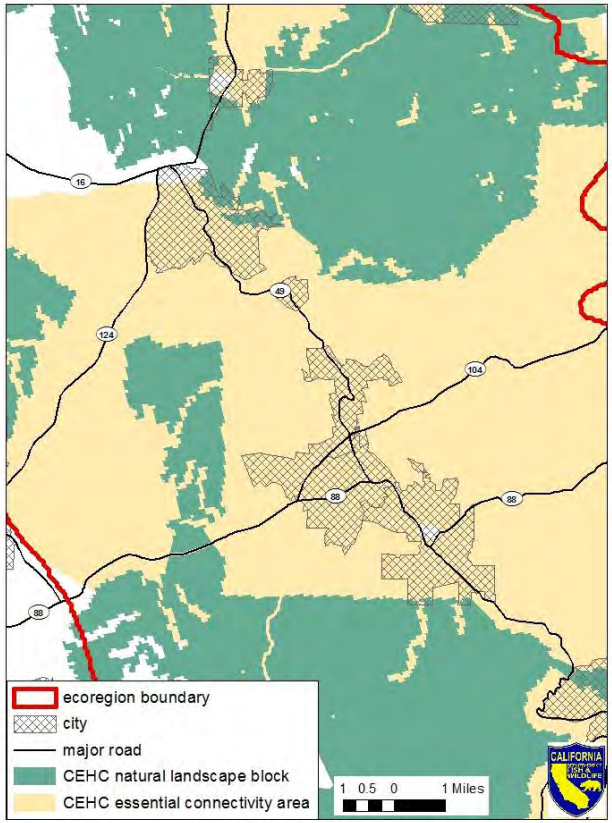
- Following recommendations in the statewide project report
- Model connections between habitat areas <10,000 acres in size
- Species – specific models
- Local-scale information on barriers (e.g., roads, urban areas)

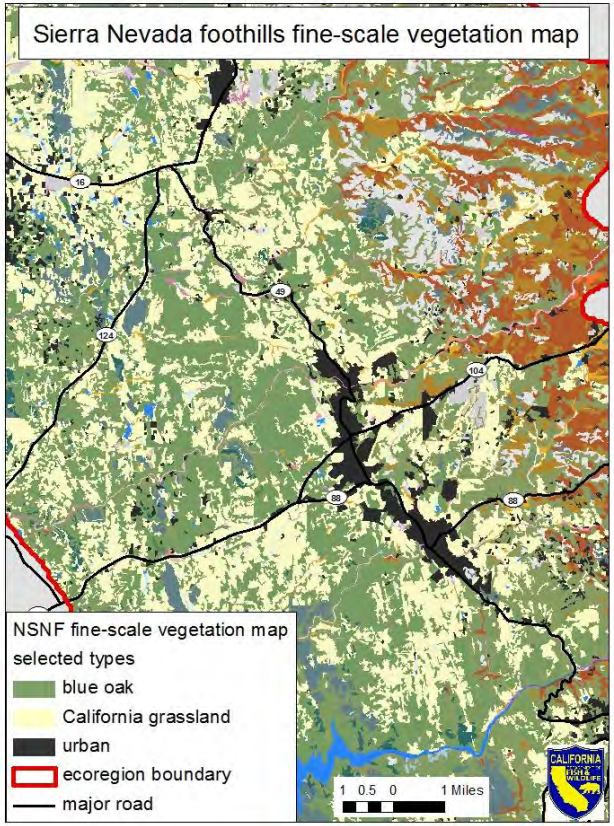
Need for fine-scale modeling





Fine-scale vegetation map for connectivity modeling





Wildlife Connectivity Project Goals

1. Develop fine-scale connectivity models in the Sierra Nevada foothills
   - Identify focal species and develop habitat models
   - Model corridors based on species-specific movement needs

2. Develop guidance on minimum standards for fine-scale connectivity modeling needed to meet the Department's mission and mandates

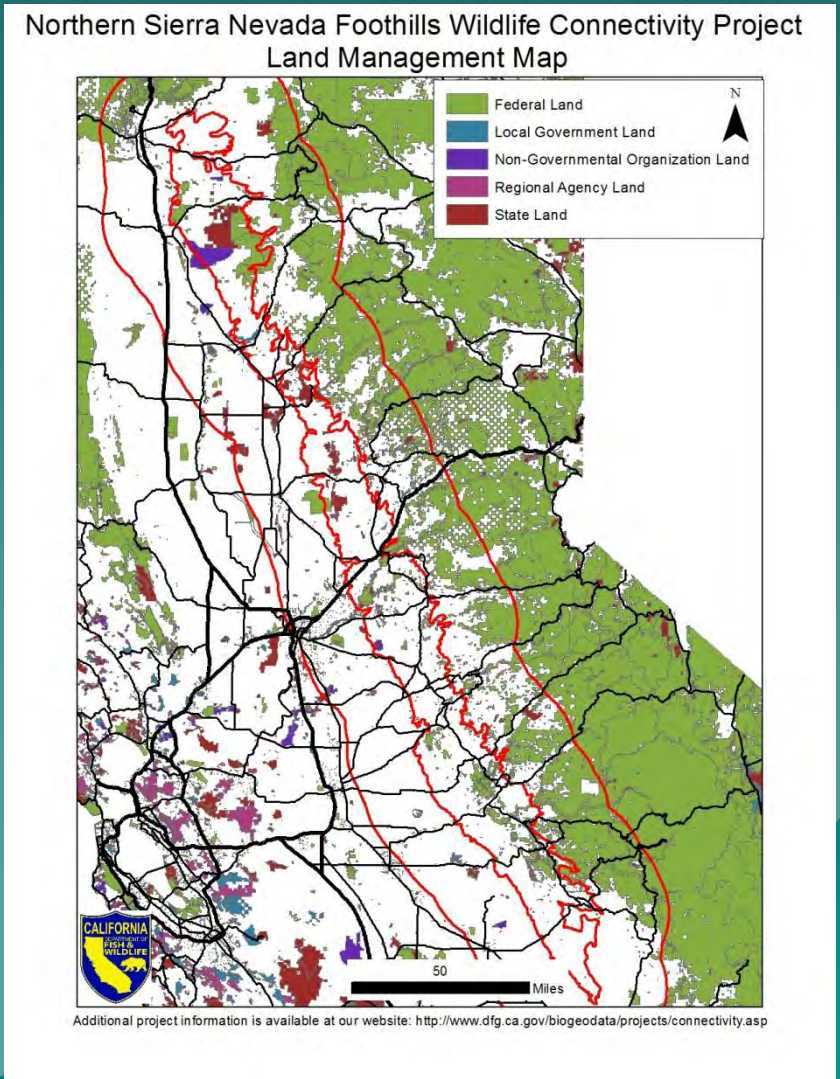
3. Provide guidance for use by the Department and others on local-scale connectivity and corridor needs for different geographic regions, taxonomic groups, and species

Northern Sierra Nevada Foothills

- Shasta to Madera County
- The elevation range 100-5,000 feet, mean elevation of 1,200 ft.
- Habitat in the foothills is a matrix of blue oak woodland, grassland and chaparral

