



Rapid Ecoregional Assessment

**Assessment Management
Team Meeting # 5 –
Preliminary Assessment
Results
Day 1**



Introductions & Updates (BLM)



AMT Workshop V: Outline (General)

Monday September 26, 2011

- 8:00-8:35a Welcome, Introductions, and Overview
- 8:35-8:45a Update on the WGA Southwest Decision Support System (C. Bailey)
- 8:45-12p Answering “where are they” questions & scenarios
- 12:00-1:00p Lunch break, on your own
- 1:00-5:00p Assessing current ecological integrity

Tuesday September 27, 2011

- 8:00-8:30a Reconvene, Overview of the day’s agenda
- 8:30p-10:00a 2025 land use scenario
- 10:15-12:00p Climate Space Trends analysis (how is climate changing?)
- 12:00p Lunch (on your own)
- 1:00-2:15p Climate change effects (how are CEs changing?)
- 2:30-4:00p Final report outline/product formats (Ford)
- 4:00-5:00 Discussion, recap parking lot items, & identify new agenda items

Wednesday September 28, 2011

- 1:00p CBR specific—sage CEs focus; other remaining issues
- 3:00p Wrap-up
- 4:00 p.m. Adjourn

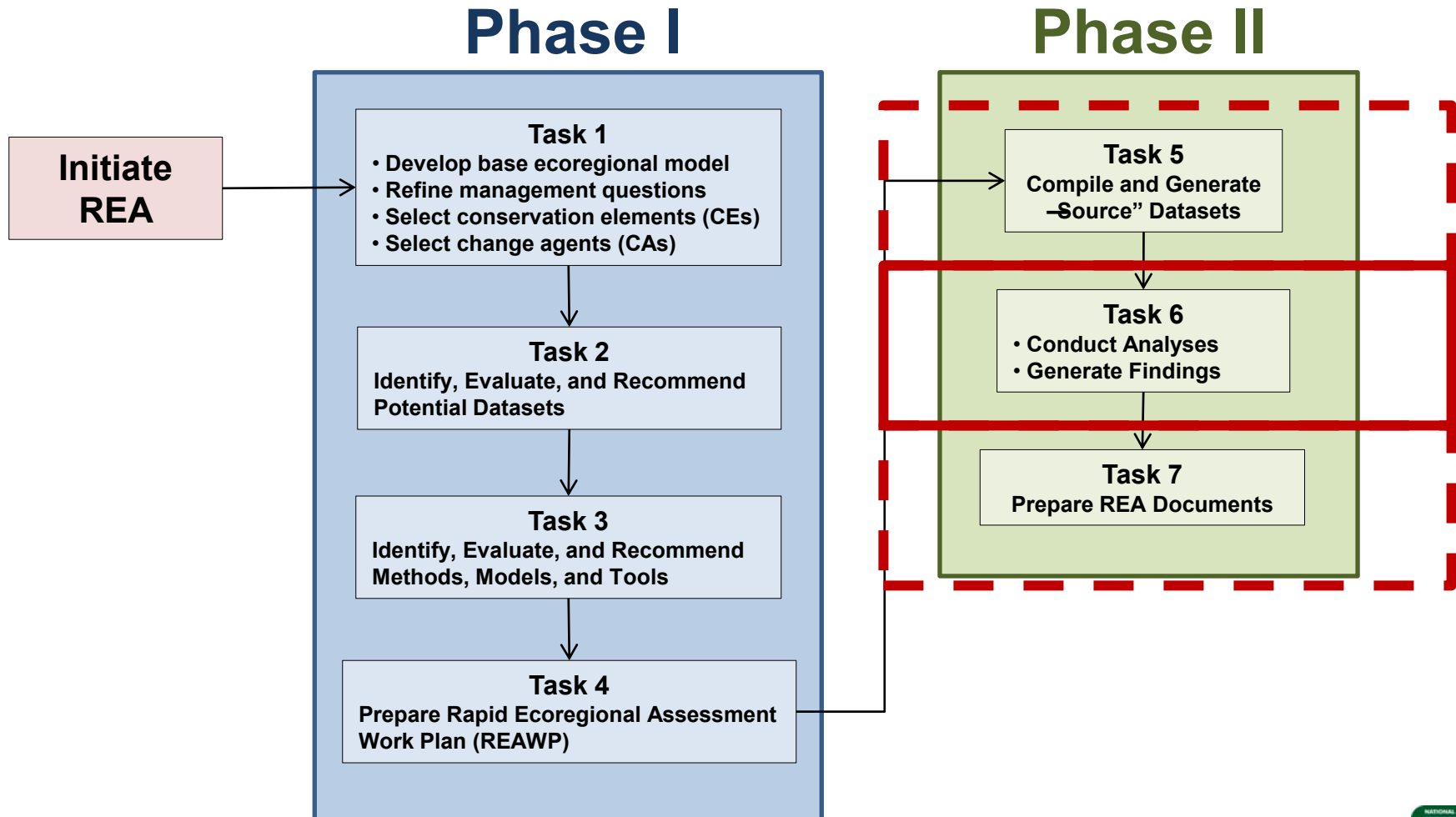


CBR & MBR REAs

Much data compilation, generation, and assessment for common MQs will be done across both regions



REA Workflow



Overview of Phase II Objectives

- Task 5: Finish compilation and generation of assessment inputs: CE distributions, CA distributions, reporting units, ancillary inputs to models
- Task 6: Conduct the assessment by running models that answer the MQs, generate maps and tabular results
- Task 7: write the REA report and compile all final deliverables

Timelines

Central

Mojave

Phase I

July 2010 - May 2011

Task 1

2-Sep-2010

2-Sep-2010

Task 2

22-Nov-2010

6-Dec-2010

Task 3

5-Mar-2011

4-Mar-2011

Task 4

21-May-2011

25-May-2011

Phase II

May 2011 - February 2012

Task 5

30-Aug-2011

30-Aug-2011

Task 6

14-Nov-2011

16-Dec-2011

Task 7

22-Mar-2012

2-Apr-2012

Note ~ 6 week extension on timeline due to late RE data receipt



Phase II AMT Involvement

- Topical web meetings (e.g., CE distributions, recreation prototype review) **conducted**
- AMT 5 (Task 6) 2-3 day intensive review of data generation and assessment results
- AMT 6 (Task 7) review of REA report and web meeting to discuss key issues

Update on the WGA Southwest Decision Support System (C. Bailey)



Answering —where are they” MQs: preliminary findings and reporting options

**AMT input: settle on final reporting units, initial
input on how CE occurrence reported by unit**



Distributions of Conservation Elements - Where are they?

- **CEs included here: xsection of terr./aq coarse filter, sensitive soils, spp assemblage, landscape species, local species**
- **Places – ACECs**
- **Assessment – GapAnalysis**



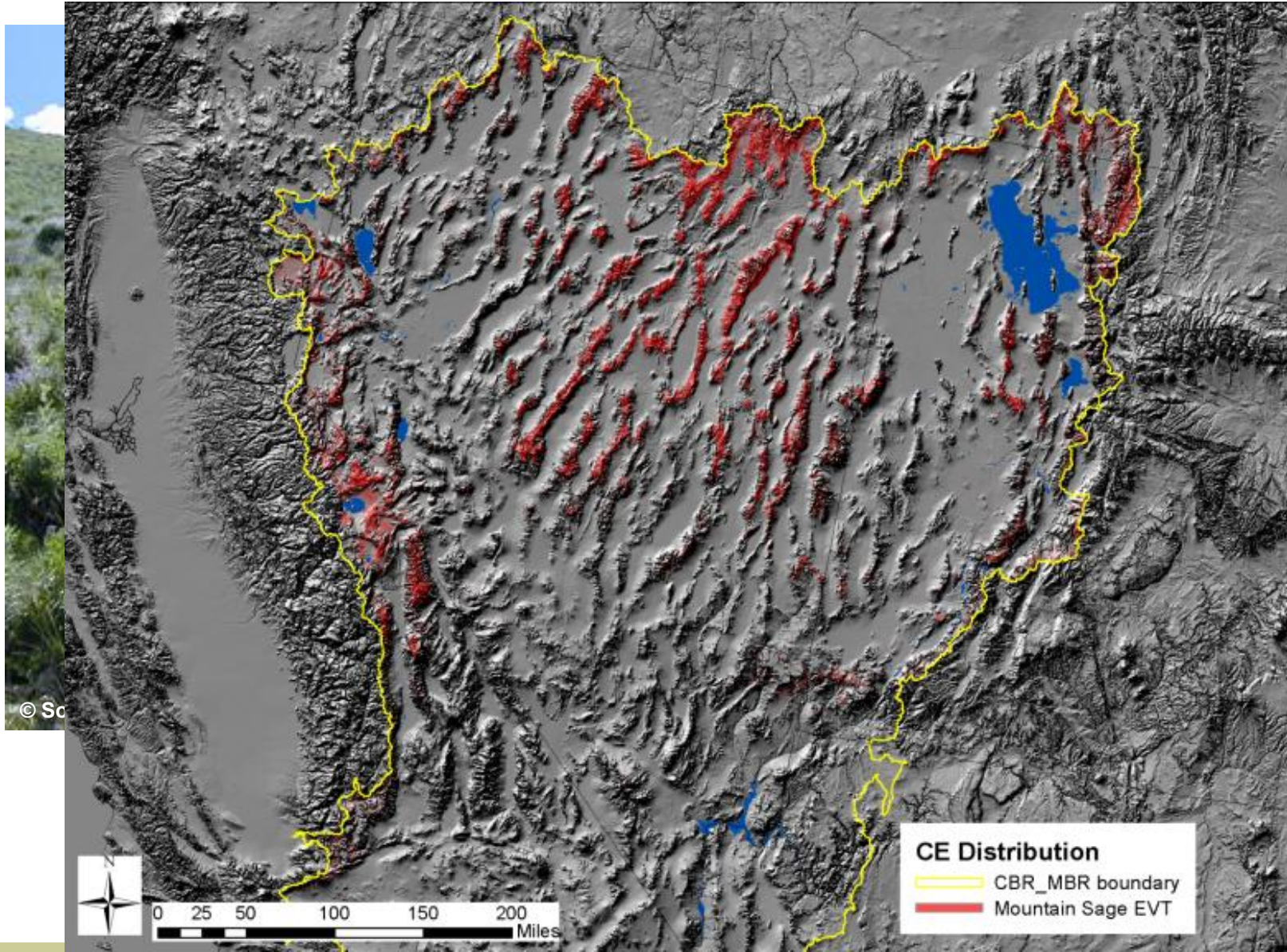
Distributions of Conservation Elements - Where are they?

CEs included here:
terr./aq coarse filter
sensitive soils
species assemblage
landscape species
local species



Inter-Mountain Basins

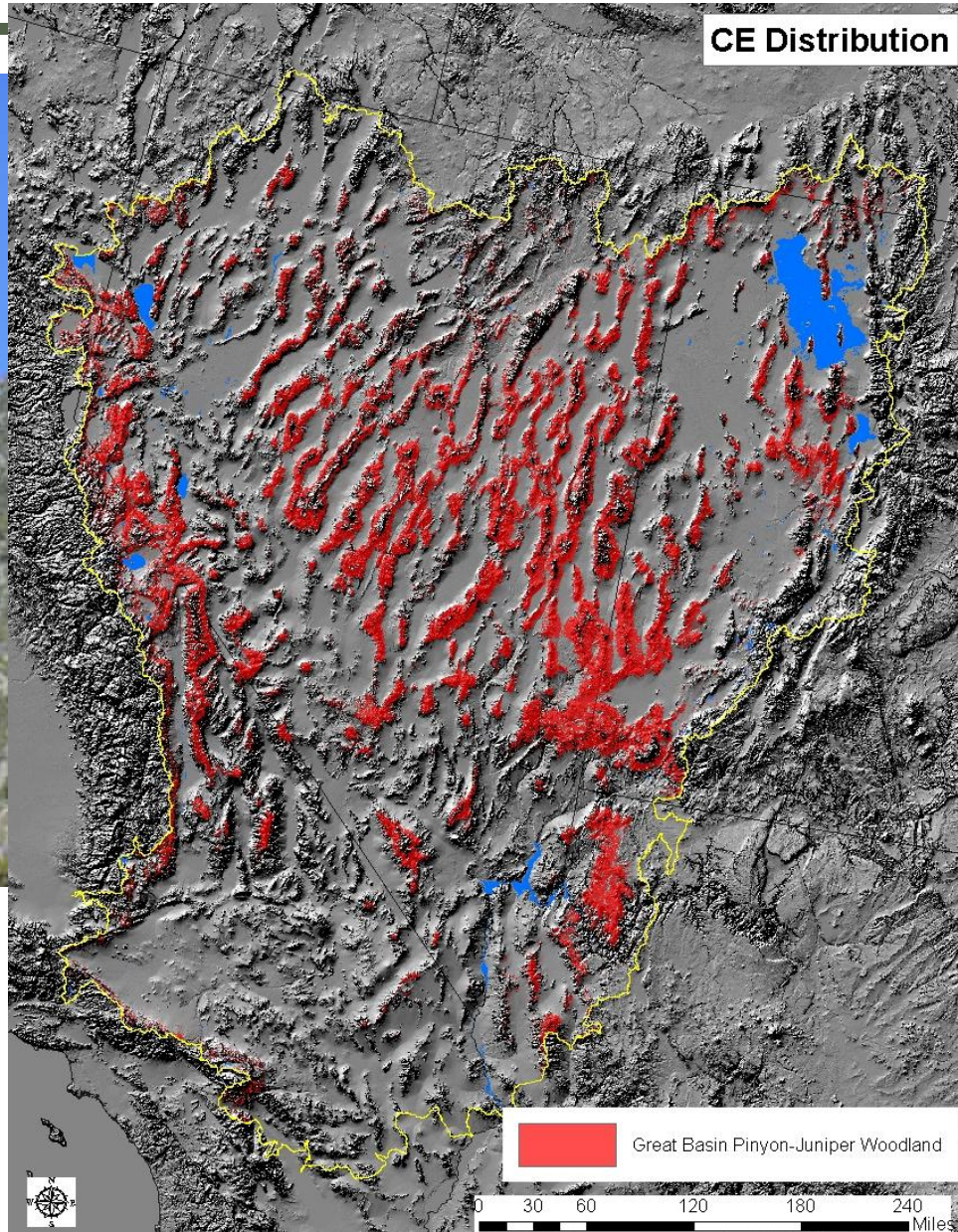
Montane Sagebrush Steppe



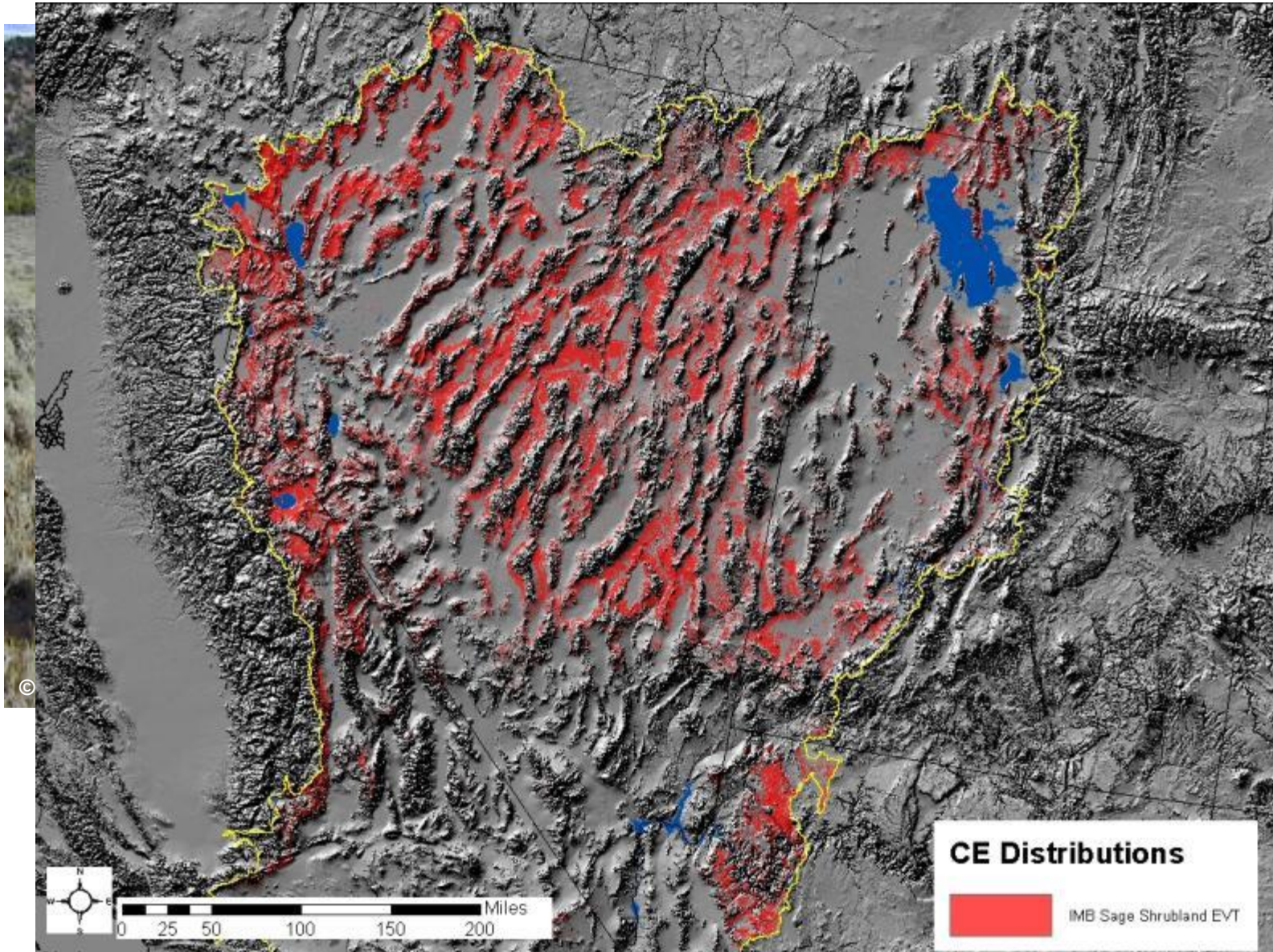
Great Basin Pinyon-Juniper Woodland



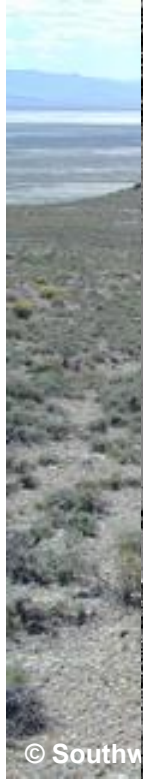
© Southwest ReGAP



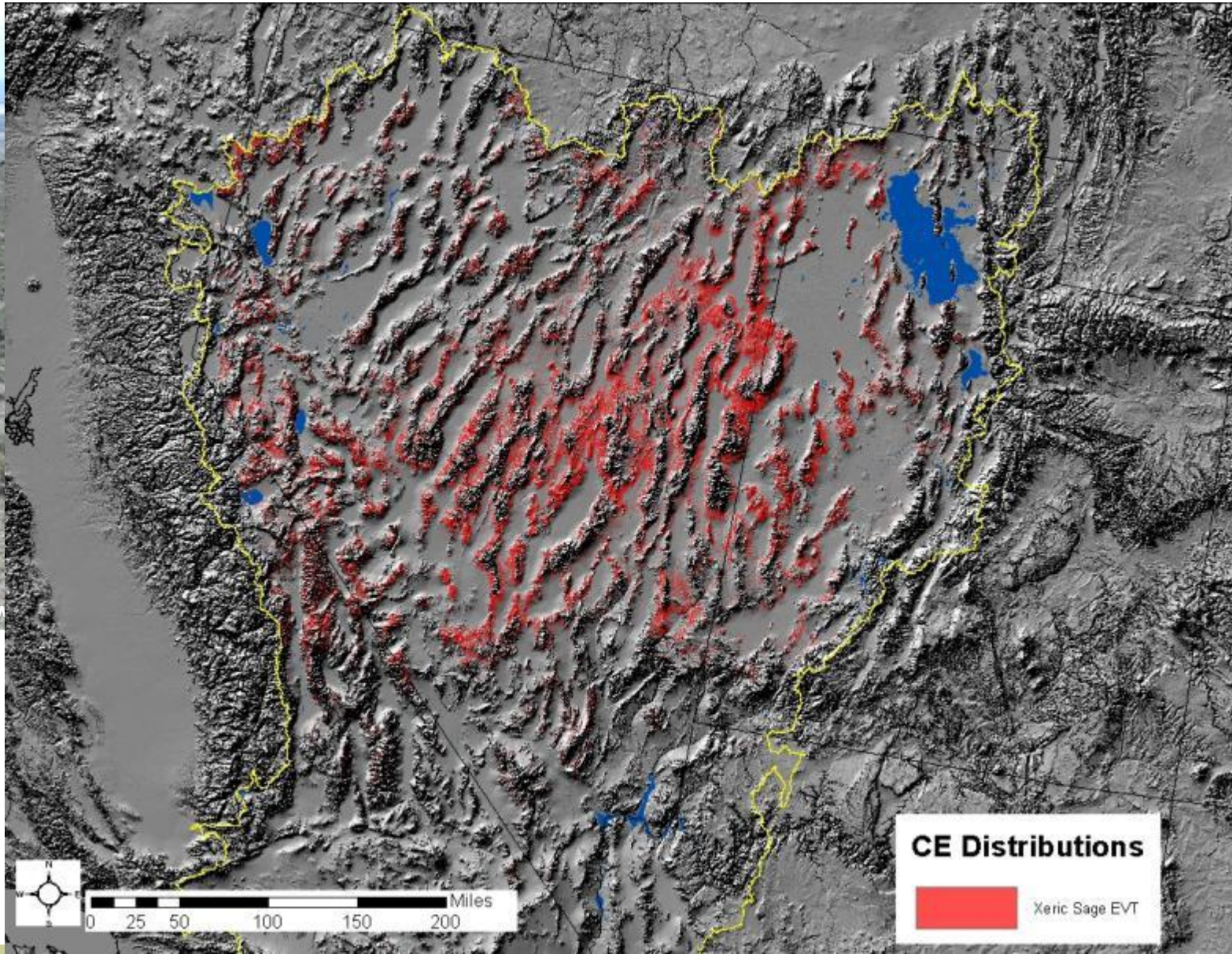
Inter-Mountain Basins Big Sagebrush Shrubland



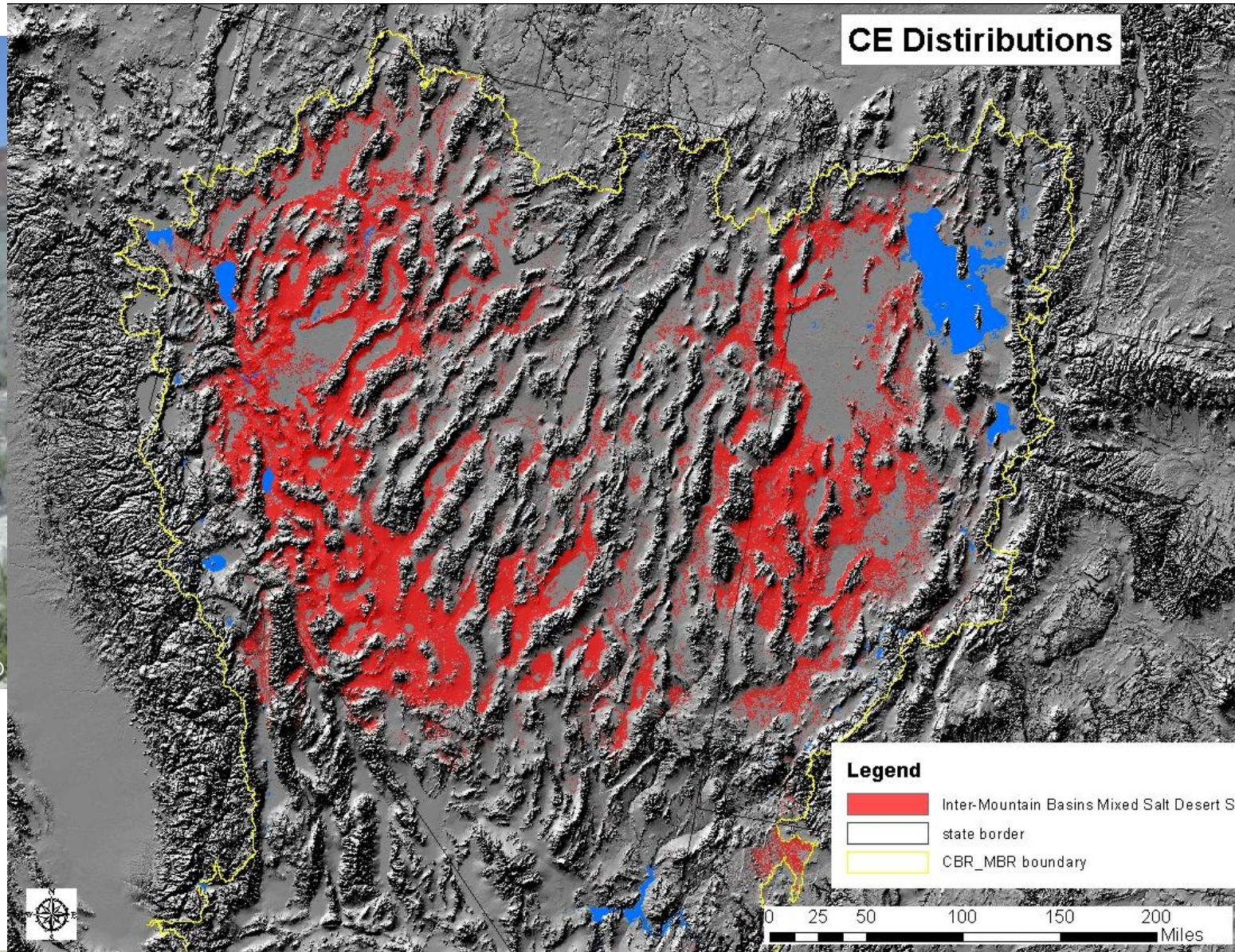
Great Basin Xeric Sagebrush Shrubland



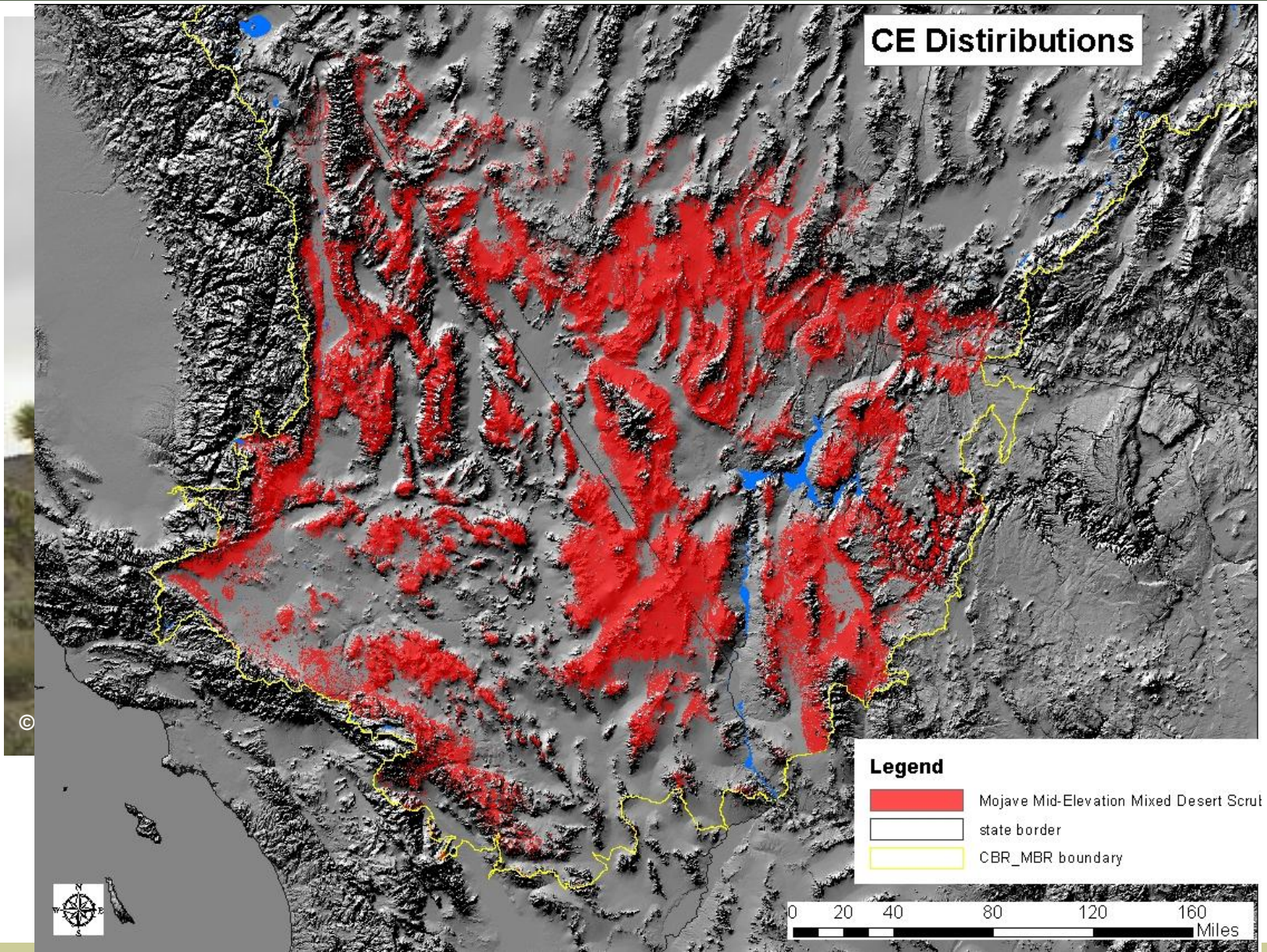
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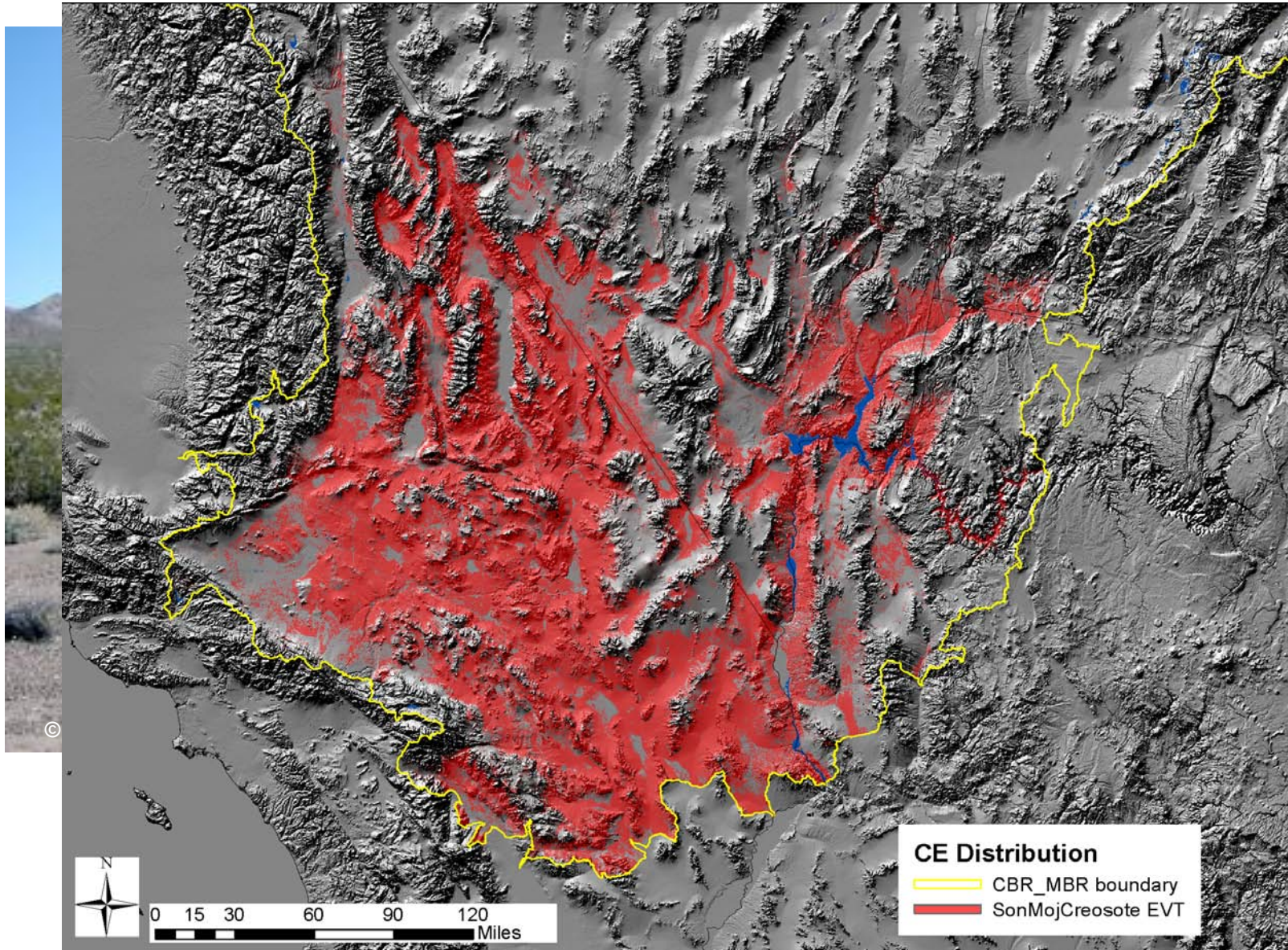
Inter-Mountain Basins Mixed Salt Desert Scrub