High priority for fine-scale connectivity modeling

- Provides important connectivity and migration corridors
- 85% in private ownership
- High development pressure
- Intersected by major highways
- Completed fine-scale vegetation map



Project Objectives

- Map Areas of Connectivity for Wildlife
  - Focal species models: core habitat and corridors
  - Land facets: address climate change
  - Species models + land facets = linkage design

Focal Species

- Defined Selection Criteria

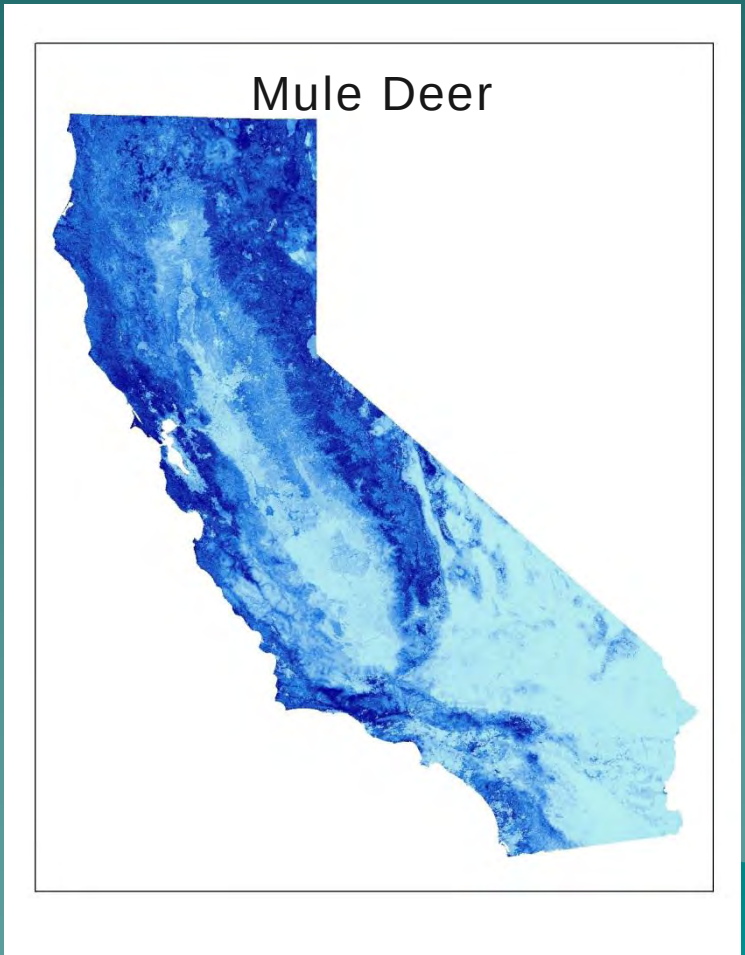
Area-sensitive	Barrier-sensitive
Umbrella	Dispersal-limited
Habitat specialist	Listed species

- Focal Species Selection
  - Species with more than one criterion had a higher selection potential
  - Stratified by habitat and taxonomy
  - Include corridor users and dwellers

Focal Species

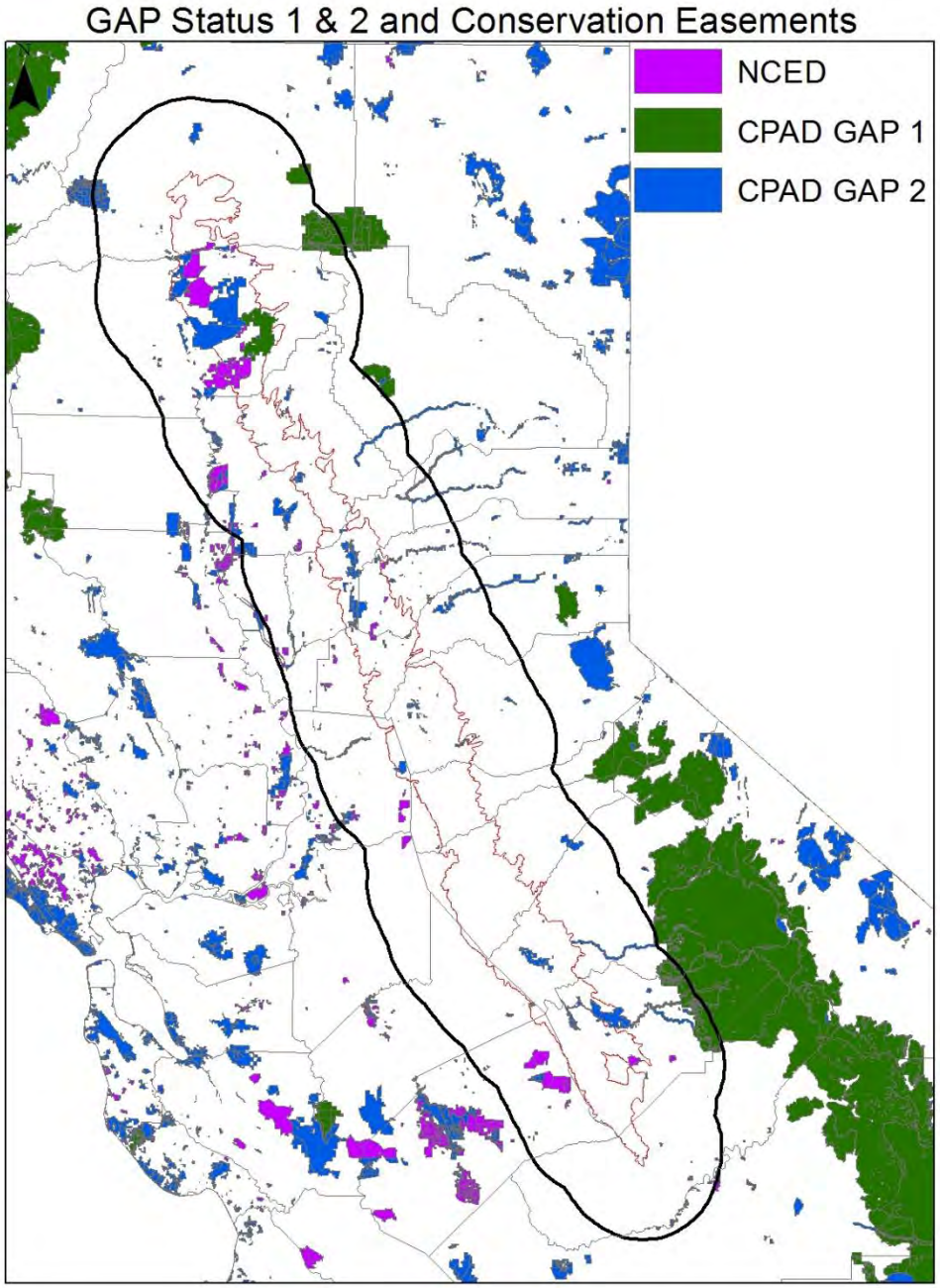
Habitat Analysis

- Use species location points
- Set of environmental layers (climate, topographic, hydrologic, vegetation)
- MAXENT to model potential habitat
- Expert opinion model