Mojave Mid-Elevation Desert Scrub

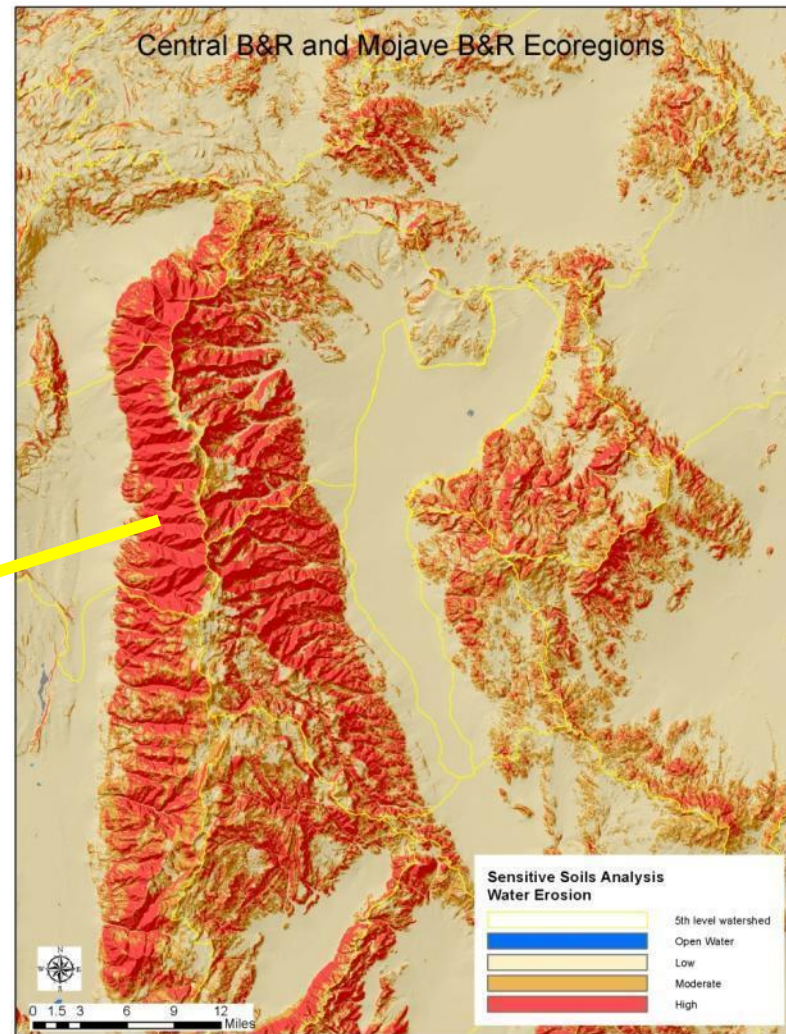
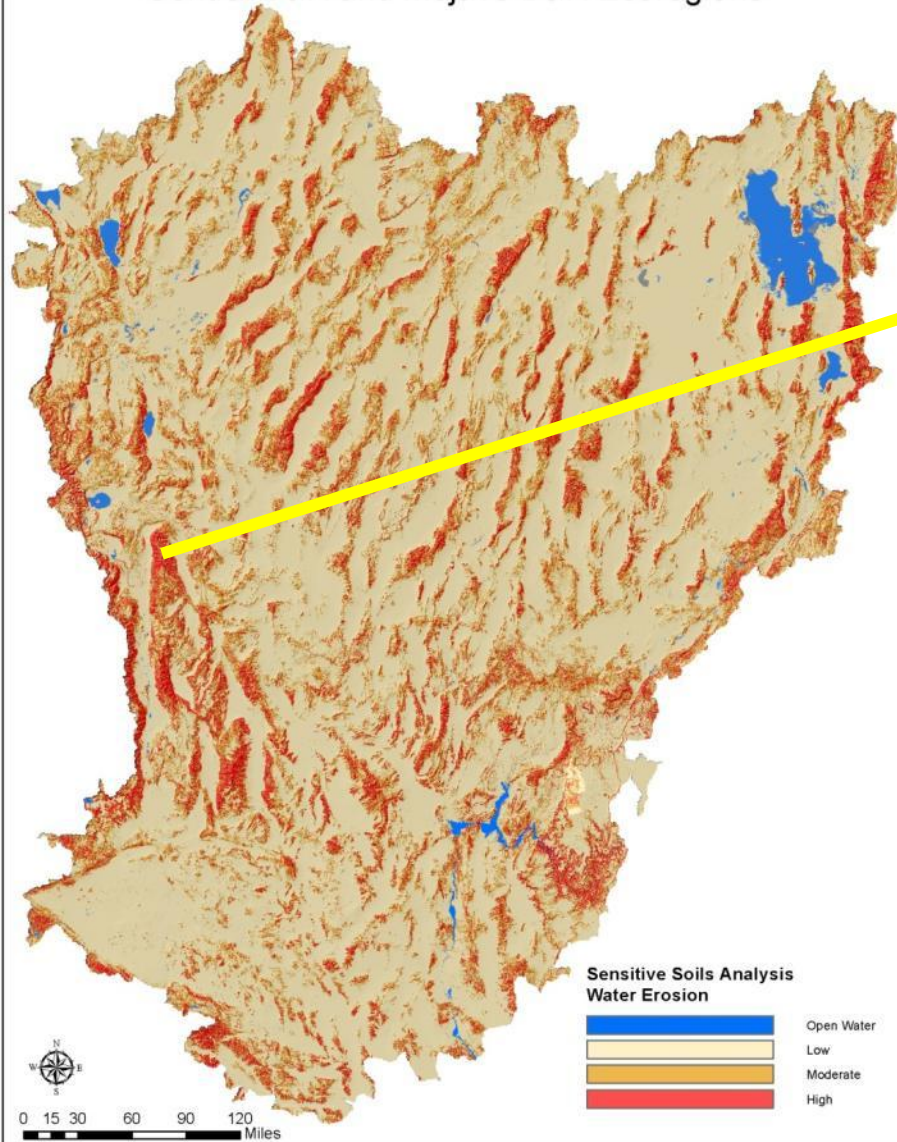


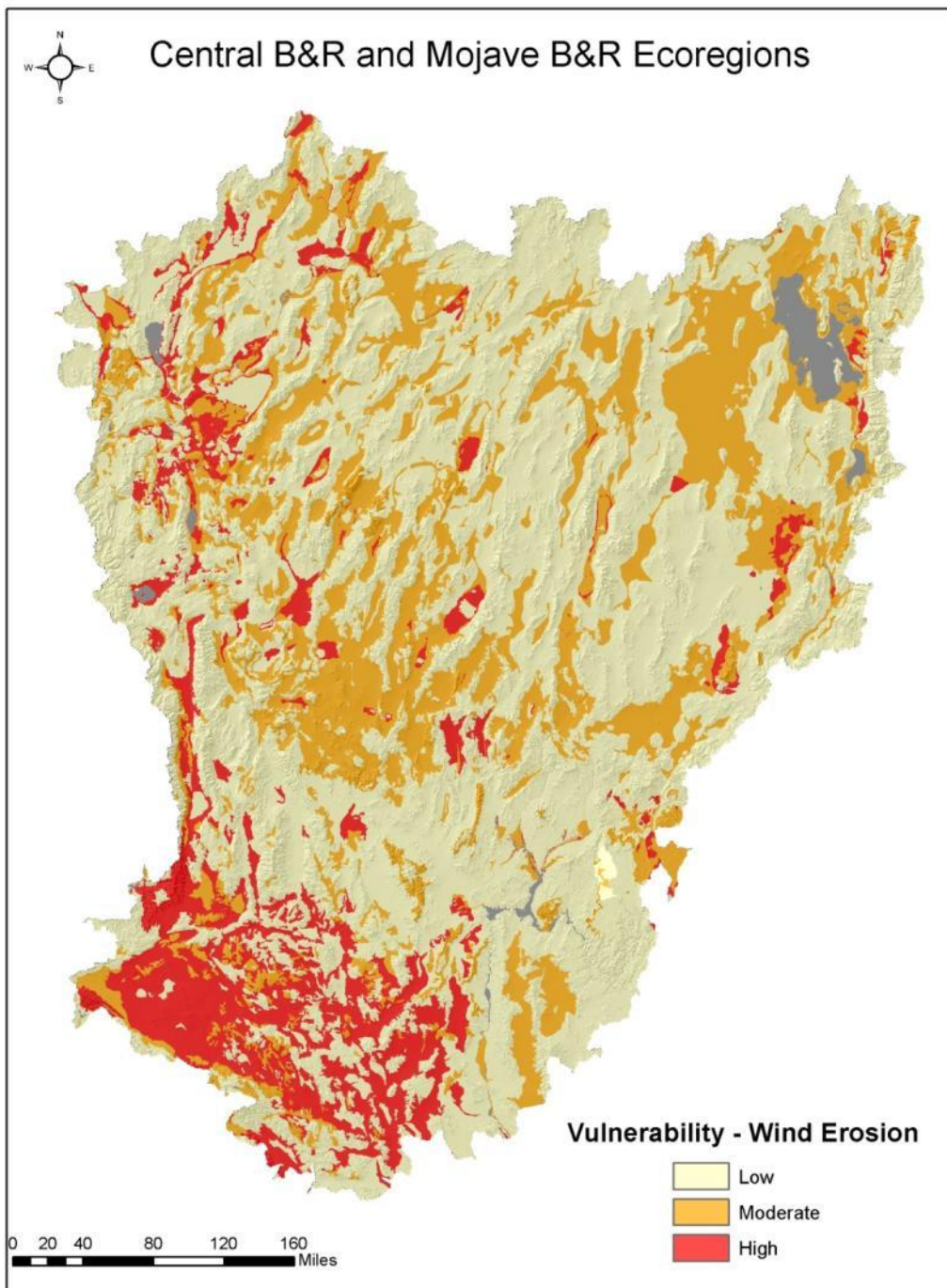
Sonora-Mojave Creosote-White Bursage Desert Scrub



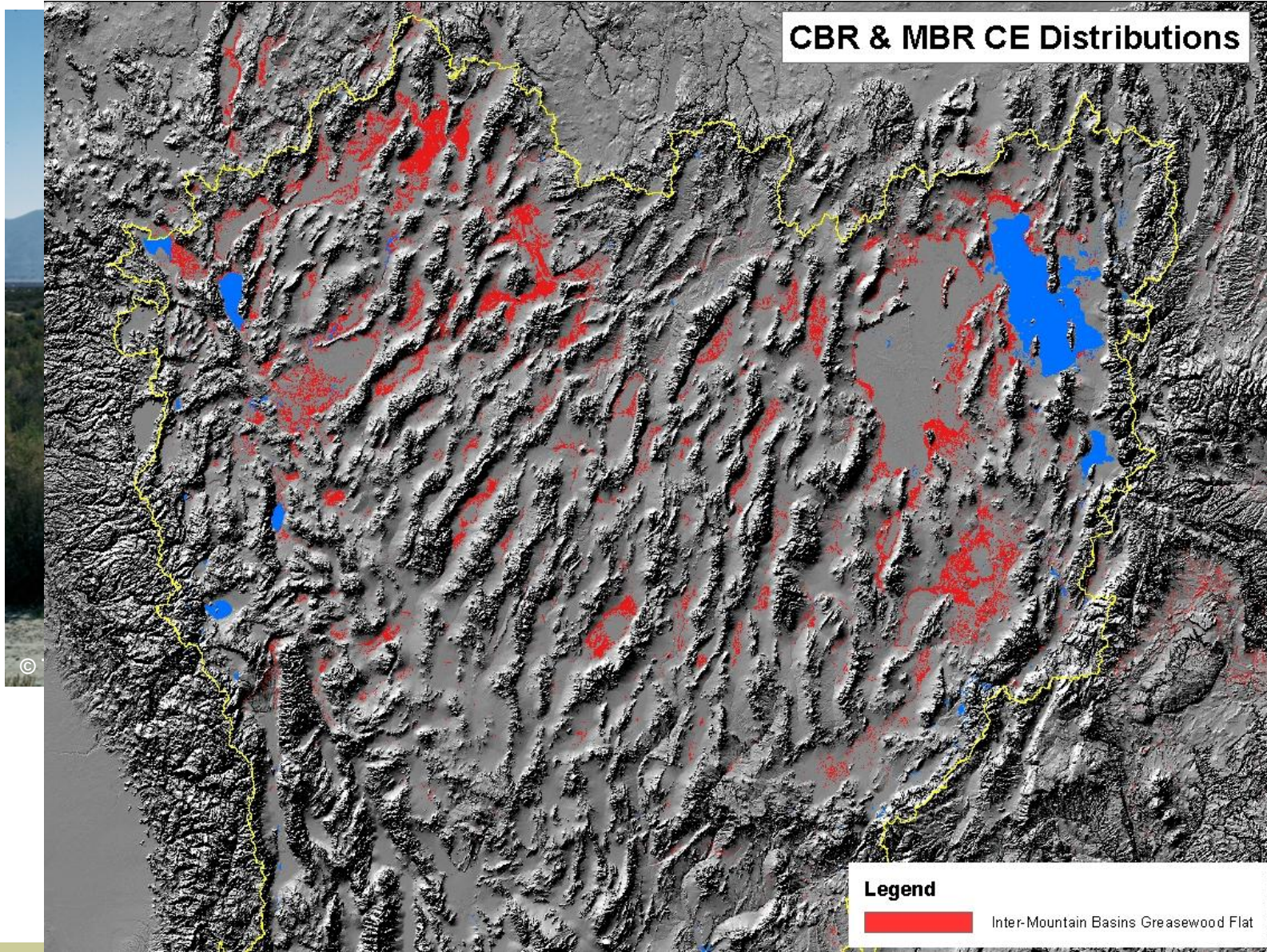
Water Erosion

Central B&R and Mojave B&R Ecoregions

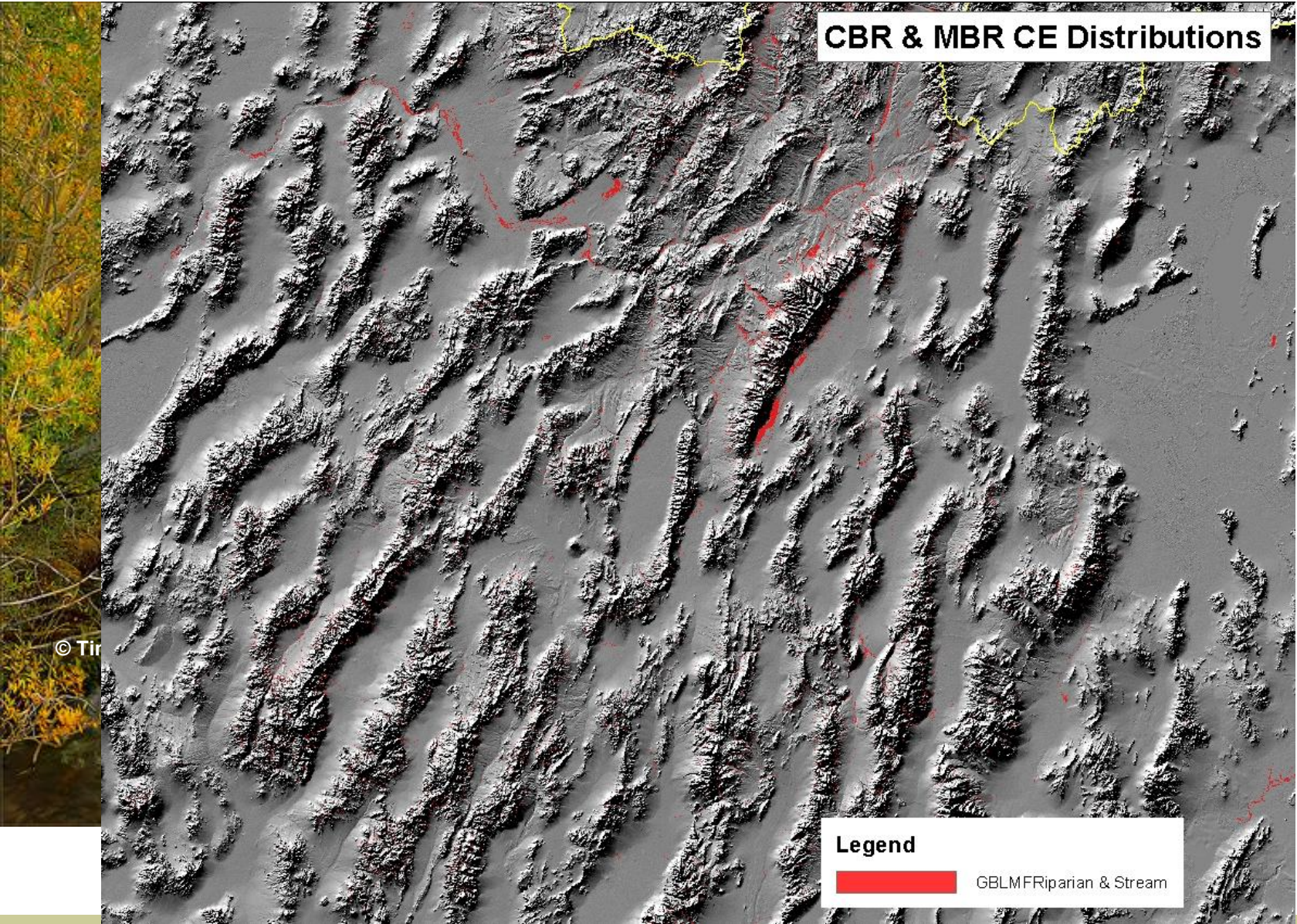




Inter-Mountain Basins Greasewood Flat



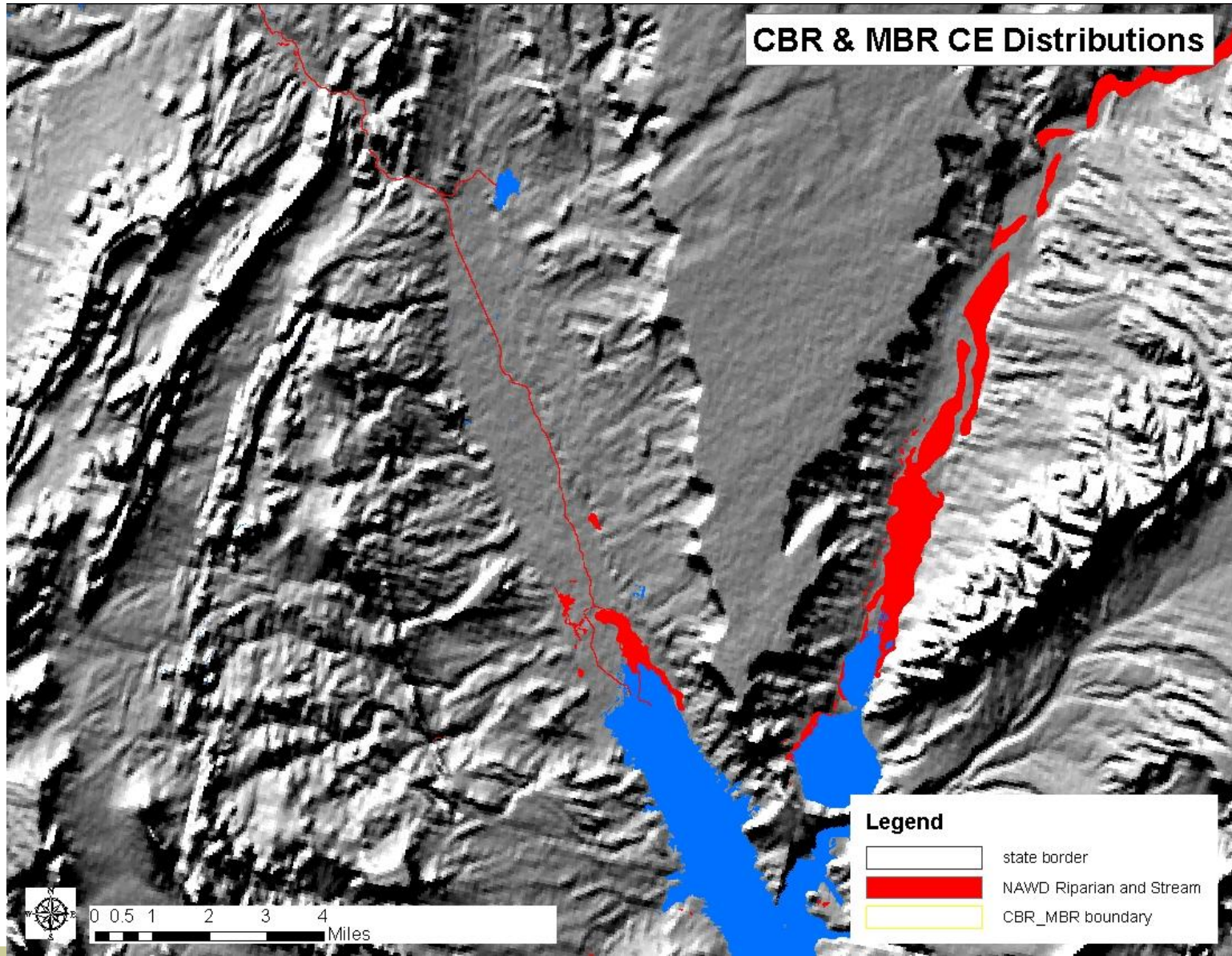
Great Basin Lower Montane Riparian and Stream