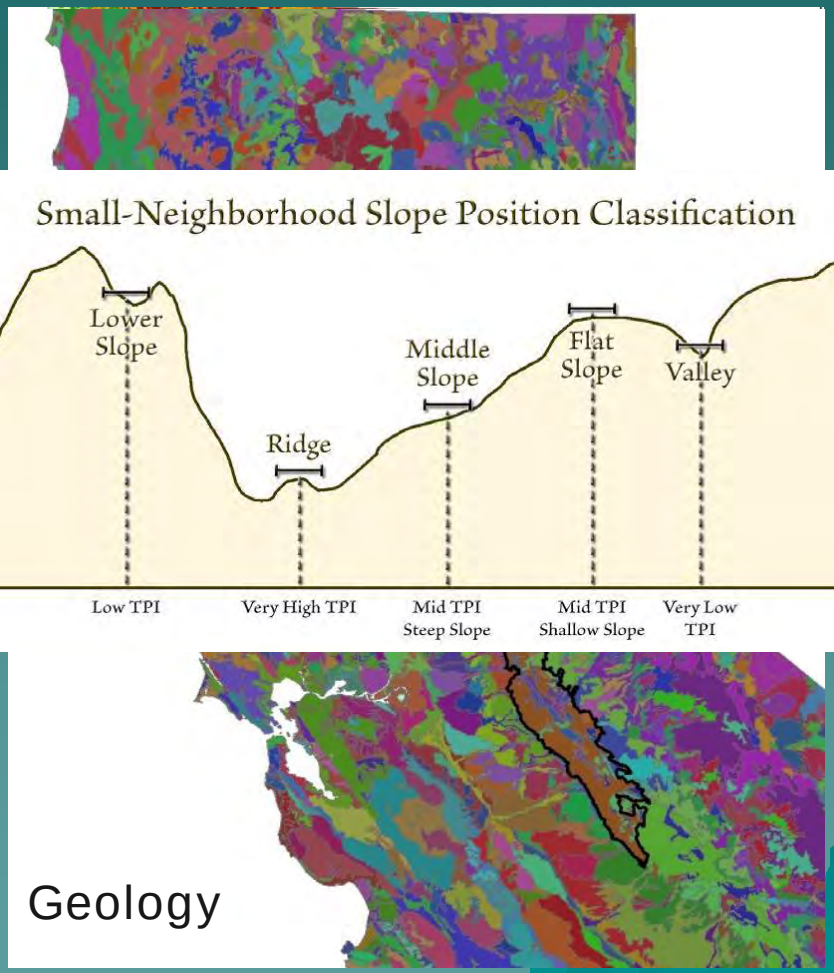
Landscape Blocks

Defined from public lands managed for biodiversity conservation (GAP 1 and 2 status) and conservation easements

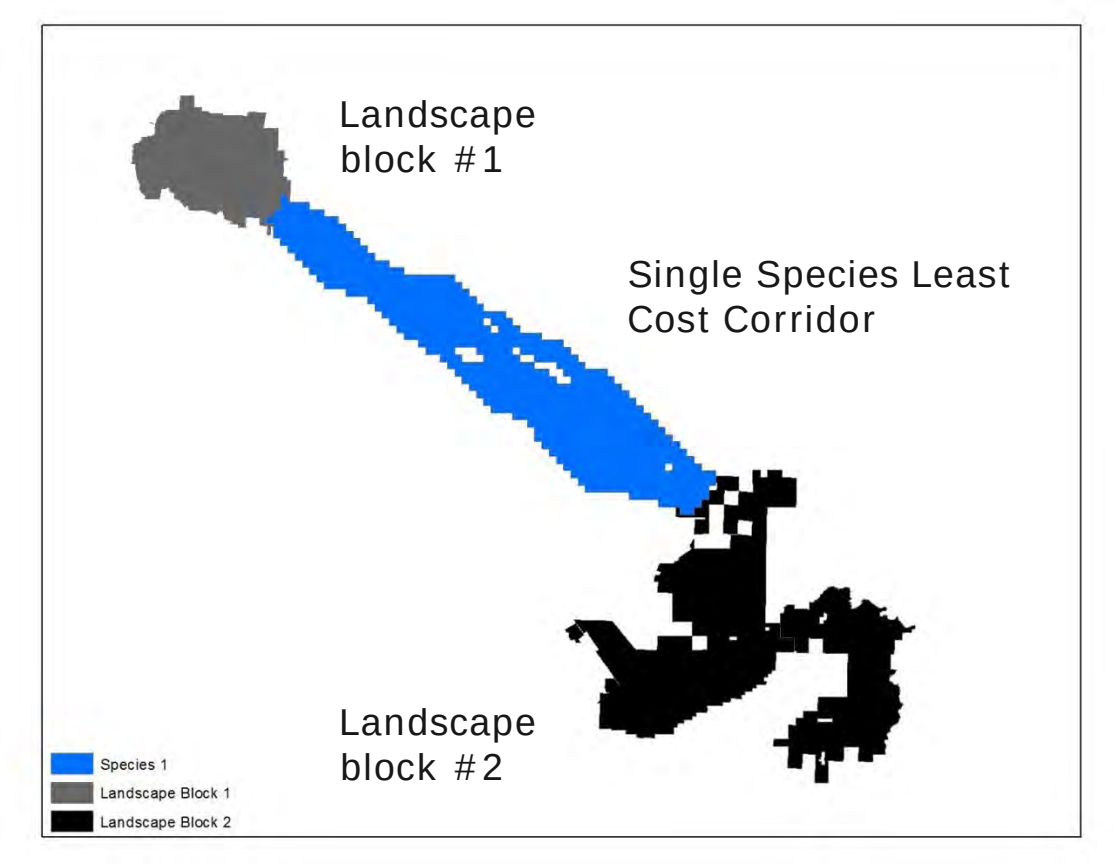


Land Facet

- Uniform topographic or geologic features
- Predict areas of habitat that are expected to remain suitable with future climate change



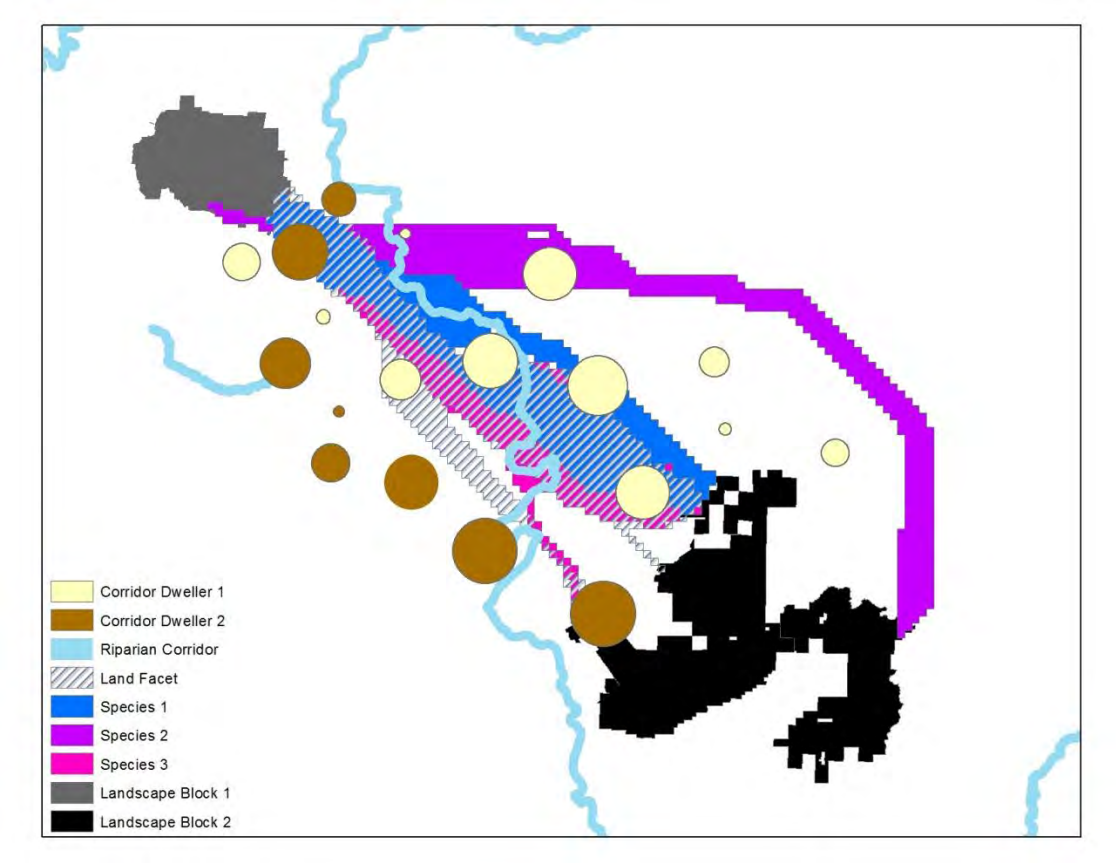
Least-Cost Modeling



- GIS analysis to find the least-cost-path
- Use habitat suitability of focal species as least cost surface

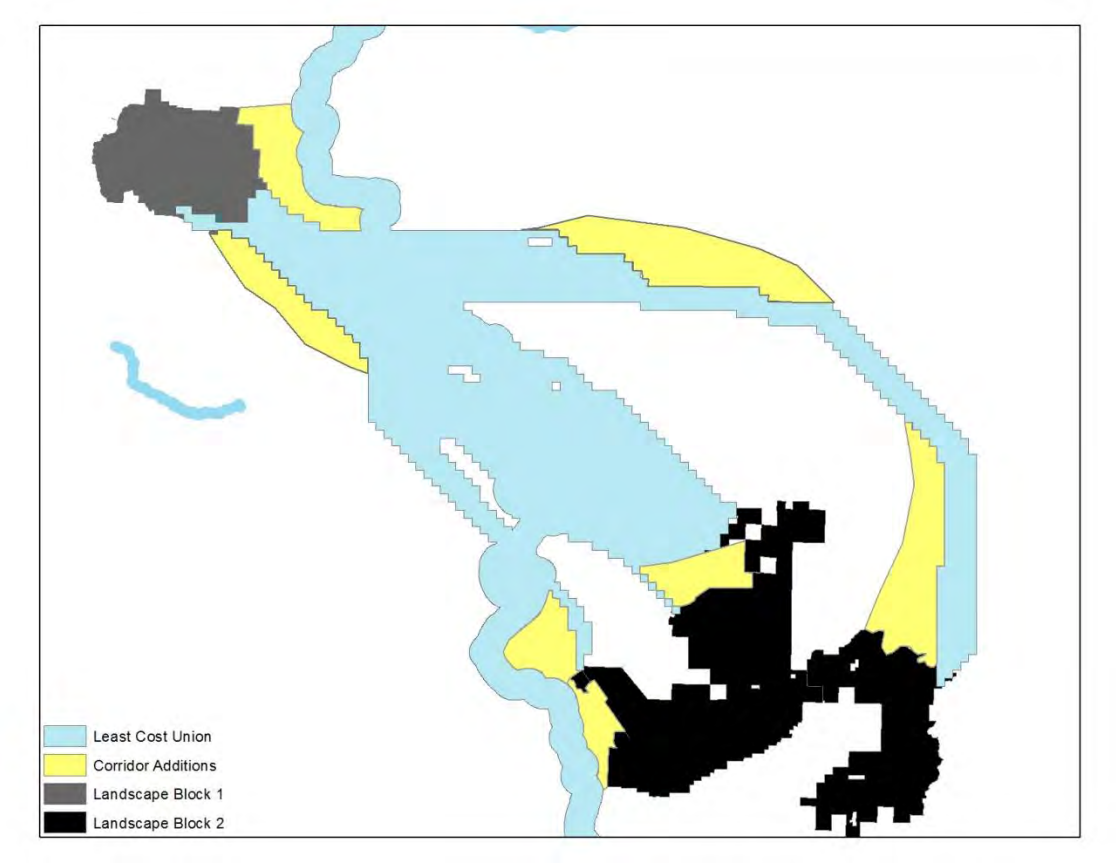
Linkage Analysis

- Focal Species corridors
- Land facet corridors
- Riparian corridors
- Habitat patches for corridor dwellers