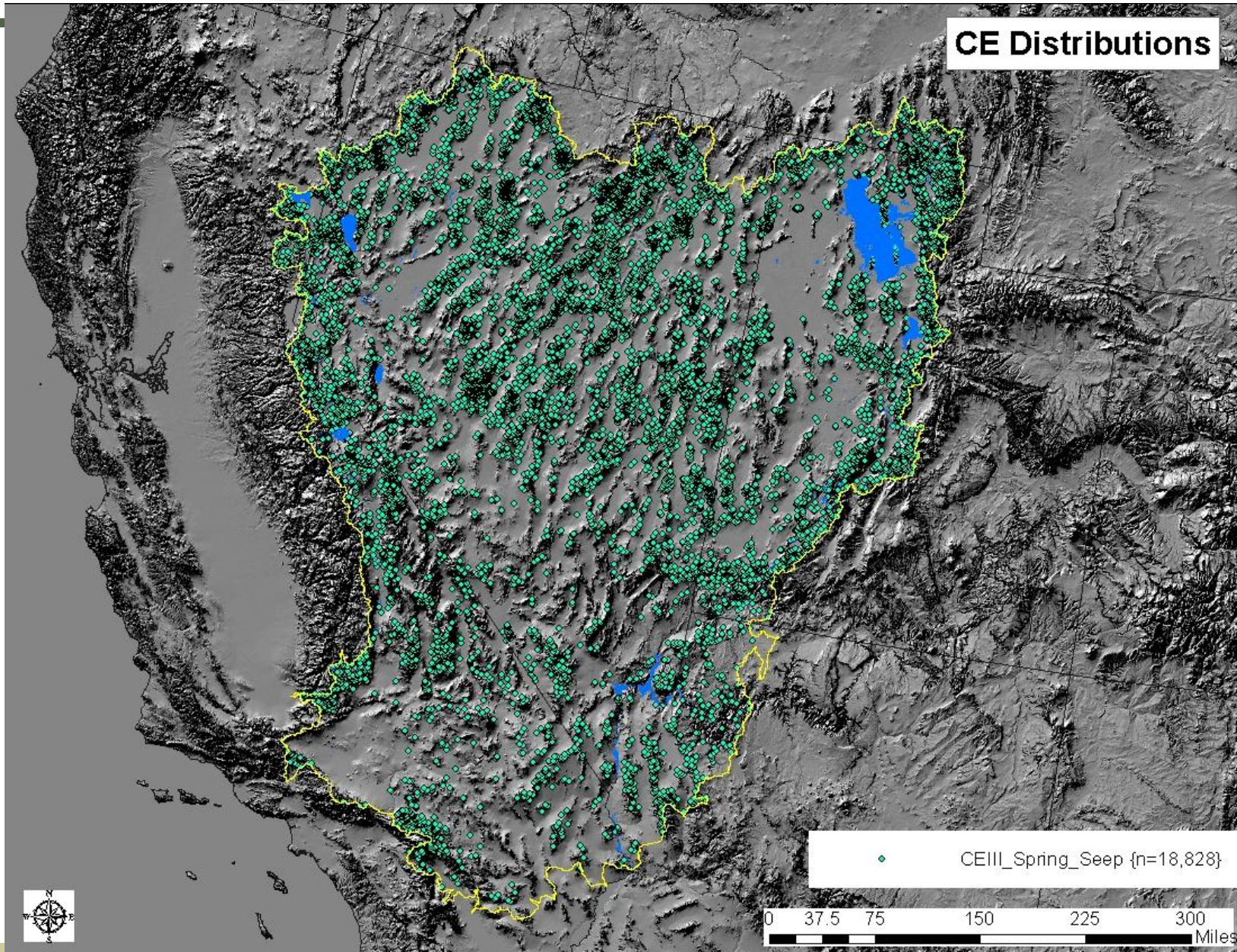
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North American Warm Desert Riparian and Stream



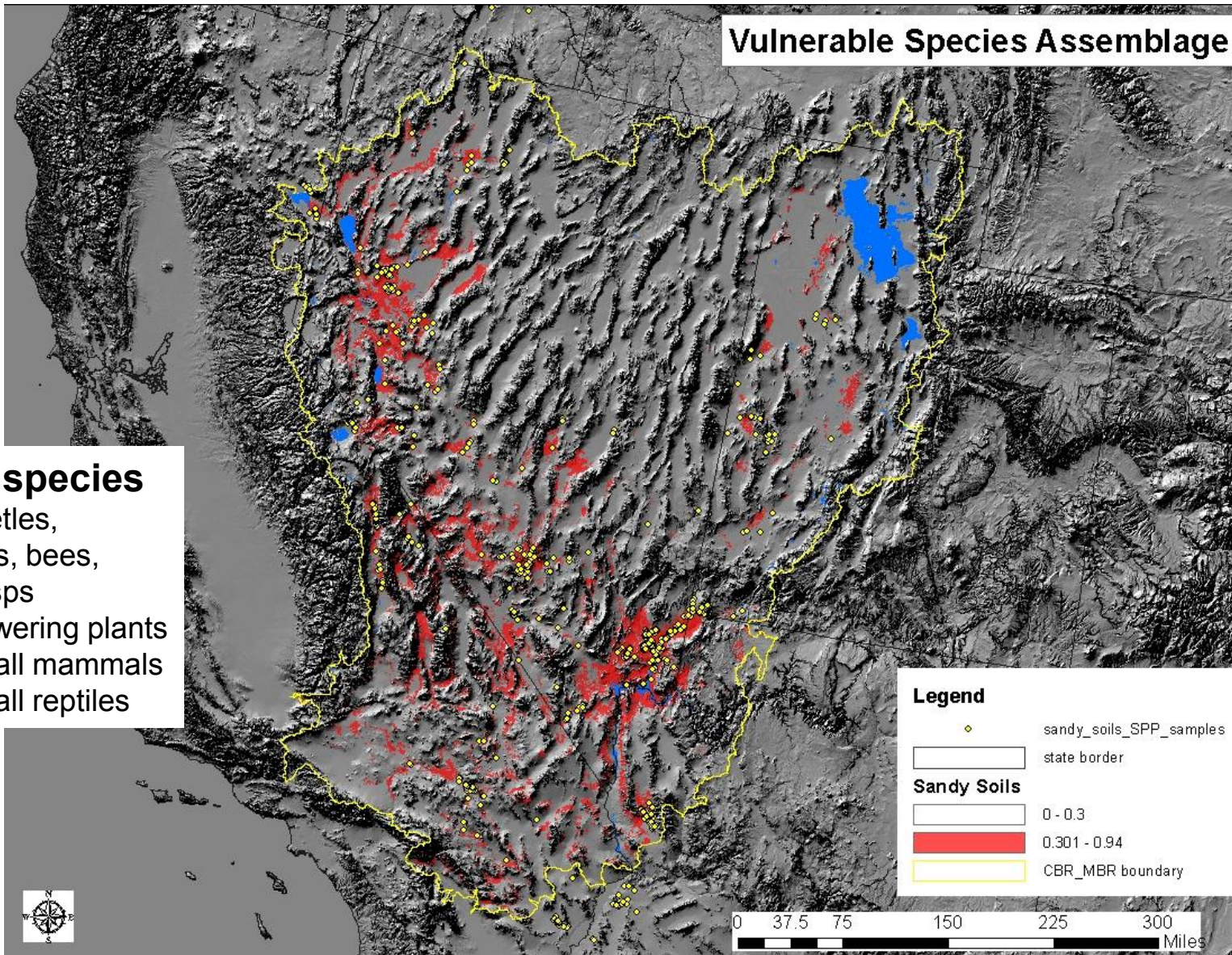
Springs and Seeps



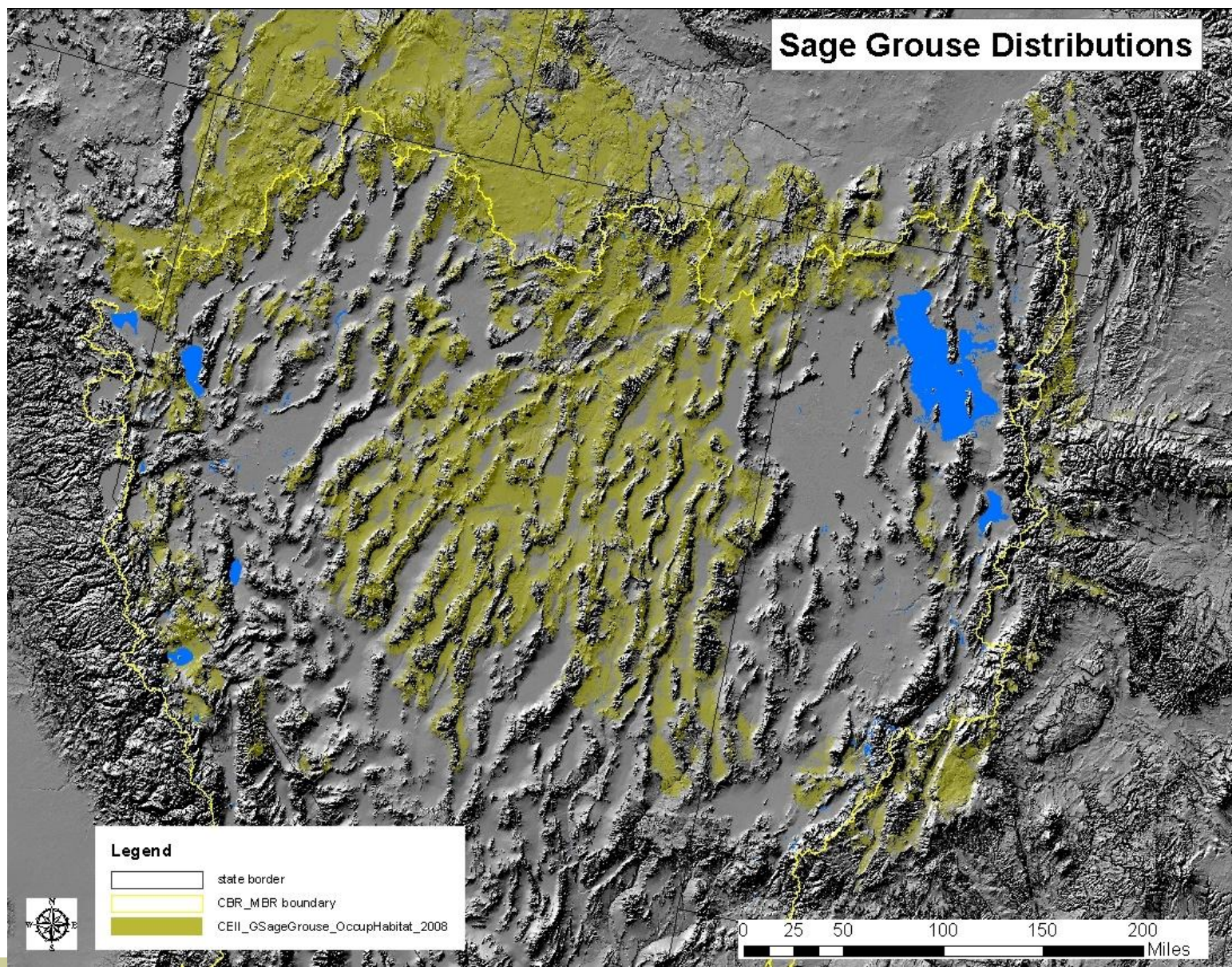
Sandy Soils- Species Assemblage

30 species

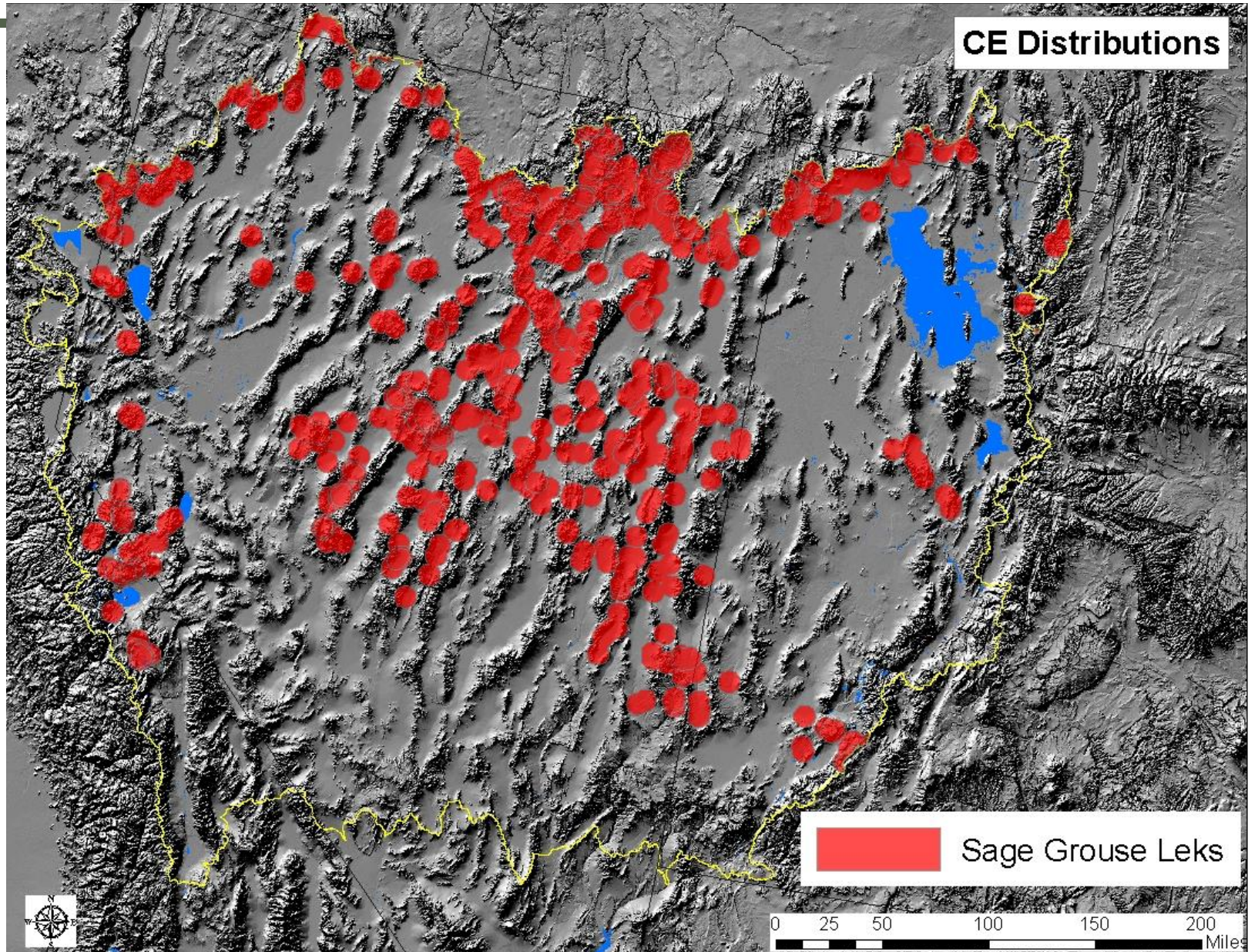
Beetles,
Ants, bees,
wasps
Flowering plants
Small mammals
Small reptiles



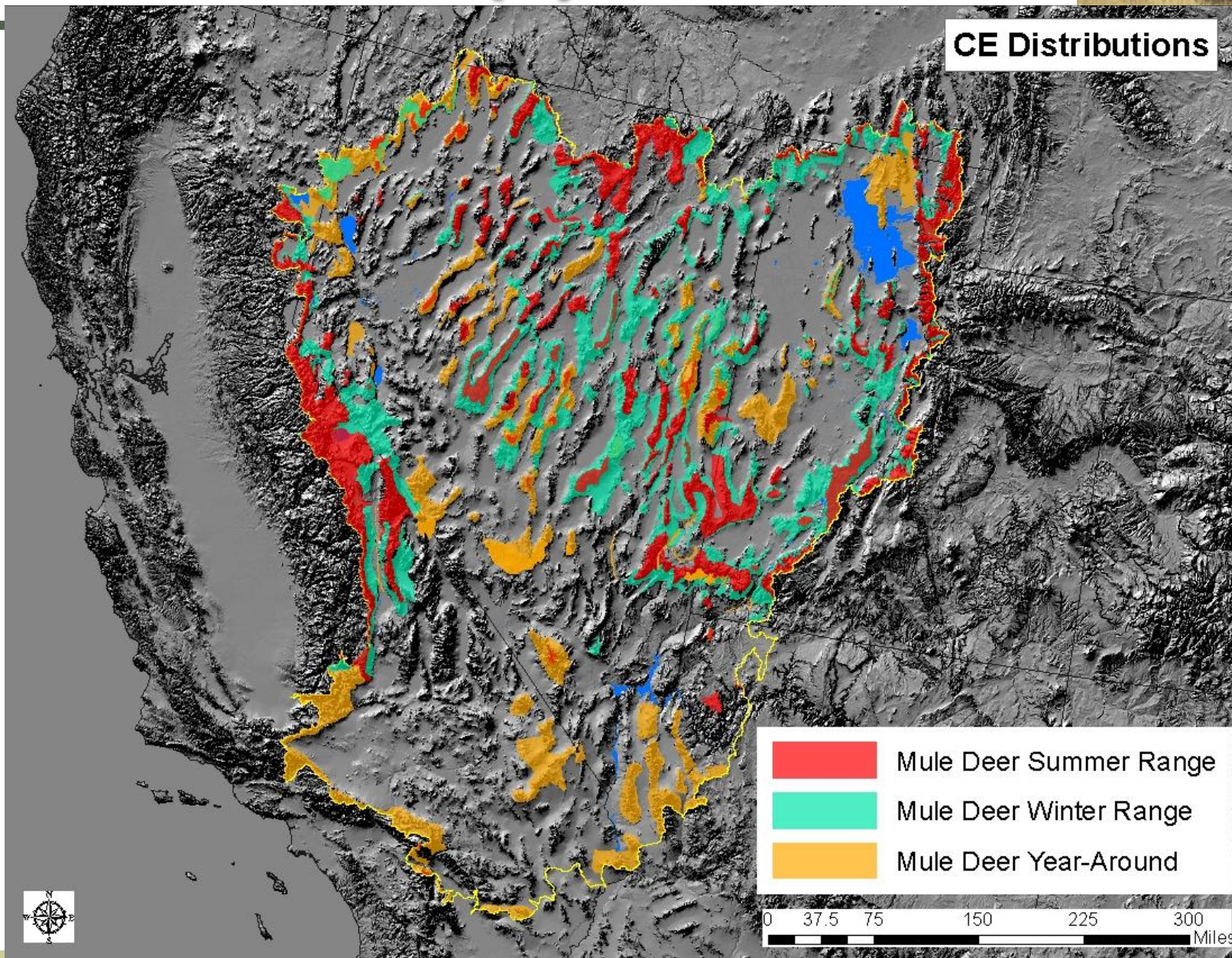
Greater Sage Grouse (2)