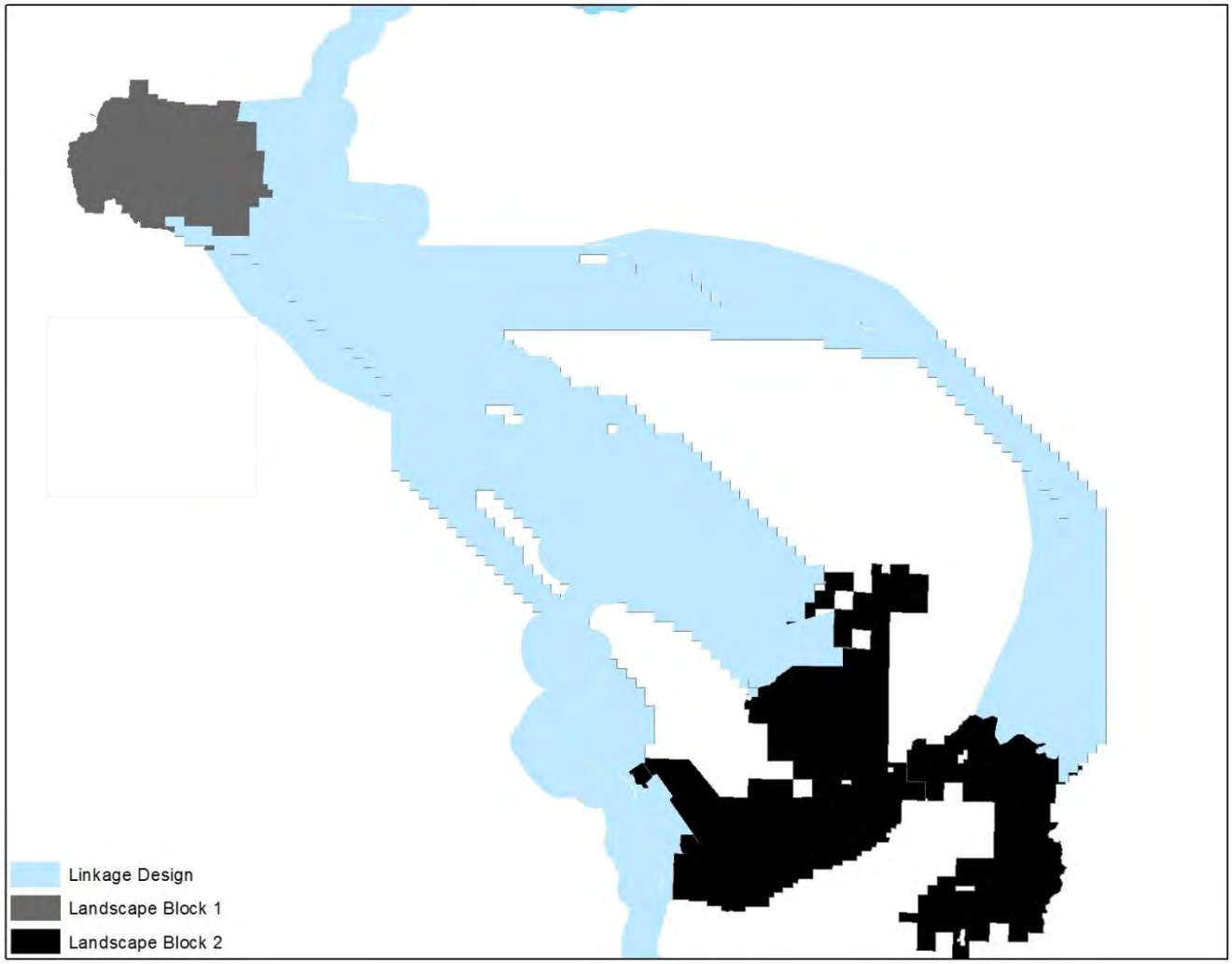


Linkage Analysis

- Least-Cost Union
- Corridor Additions



Linkage Design

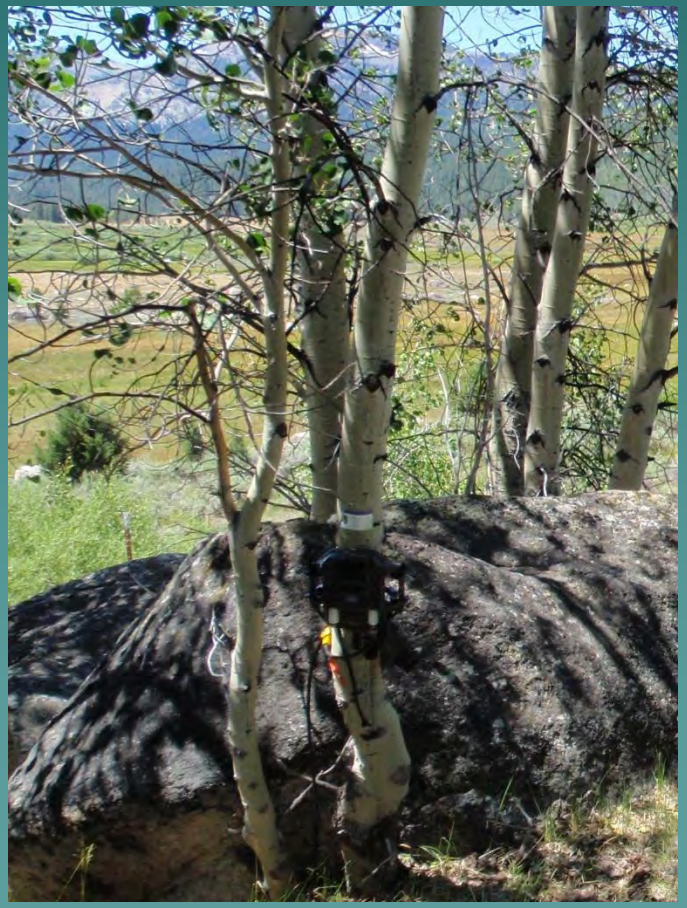


Linkage Design Uses

- Conservation Planning Activities
  - conservation prioritization
  - land-use planning
  - wildlife crossings/collision risk
- Guidance Materials
  - coordination of outreach
  - future linkage design methodology

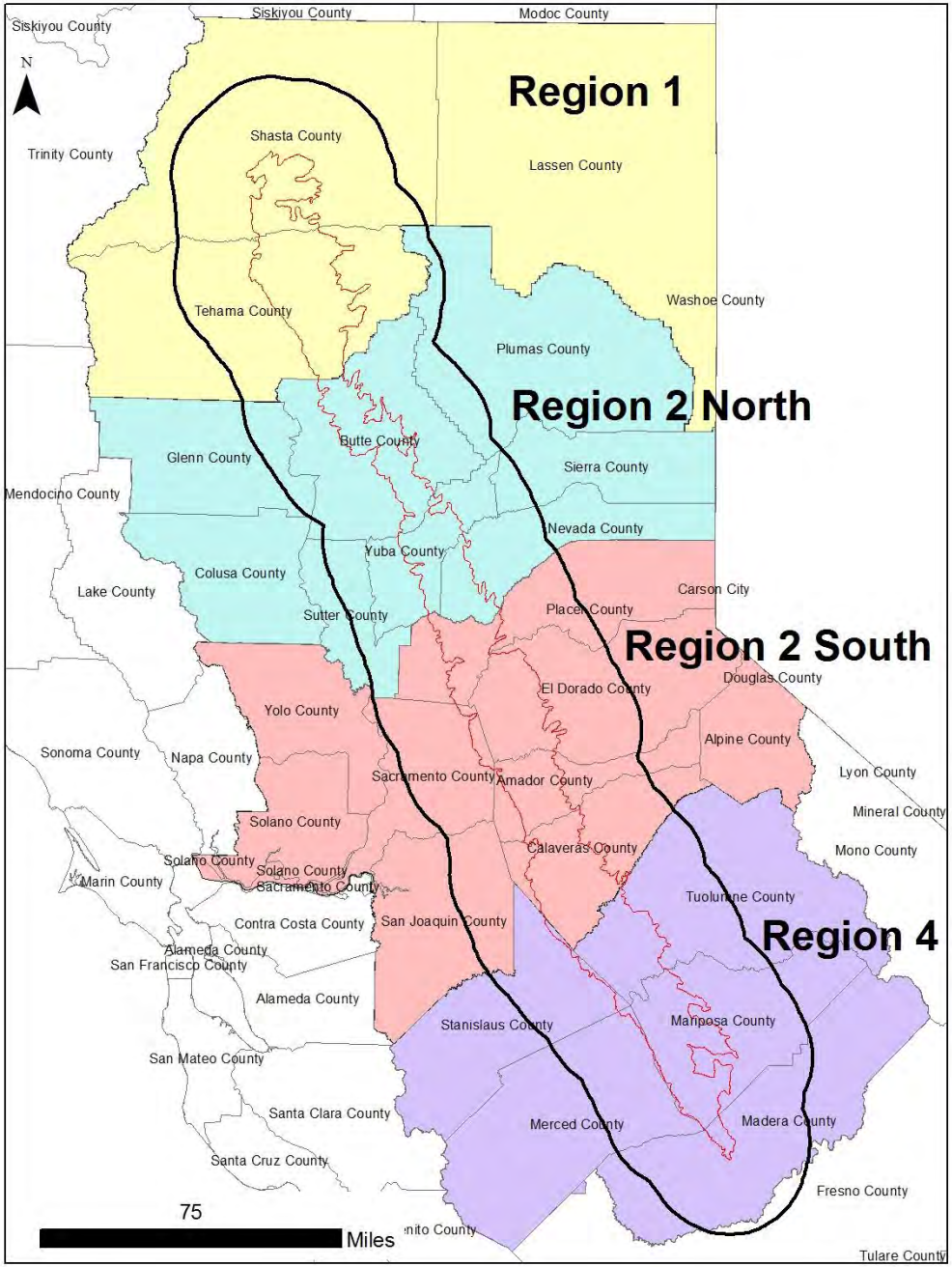
Linkage Design Uses

- Region Offices Model Evaluation



Questions

Landscape Blocks Session



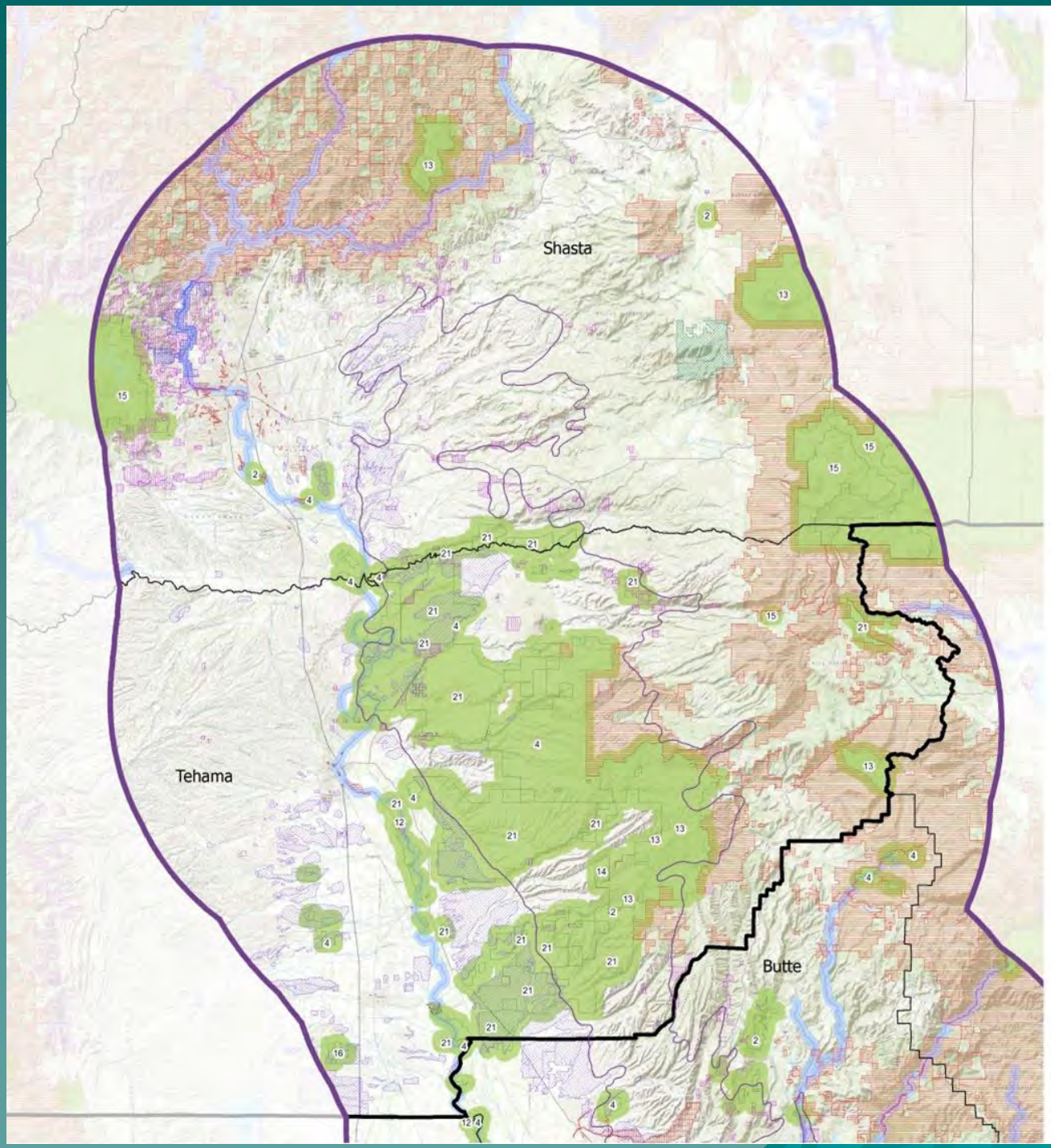
Landscape Blocks Session

- Landscape Block: Landscape blocks represent the areas on the landscape between which we will be modeling corridors. Our draft landscape blocks include protected lands managed primarily for biodiversity conservation based on USGS GAP Analysis conservation status designations (GAP 1 and 2) and lands under conservation easement.

- We are seeking input on additional lands to include as landscape blocks, which should be lands with high habitat value that are expected to maintain this habitat value in the foreseeable future.

Landscape Blocks Session

- Draw/mark area on map
  - Important conservation lands
  - Important Habitat Areas
  - Connectivity/Movement Areas
- Provide details of area on datasheet and to map recorder



Northern Sierra Nevada Foothills Connectivity Project (NSNF)

Draft Landscape Blocks
Region 1

Draft Block w/ Ownership Boundary
NSNF USDA Eco Regions
NSNF USDA Eco Regions 30km Buffer

GAP 3 Lands

Forest Service (USFS)
Bureau of Land Management (BLM)
Bureau of Reclamation (BOR)
State Park and Recreation
Other State Land
City Land
Vernal Pool

Region 1
County
Major River 500m Buffer

Draft Block Ownership

1 - Audubon Society
2 - Bureau of Land Management (BLM)
3 - Bureau of Reclamation (BOR)
4 - CA Dept. of Fish & Wildlife
5 - CA Dept. of Parks & Recreation
6 - CA Dept. of Transportation
7 - California State Coastal Conservancy
8 - California State Lands Commission
9 - City Land
10 - County Land
11 - Department of Defense (DOD)
12 - Fish & Wildlife Service (FWS)
13 - Forest Service (USFS)
14 - Local Land Trust
15 - National Park Service (NPS)
16 - Natural Resources Conservation Service
17 - Other Federal Land
18 - Other State Land
19 - Private University, Other Conservation
20 - Regional Agency Land
21 - The Nature Conservancy (TNC)
22 - University of California
23 - Unknown

Note: Landscape blocks represent the areas on the landscape between which we will be modeling corridors. Draft landscape blocks include protected lands based on USGS GAP Analysis conservation status designations (GAP 1 and 2) and lands under conservation easement.