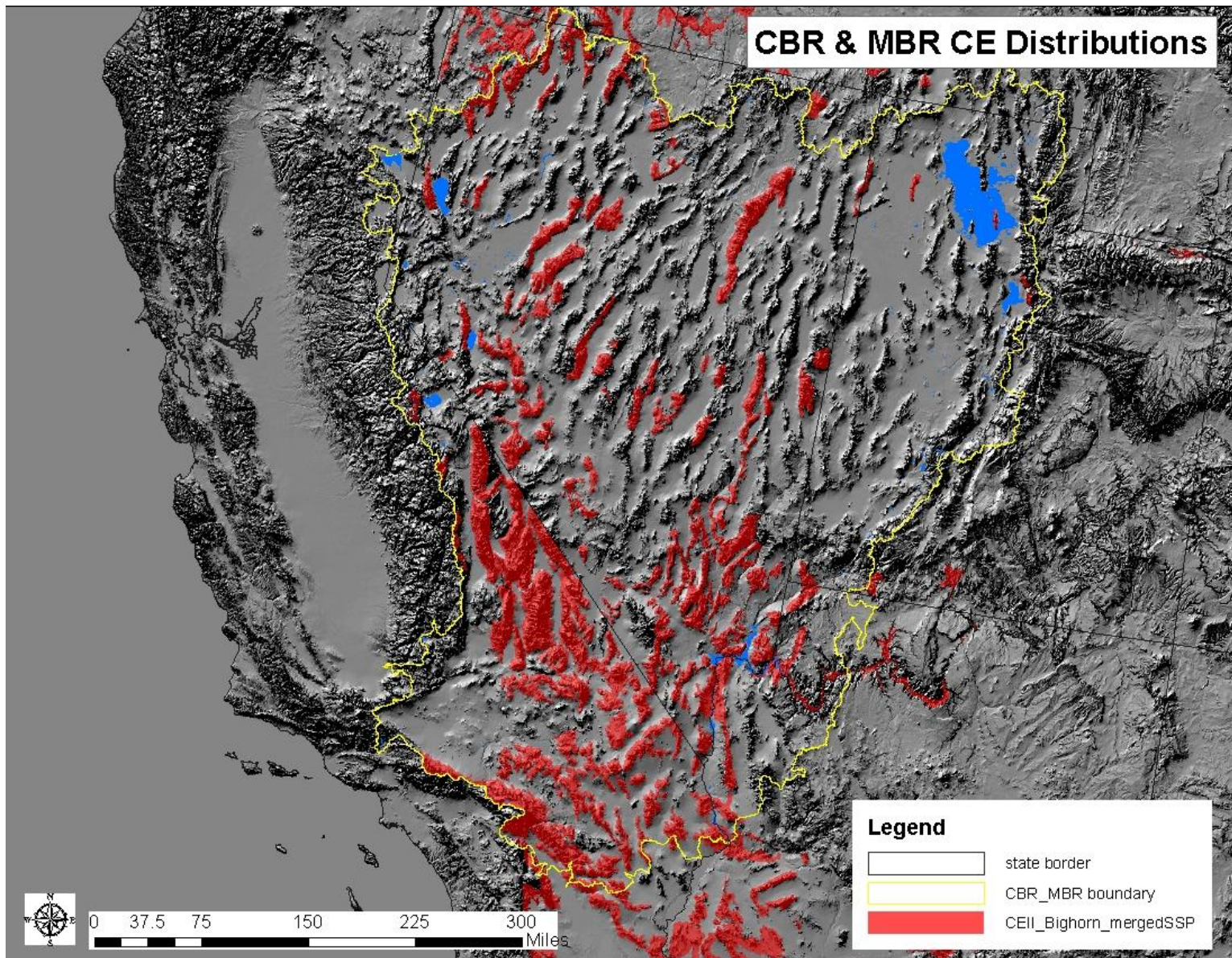
Sage Grouse Leks



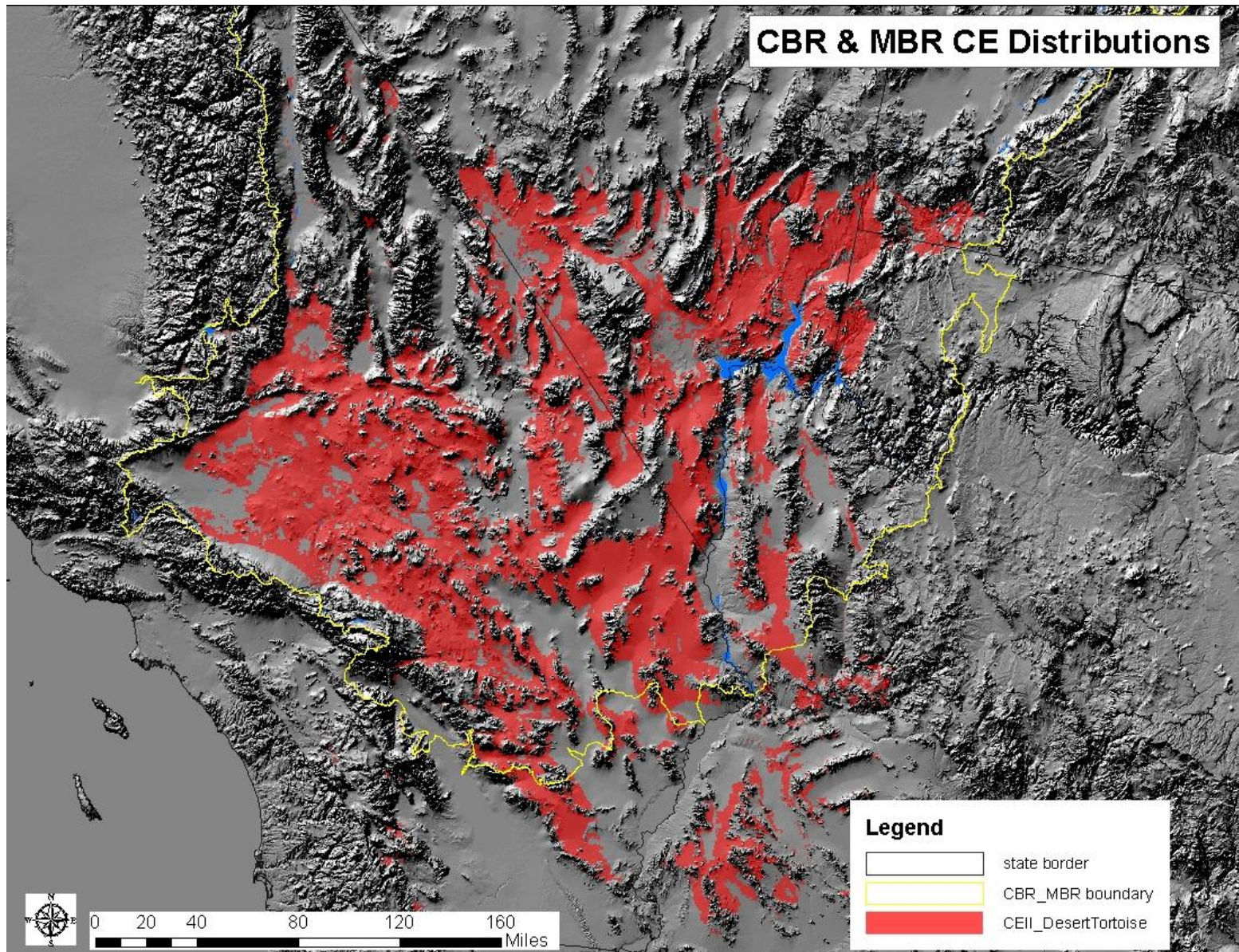
Mule Deer (3)



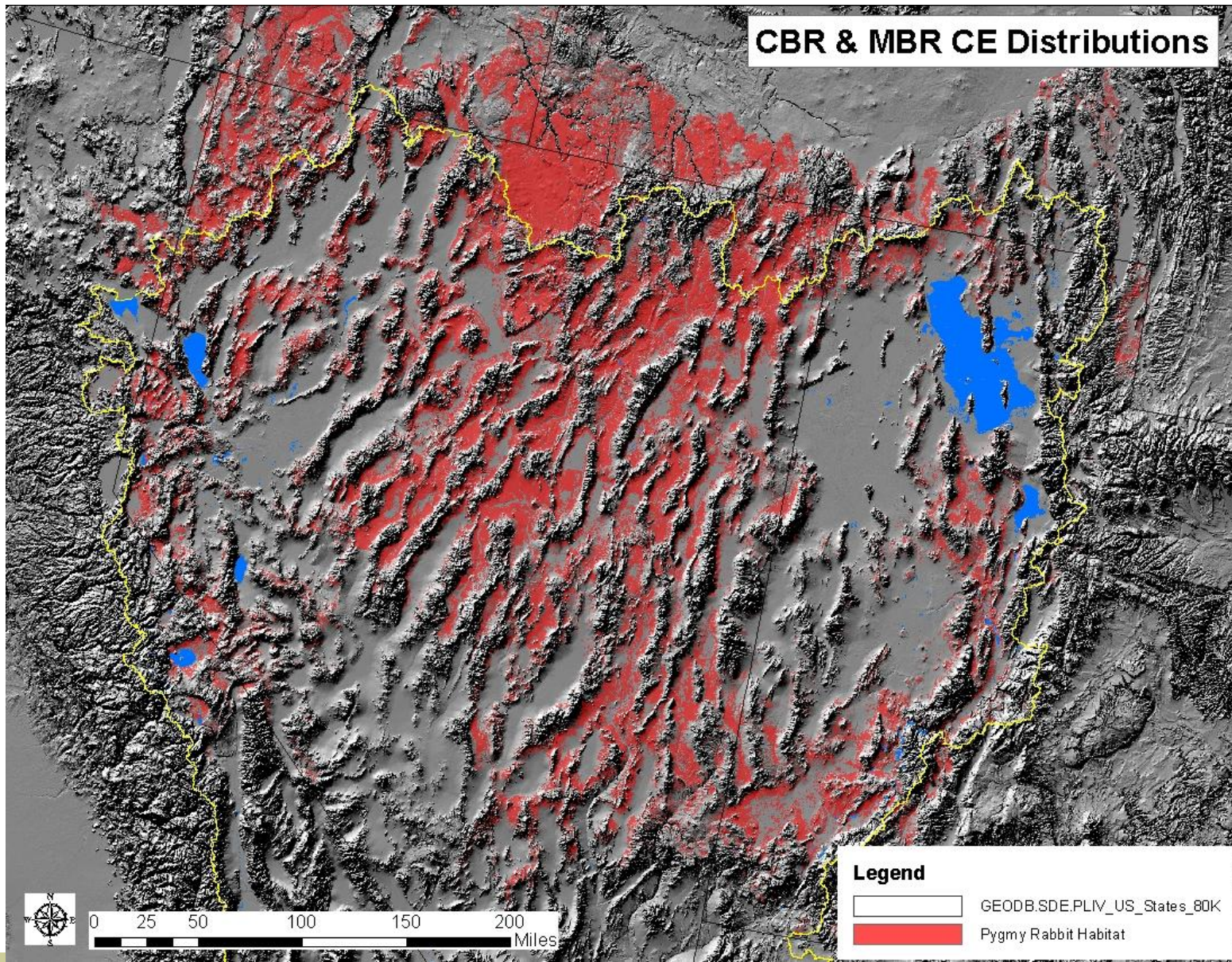
Bighorn Sheep



Desert Tortoise (Mojave)



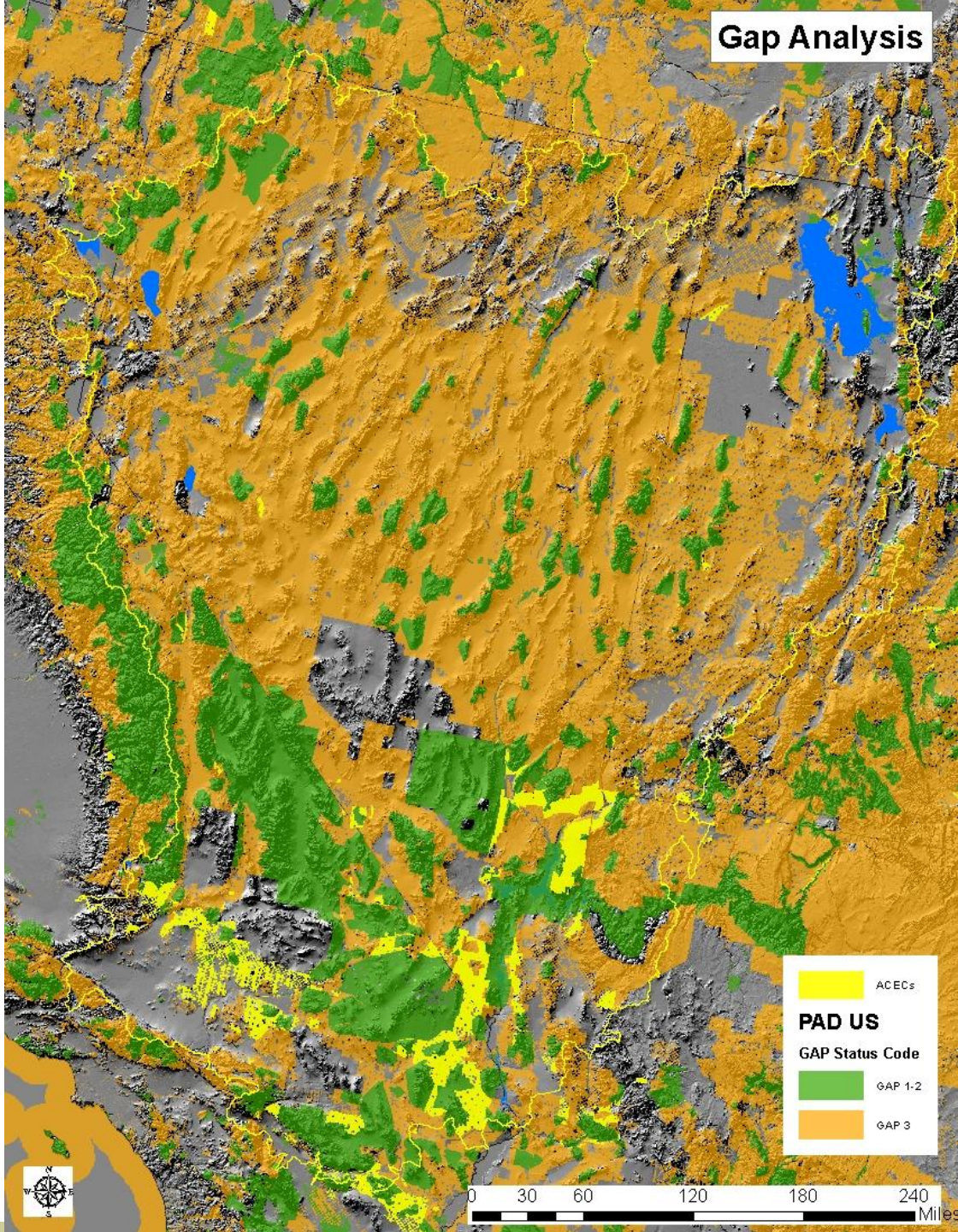
Landscape Species – Pygmy Rabbit



Distributions of Conservation Elements - Where are they?

- **Places – ACECs, other Gap 1-2 lands, all other lands**
- **Assessment – ‘GapAnalysis’**
 1. **Proportional representation of CEs within each lands category**
 2. **Number of CEs within each ACEC**





Gap Analysis – Greater Sage-Grouse

land category	hectares in land category	% in land category
ACEC	4,238	0.07%
GAP 1 or 2, and not ACEC	366,081	5.73%
OTHER	6,014,758	94.20%
TOTALS	6,385,077	100.00%

Gap Analysis – Desert Tortoise (Mojave)

land category	hectares in land category	% in land category
ACEC	838,856	16.43%
GAP 1 or 2, and not ACEC	1,171,301	22.94%
OTHER	3,096,688	60.64%
TOTALS	5,106,845	100.00%

Gap Analysis – Bighorn Sheep

land category	hectares in land category	% in land category
ACEC	239,815	5.71%
GAP 1 or 2, and not ACEC	2,677,243	63.73%
OTHER	1,283,926	30.56%
TOTALS	4,200,984	100.00%



Gap Analysis – Pygmy Rabbit (MBR)

land category	hectares in land category	% in land category
ACEC	-	0.00%
GAP 1 or 2, and not ACEC	15,104	77.13%
OTHER	4,479	22.87%
TOTALS	19,583	100.00%

Gap Analysis – Gila Monster (MBR)

land category	hectares in land category	% in land category
ACEC	536,196	13.63%
GAP 1 or 2, and not ACEC	1,347,358	34.24%
OTHER	2,051,503	52.13%
TOTALS	3,935,057	100.00%

Gap Analysis – Vulnerable Species

Assemblage: sandy soils (MBR)

land category	hectares in land category	% in land category
ACEC	19,948	12.90%
GAP 1 or 2, and not ACEC	49,907	32.27%
OTHER	84,812	54.84%
TOTALS	154,667	100.00%

Gap Analysis – Vulnerable Species

Assemblage: sandy soils (CBR)

land category	hectares in land category	% in land category
ACEC	472	0.30%
GAP 1 or 2, and not ACEC	13,161	8.23%
OTHER	146,190	91.47%
TOTALS	159,823	100.00%

Gap Analysis – Springs and Seeps (CBR)

land category	hectares in land category	% in land category
ACEC	3	0.25%
GAP 1 or 2, and not ACEC	137	12.48%
OTHER	958	87.27%
TOTALS	1,098	100.00%



Gap Analysis – Springs and Seeps (MBR)

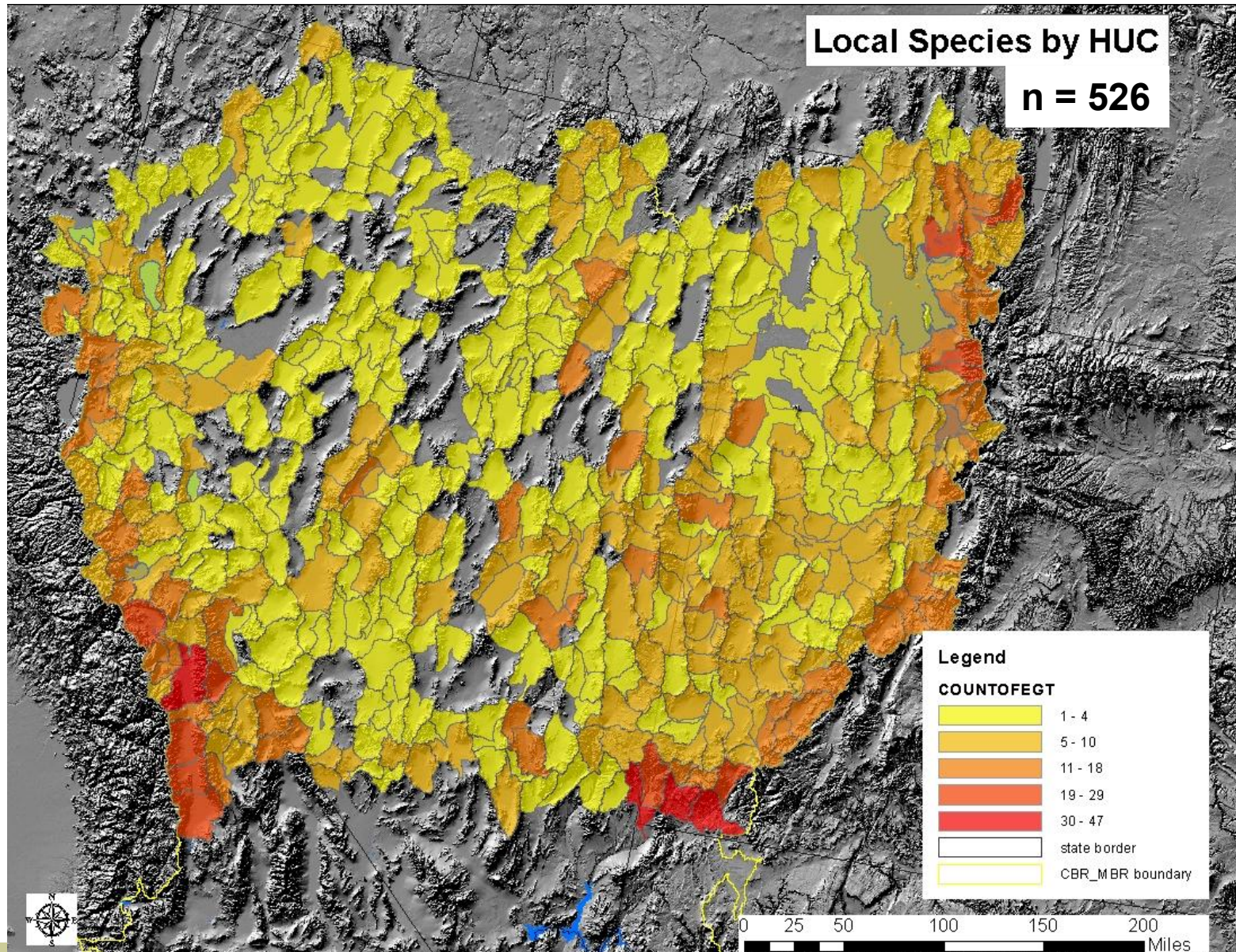
land category	hectares in land category	% in land category
ACEC	9	6.37%
GAP 1 or 2, and not ACEC	65	46.62%
OTHER	66	47.01%
TOTALS	140	100.00%

Gap Analysis – ACEC richness

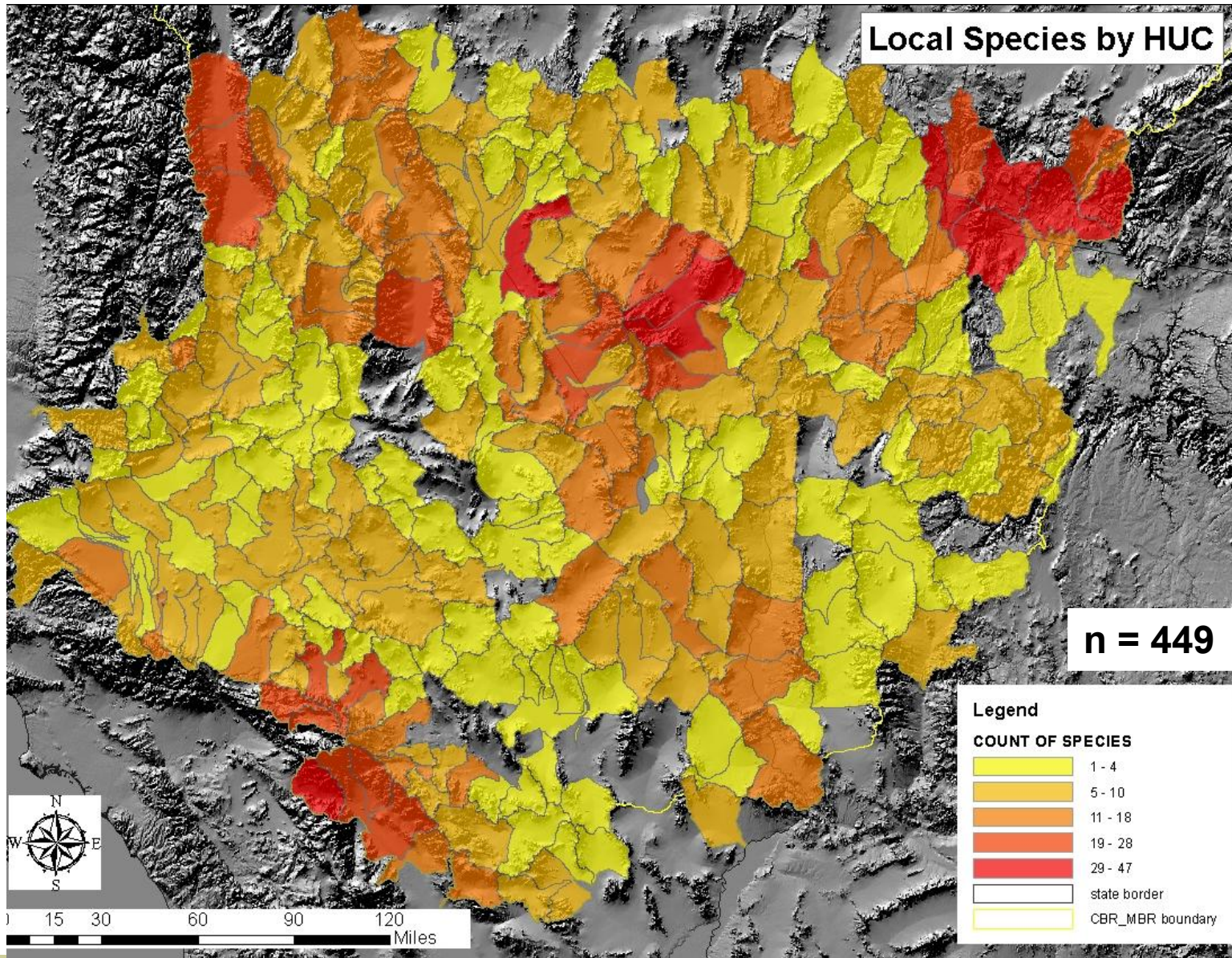
REA	ACEC NAME	HECTARES	Total number of CE
CBR	Old Central Pacific Railroad Grade Area Of Critical Environmental Concern	1,989	6 of 9
CBR	Bonneville Salt Flats Area Of Critical Environmental Concern	12,219	0
MBR	Amargosa River	7,823	7 of 9
MBR	Amboy Crater	259	0



Local Species Summaries



Local Species Summaries



Distributions of Change Agents - Where are they?

**Development CAs (those we
manipulated/modeled)**

- **Recreation**
- **Mines & Landfills**

**Renewable Energy (current, planned,
potential)**

Invasive Plants



Terrestrial Invasive CAs

MQs

- Where are invasive elements most likely to foster changes.

Enabling our answering MQs like....

- Where will target soil types overlap with CAs?
- Where will sensitive ecosystems overlap CAs?
- Where will there be invasive restoration opportunities?
- Where will fire potential change due to invasive?



Terrestrial Invasives

■ Annual Grasses

- 47 species samples present (LandFire)
 - N= 6,820 points, 7,269 records
- 4 species make up 96% (*Bromus madritensis* - 8.3%, *Bromus rubens* - 4.69%, *Bromus tectorum* - 75.85%, *Schismus barbatus* - 7.98%)

FIVE Models indicating relative vulnerability of:

<5% cover

5-15% cover

16-25% cover

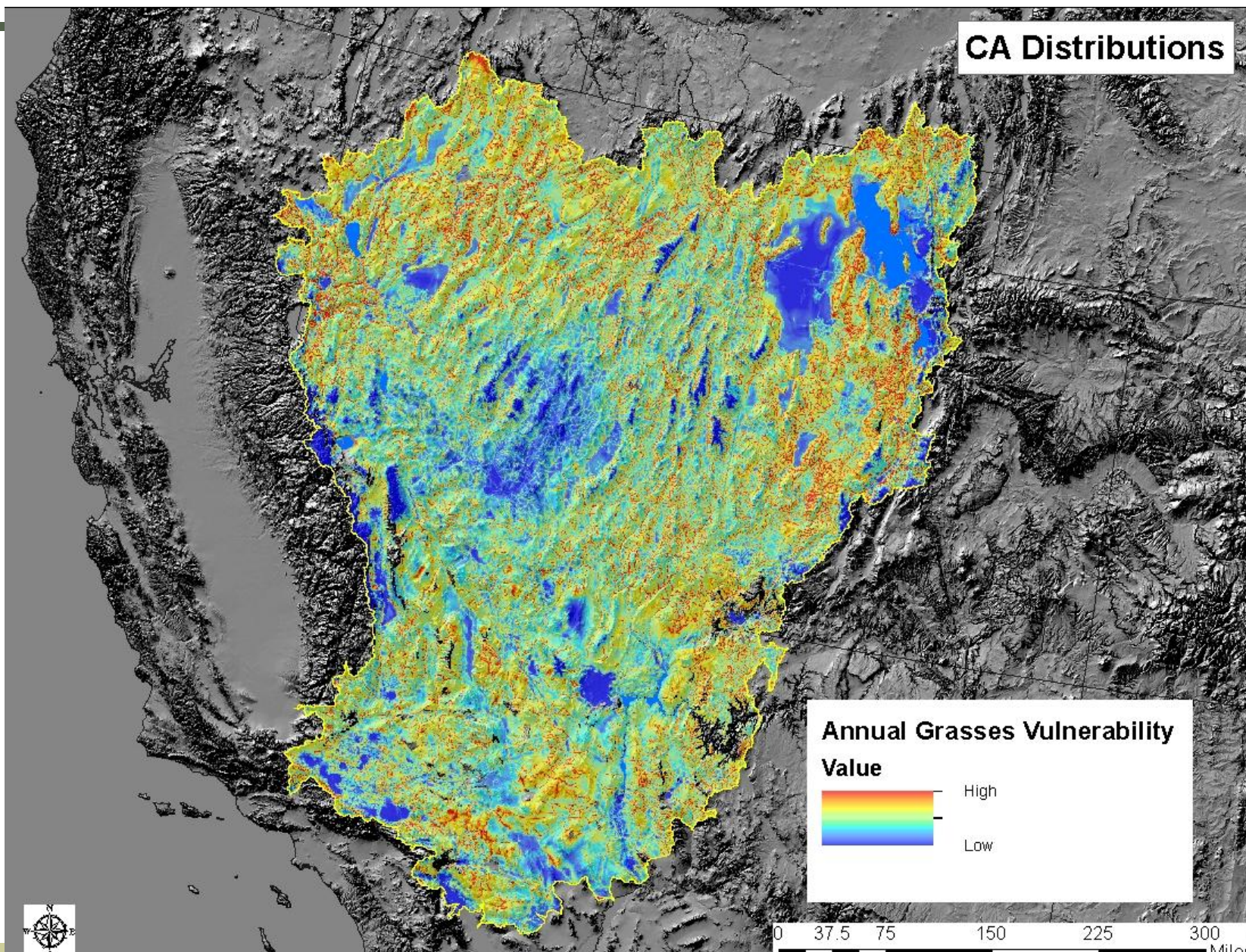
26-45% cover

>45% cover

Models may be applied and summarized alone or stacked



Annual Grasses- Results



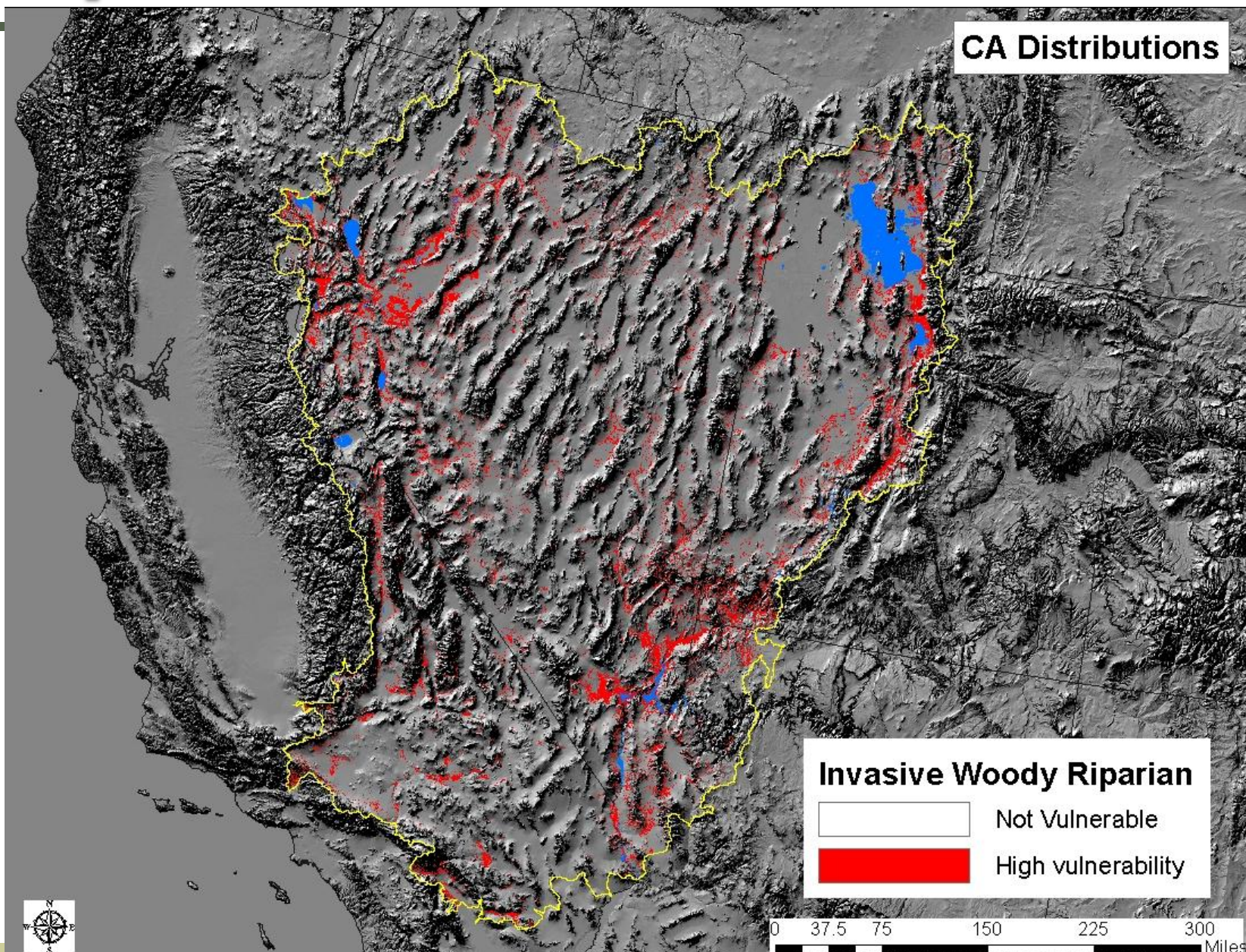
Riparian Tree-Shrub

- 3 species make up 99% of occurrences (95% tamarisk, 2% Russian Olive, 2% Water hemlock)