0 5 10 20 Miles
0 5 10 20 Kilometers

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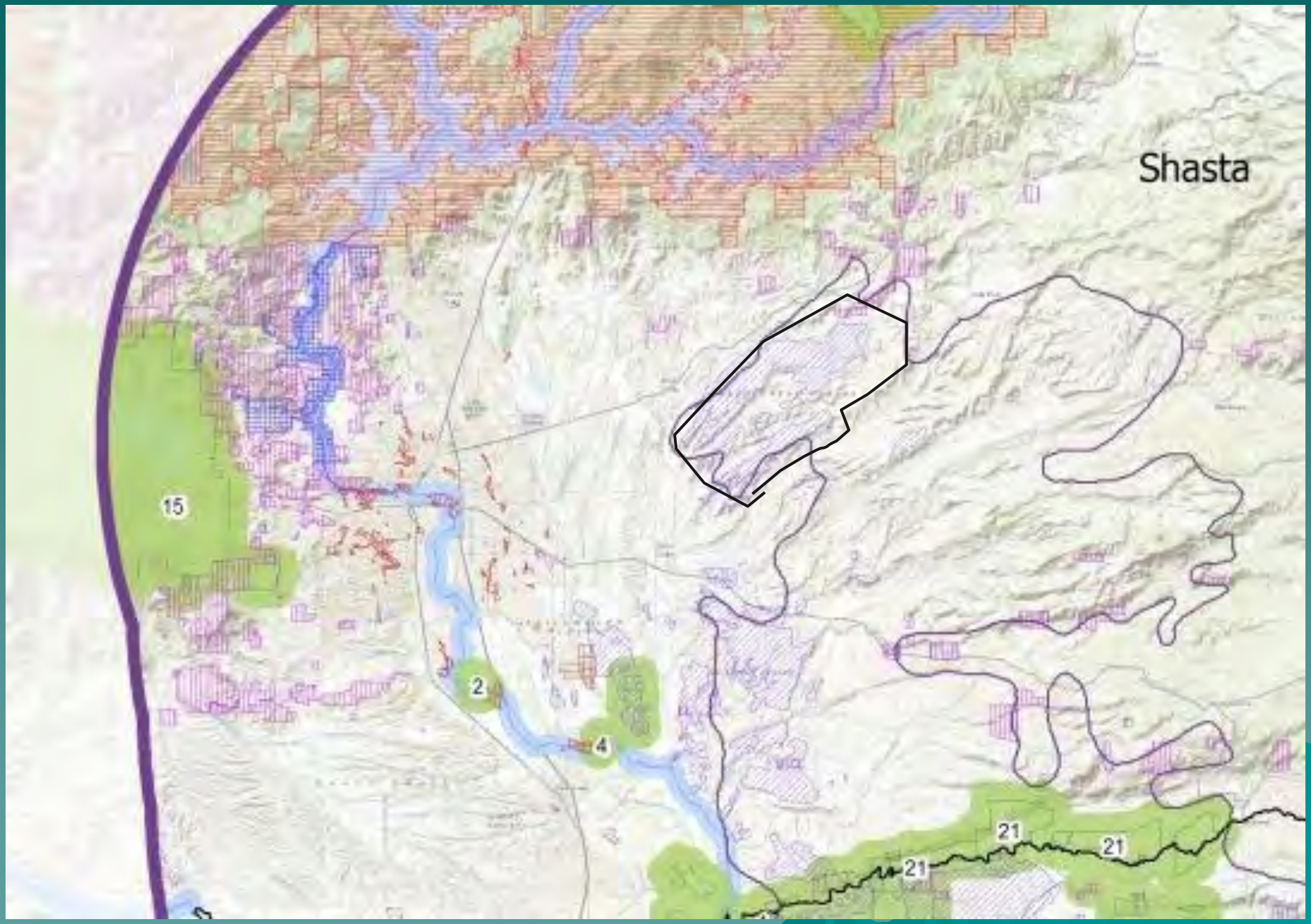
CDFW Biogeographic Data Branch, 2013


Shasta
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Northern Sierra Nevada Foothills Stakeholder Meeting Datasheet

Your Name: _____ Email: _____

Landscape Blocks

Region Map | Landscape Block # | Description of Area | Why is this area important for connectivity?

Land ownership/management:
(please circle) Private Easement State Federal other:

Region Map | Landscape Block # | Description of Area | Why is this area important for connectivity?

Land ownership/management:
(please circle) Private Easement State Federal other:

Region Map | Landscape Block # | Description of Area | Why is this area important for connectivity?

Land ownership/management:
(please circle) Private Easement State Federal other:

Region Map | Landscape Block # | Description of Area | Why is this area important for connectivity?

Land ownership/management:
(please circle) Private Easement State Federal other:

Are there draft blocks that should be excluded? _____

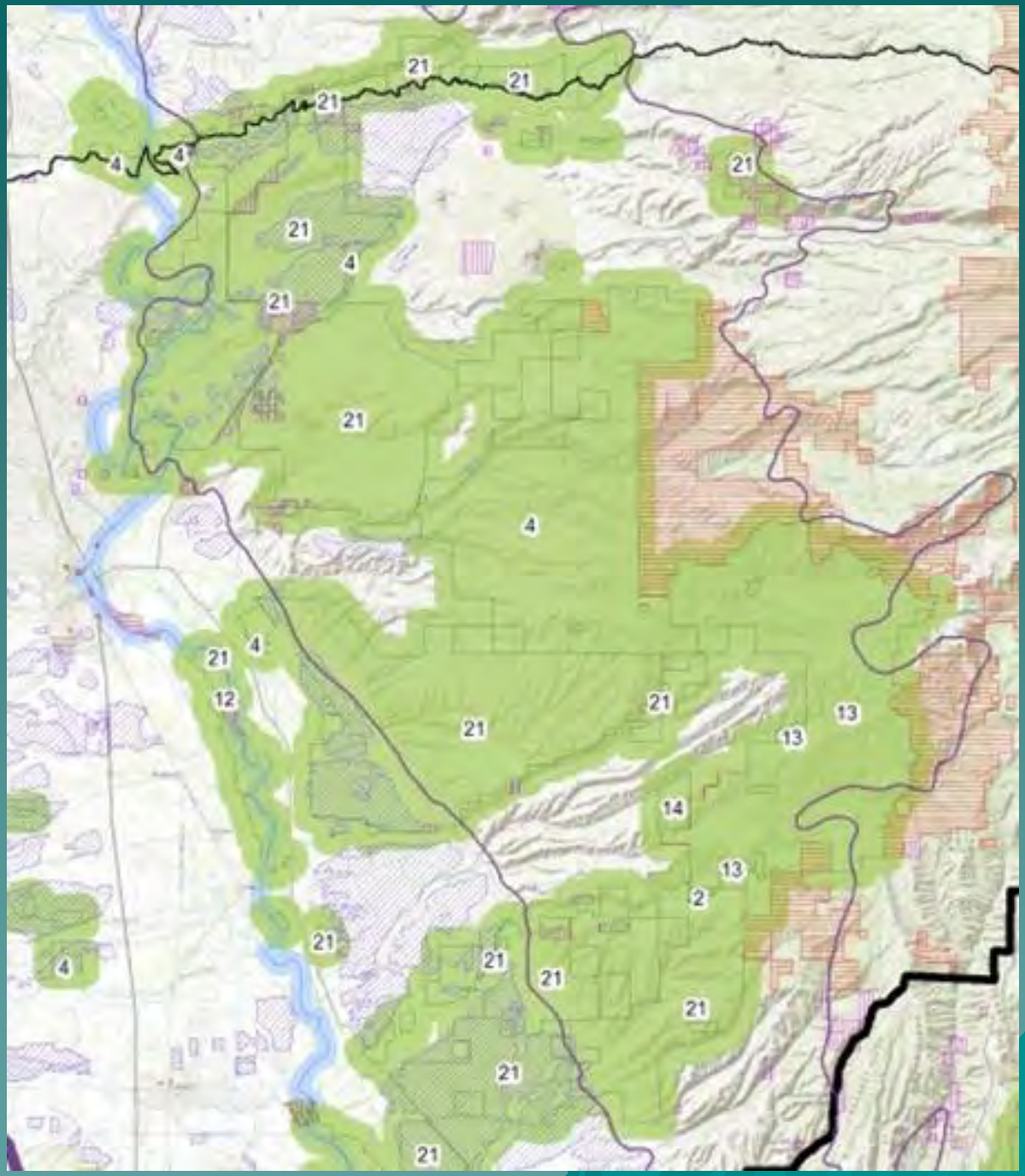
Are there important areas of connectivity inside a landscape block? _____

Do you have maps of connectivity or conservation priority areas that may be useful for our block selection or modeling? _____

If so please include contact and email information. _____

Comments or suggestions on landscape blocks. _____

_____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Northern Sierra Nevada Foothills Stakeholder Meeting Datasheet

Your Name: _____ Email: _____

Focal Species: _____

Region Map | Area # | Description of Area | What is this area important for? (breeding, migration)

Land ownership/management:
(please circle) Private Easement State Federal other:

Region Map | Area # | Description of Area | What is this area important for? (breeding, migration)

Land ownership/management:
(please circle) Private Easement State Federal other:

Region Map | Area # | Description of Area | What is this area important for? (breeding, migration)

Land ownership/management:
(please circle) Private Easement State Federal other:

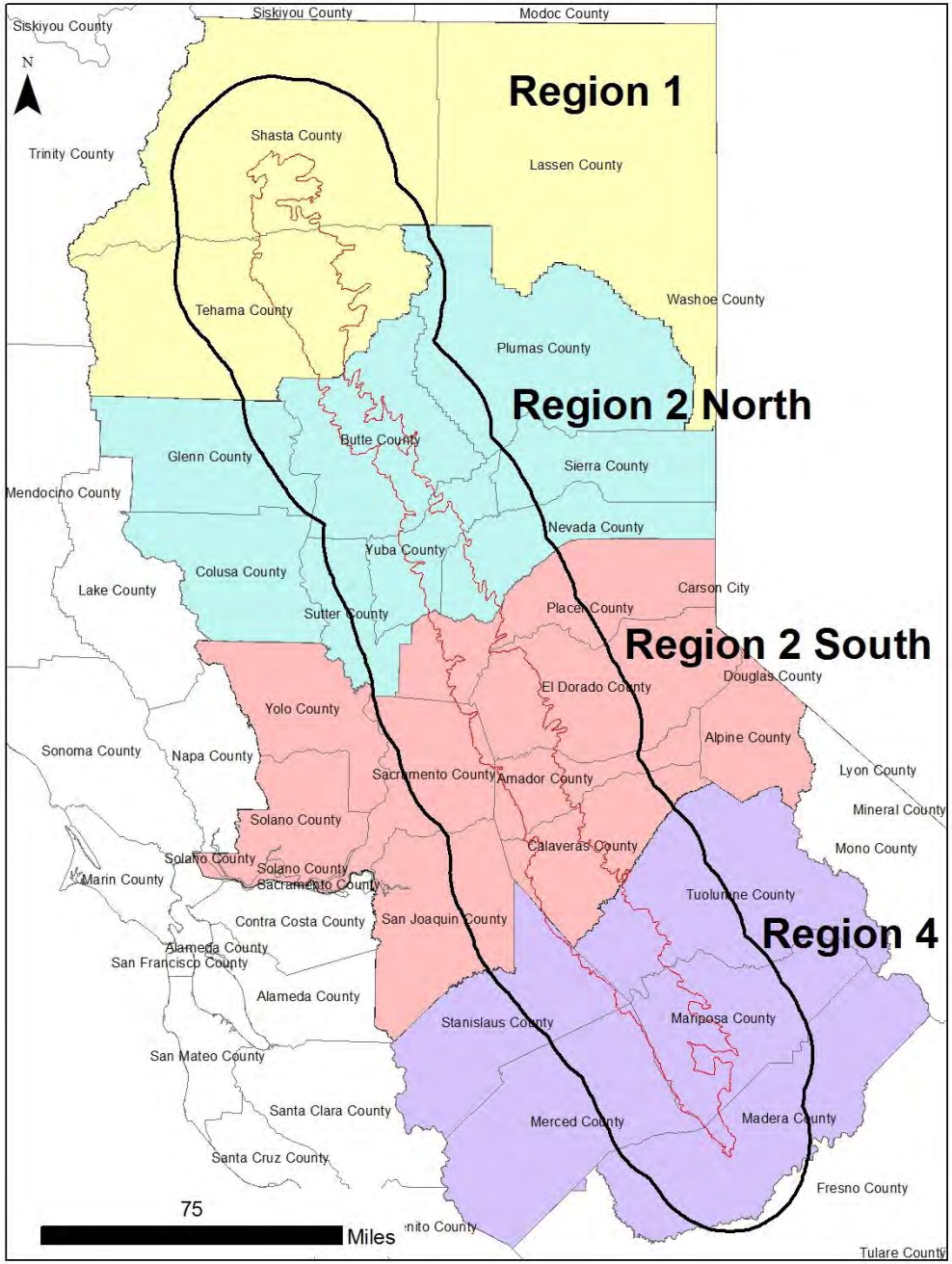
Region Map | Area # | Description of Area | What is this area important for? (breeding, migration)

Land ownership/management:
(please circle) Private Easement State Federal other:

Are there particular habitat types or natural corridors that the species uses for movement? _____

Are you aware of other habitat or connectivity projects for this species in the state? _____

Would you like to be contacted to review habitat model results? _____

Comments or suggestions on focal species. _____

Landscape Blocks Session