One model indicating relative vulnerability of for presence of these invasive taxa



Riparian Tree-Shrub - Results



Forbs – Annual/Biennial/Perennial

■ Forbs

- many species/subspecies (N=3398 points, 10567 records)
 - No dominant species
- Still need BLM guidance on species selection for final models



Break



Answering —where do CAs overlap CEs”: Current land use scenario

**AMT input: confirm CA approach; reporting units
and metrics options**



Current Scenario

Primarily addresses MQs for where are
CEs & CAs and current ecological integrity

- Existing land use and infrastructure
- Major energy/infrastructure projects approved as of May 2011
- Current invasives distribution
- Mapped fire events

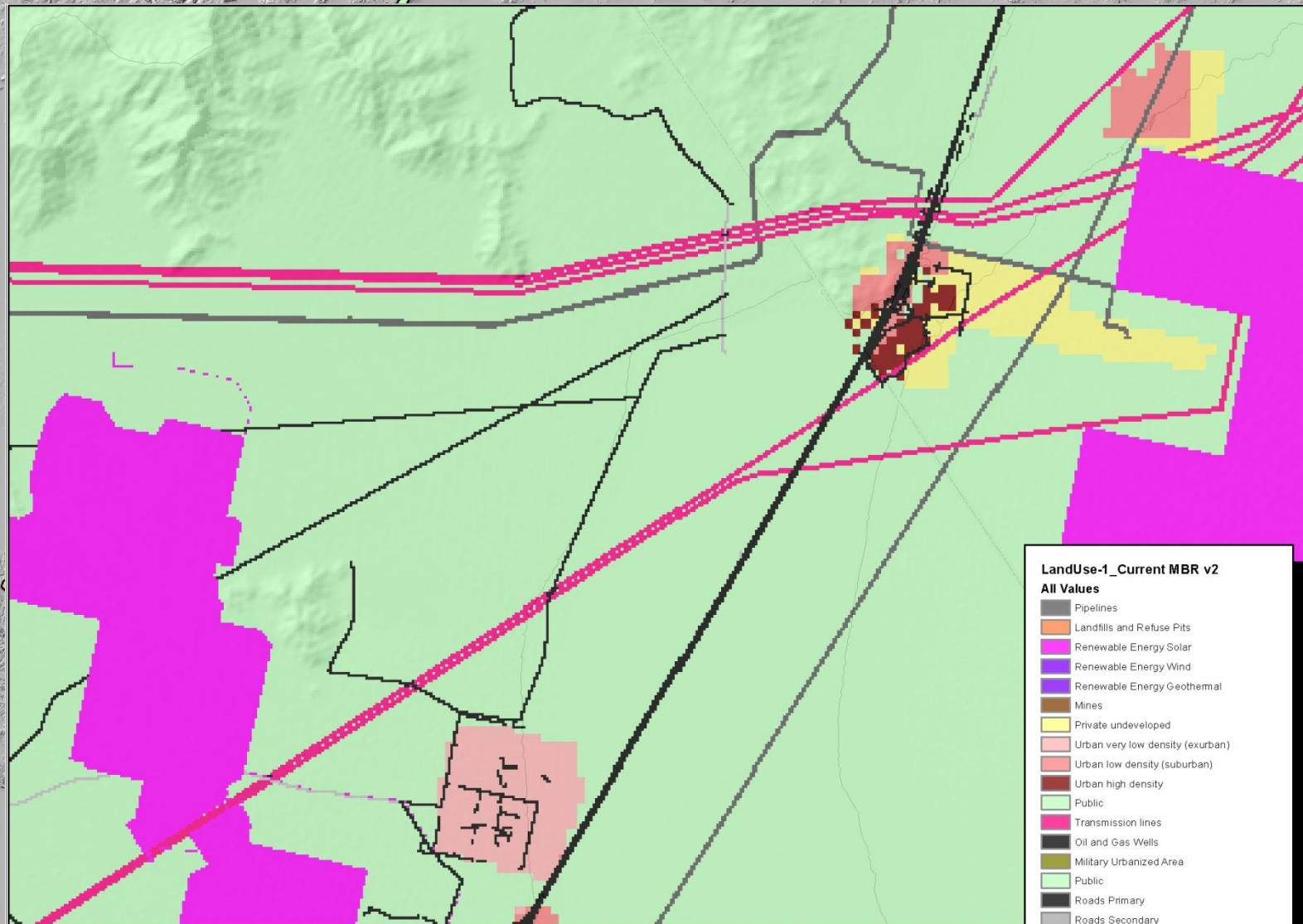
Current Scenario

- Where are current locations of development CAs?

Area	Land Use
40,564,982.92 acres	Total Area
27,599.66 acres	Renewable Energy Wind
22,661.54 acres	Renewable Energy Solar
2,571.58 acres	Renewable Energy Geothermal
724,902.2 acres	Roads Local and Neighborhood
52,928.26 acres	Roads Secondary
24,919.4 acres	Roads Primary
131,280.38 acres	Roads Unimproved
6,185.52 acres	Mines
521.84 acres	Oil and Gas Wells
5,583.38 acres	Landfills and Refuse Pits
131,623.14 acres	Transmission lines
58,023.24 acres	Pipelines
149,124.14 acres	Row crops, orchards and irrigated pastures
17,996.44 acres	Military Urbanized Area
3,049,003.32 acres	Urban very low density (exurban)
2,321,808.72 acres	Private undeveloped
565,600.86 acres	Urban low density (suburban)
131,550.76 acres	Urban high density
32,952,024.82 acres	Public Lands (little or no infrastructure)

Development Change Agents

- ***Recreation***
 - ***Hydrologic Change Agents***
 - ***Mining & Refuse Management***
 - ***Urbanization***
 - ***Renewable & Extractive Energies***
 - ***Infrastructure***
 - ***Military use/Expansion***
 - ***Agriculture***
 - ***Livestock, Wild Horses & Burros***
- REA Modeling***
- Existing data, 3rd party models***
- Existing data***
- HMA and HAs as reporting units***



0 0.5 1 2 Miles

LandUse-1_Current MBR v2
All Values

- Pipelines
- Landfills and Refuse Pits
- Renewable Energy Solar
- Renewable Energy Wind
- Renewable Energy Geothermal
- Mines
- Private undeveloped
- Urban very low density (exurban)
- Urban low density (suburban)
- Urban high density
- Public
- Transmission lines
- Oil and Gas Wells
- Military Urbanized Area
- Public
- Roads Primary
- Roads Secondary
- Roads Local and Neighborhood
- Roads Unimproved
- Row crops, orchards and irrigated pastures

Current MBR v2

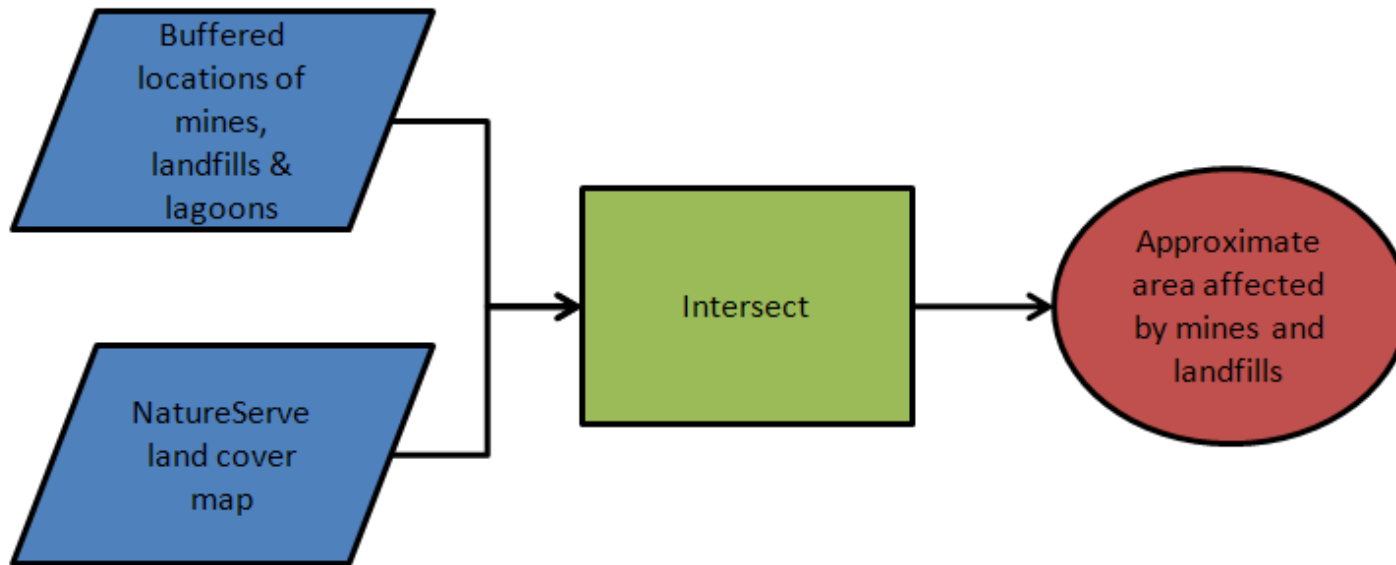
- Refuse Pits
- Renewable Energy Solar
- Renewable Energy Wind
- Renewable Energy Geothermal
- Private undeveloped
- Urban very low density (exurban)
- Urban low density (suburban)
- Urban high density
- Transmission lines
- Oil and Gas Wells
- Military Urbanized Area

0 30 60 120 Miles

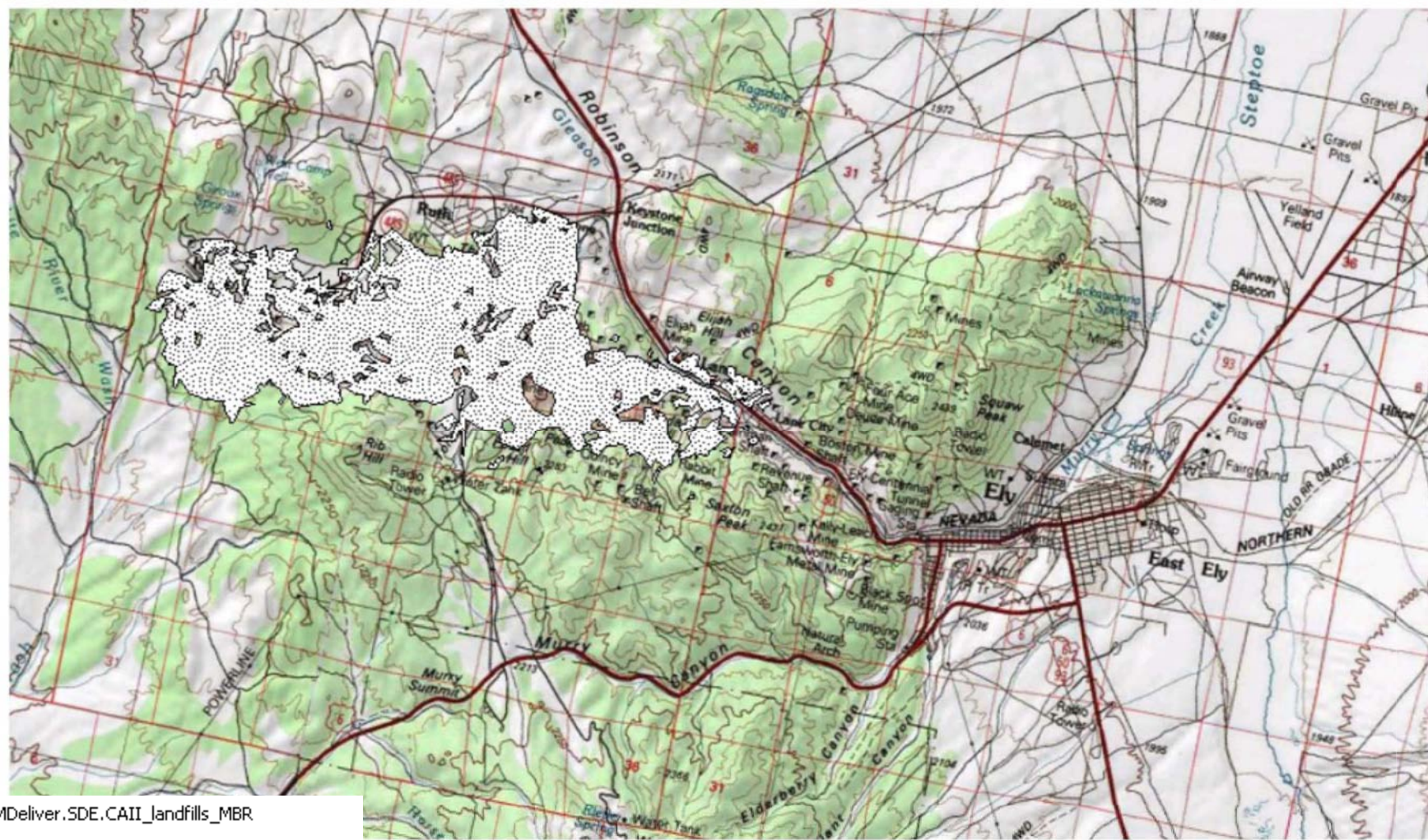
- Roads Primary
- Roads Secondary
- Roads Local and Neighborhood
- Roads Unimproved
- Row crops, orchards and irrigated pastures

Mines and Landfills

- Modeled change agent
 - Active Mines
 - Landfills & Refuse Areas (status unknown)
 - Sources of data:
 - Mining: MRDS, NV BMRR
 - Refuse management: SAGEMAP

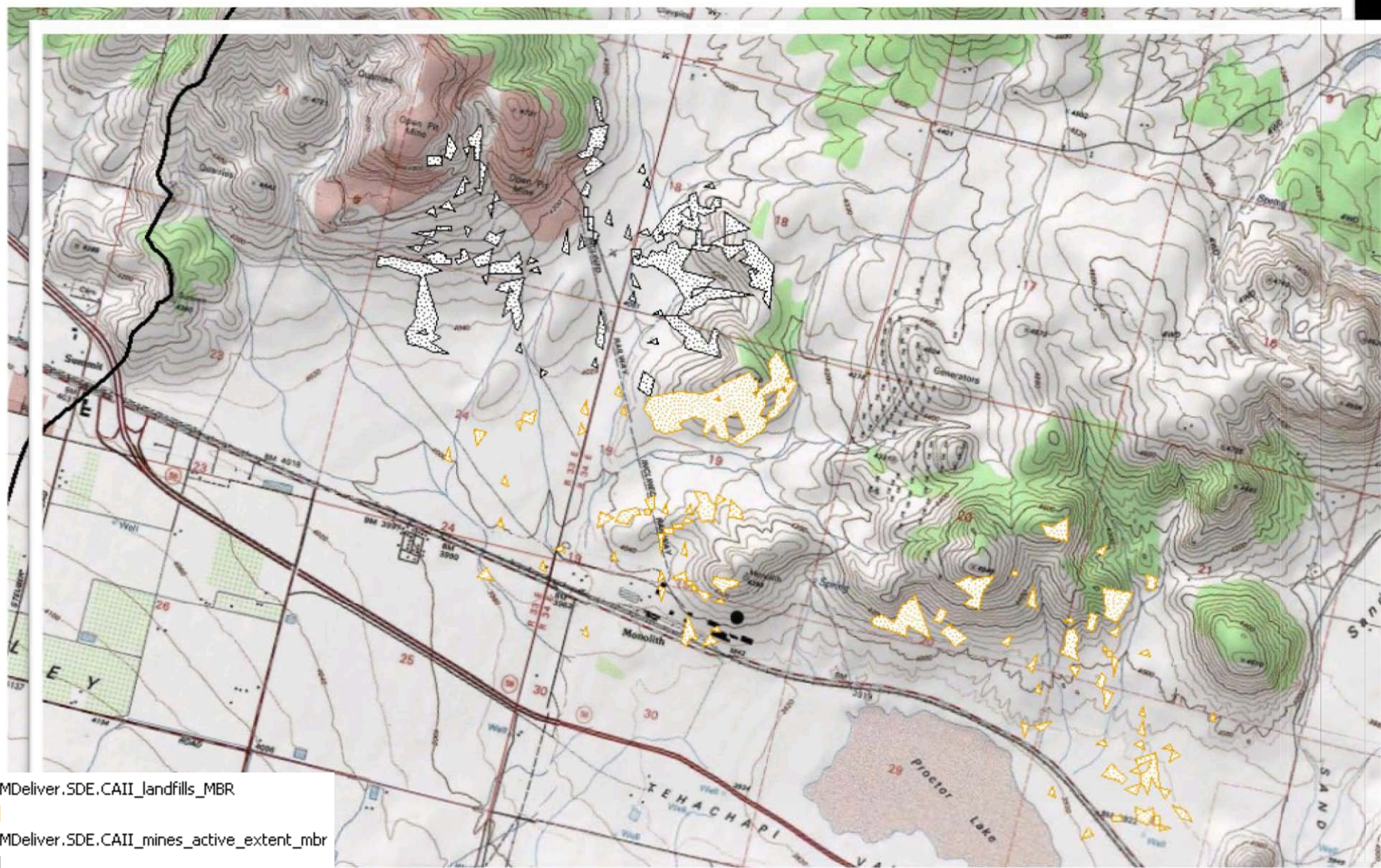


Mines and Landfills



- ☐ BLMDeliver.SDE.CAII_landfills_MBR
- ☐ BLMDeliver.SDE.CAII_mines_active_extent_mbr

Mines and Landfills



Landfills and Mines- Error Reporting

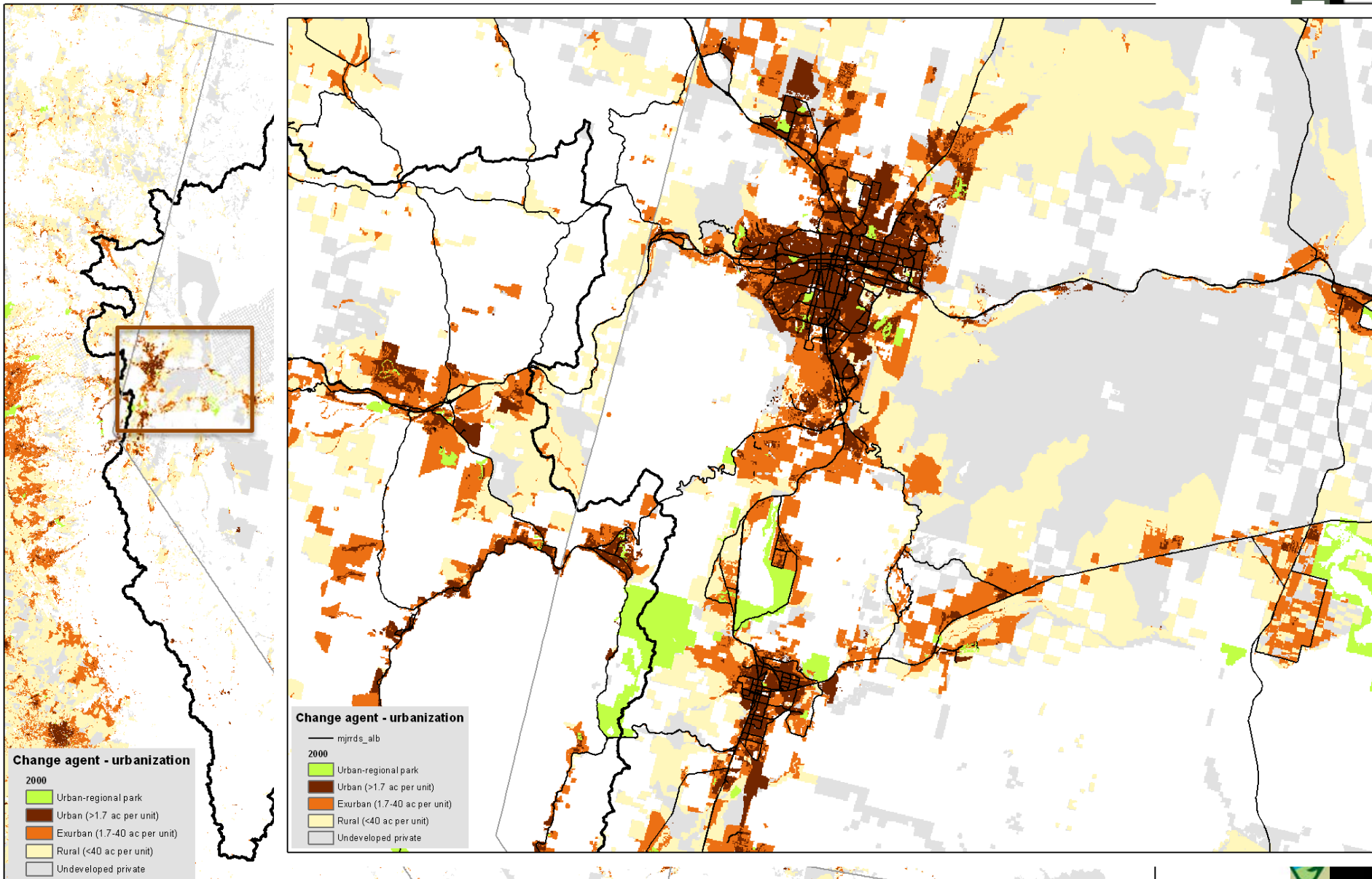
- MBR Landfills/Refuse Areas (195), sample of 20
 - 10% are true landfills
 - 60% are areas heavily disturbed by humans: mines, quarries, shooting ranges or junkyards
 - 30% are lightly disturbed areas or naturally disturbed areas: low density urban areas, geothermal areas, scree or dune fields
- MBR Active Mines (177), sample of 20
 - 45% are mining operation
 - 30% are areas heavily disturbed by humans: refuse areas, abandoned quarries, embankment areas
 - 25% are lightly disturbed areas or naturally disturbed areas: low density urban areas, scree or dune fields
- Similar pattern of accuracy for CBR features



Urbanization

ICLUS/SERGoM v1.2. Population projections open-source, consistent with IPCC Climate Change scenarios (Bierwagen et al. 2010)

BLM
Rapid

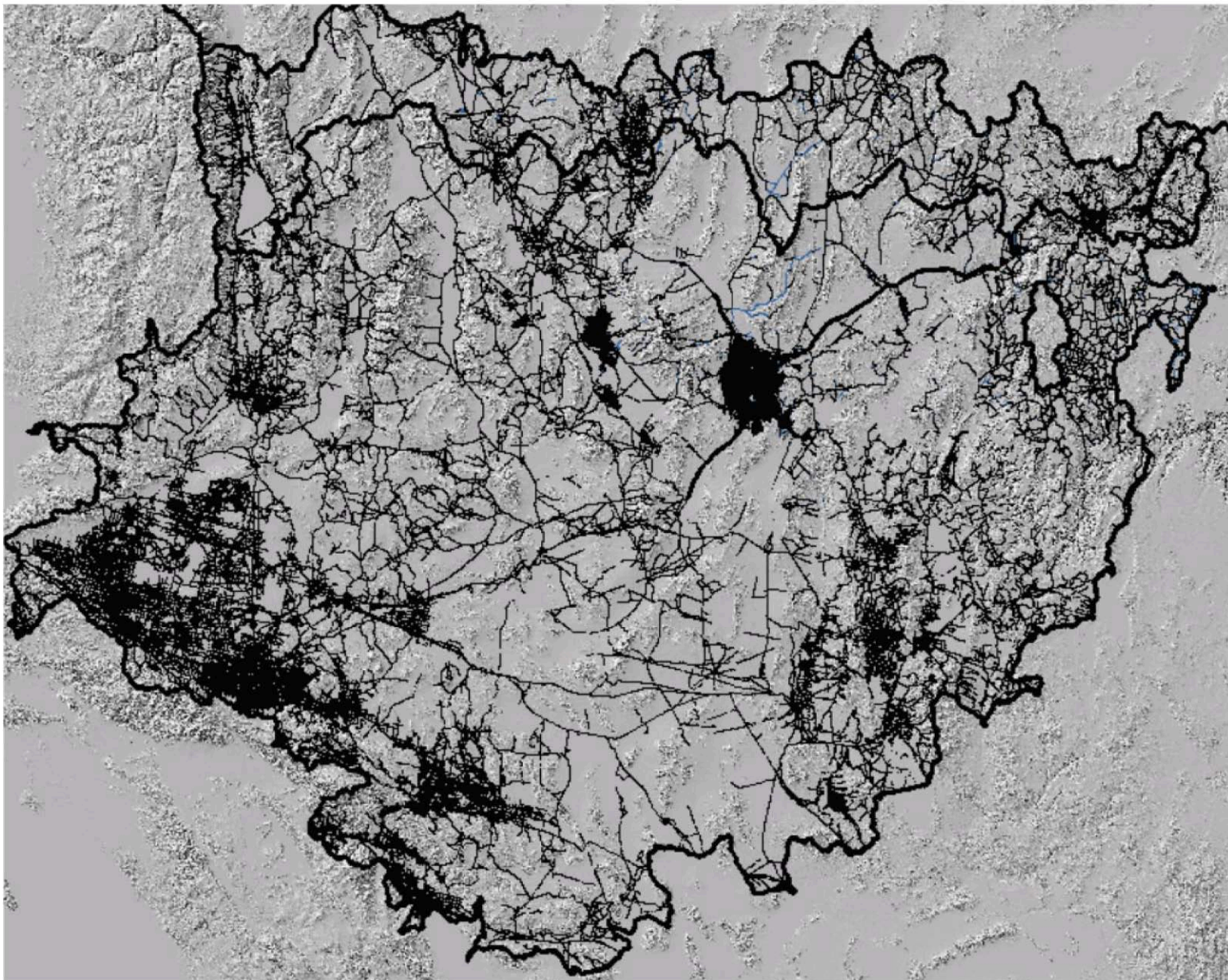


Roads

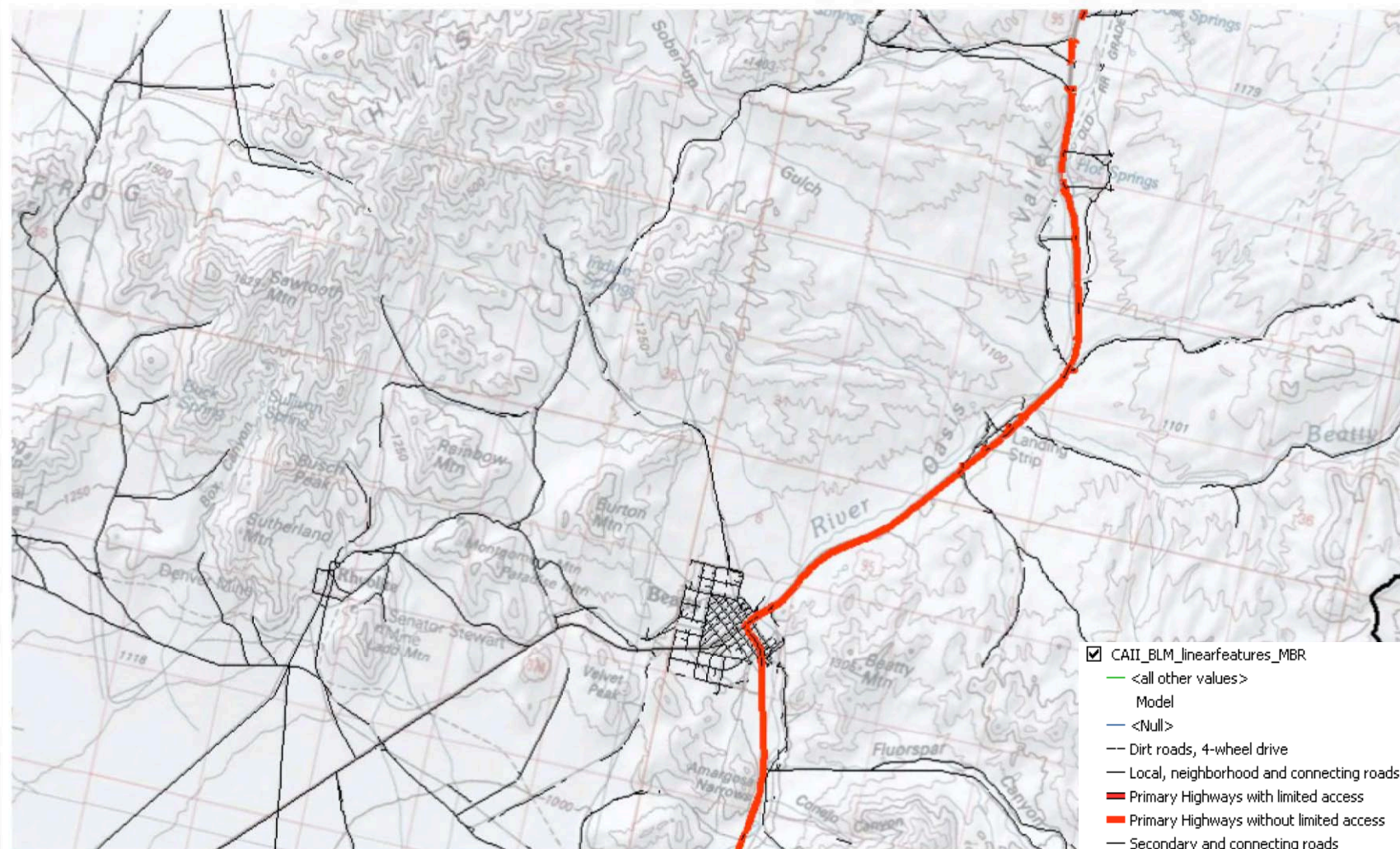
- BLM Linear Features Layer
 - Collected by 11 BLM states, includes all major/minor roads as well as trails
 - 2010 TIGER as base plus USFS, BLM 100k and BLM GTLF (state & FO data)
 - Transferred to NatureServe in June, NS processing included merging state data, clip to ecoregion and attribute work



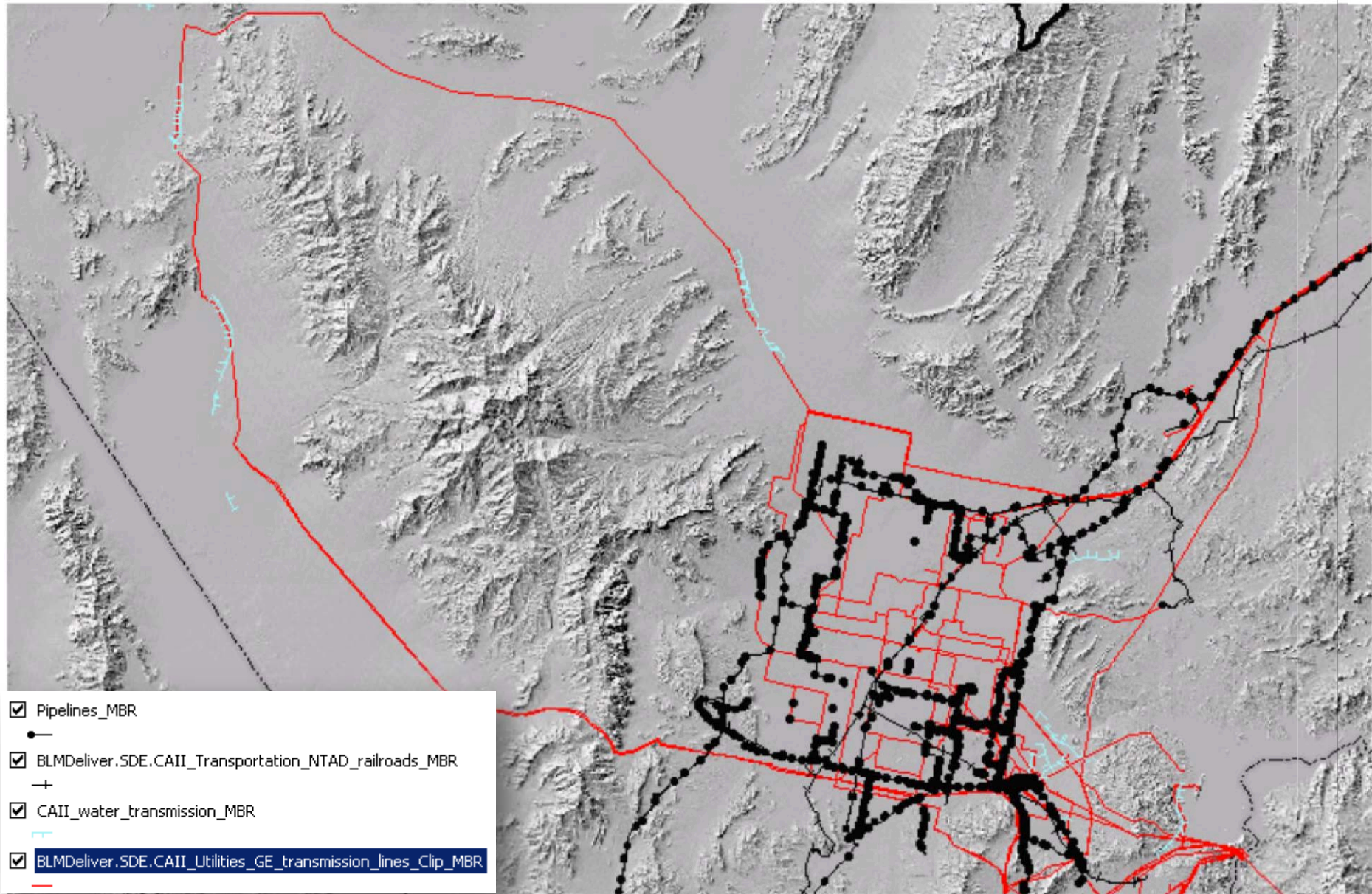
Roads



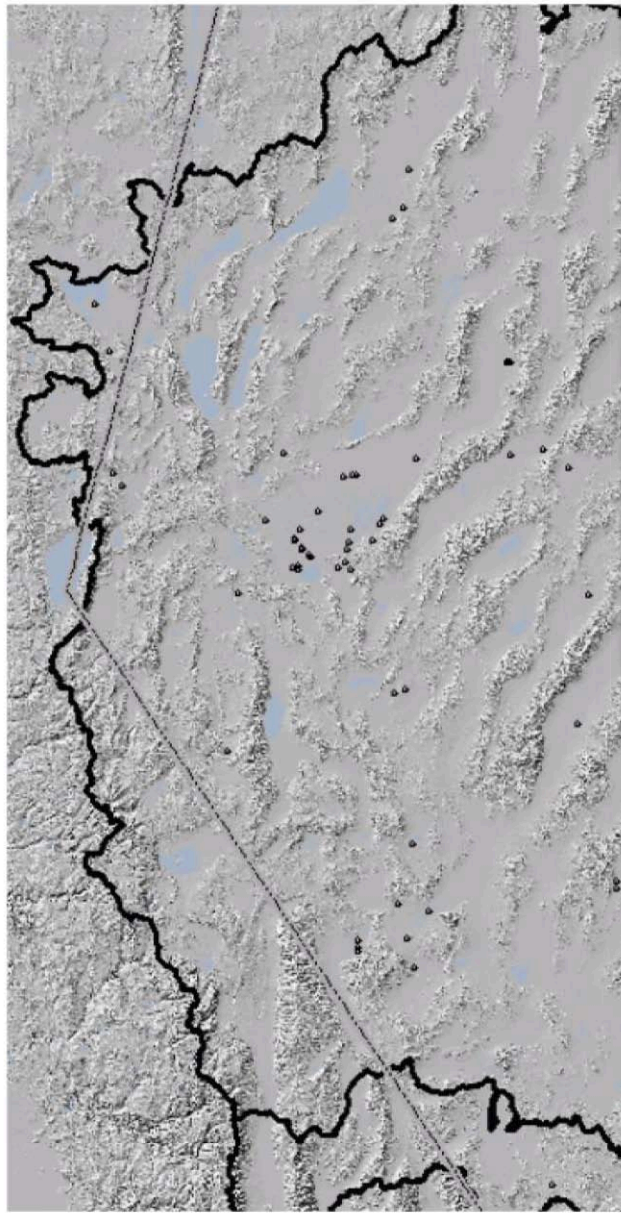
Roads



Other Linear Infrastructure

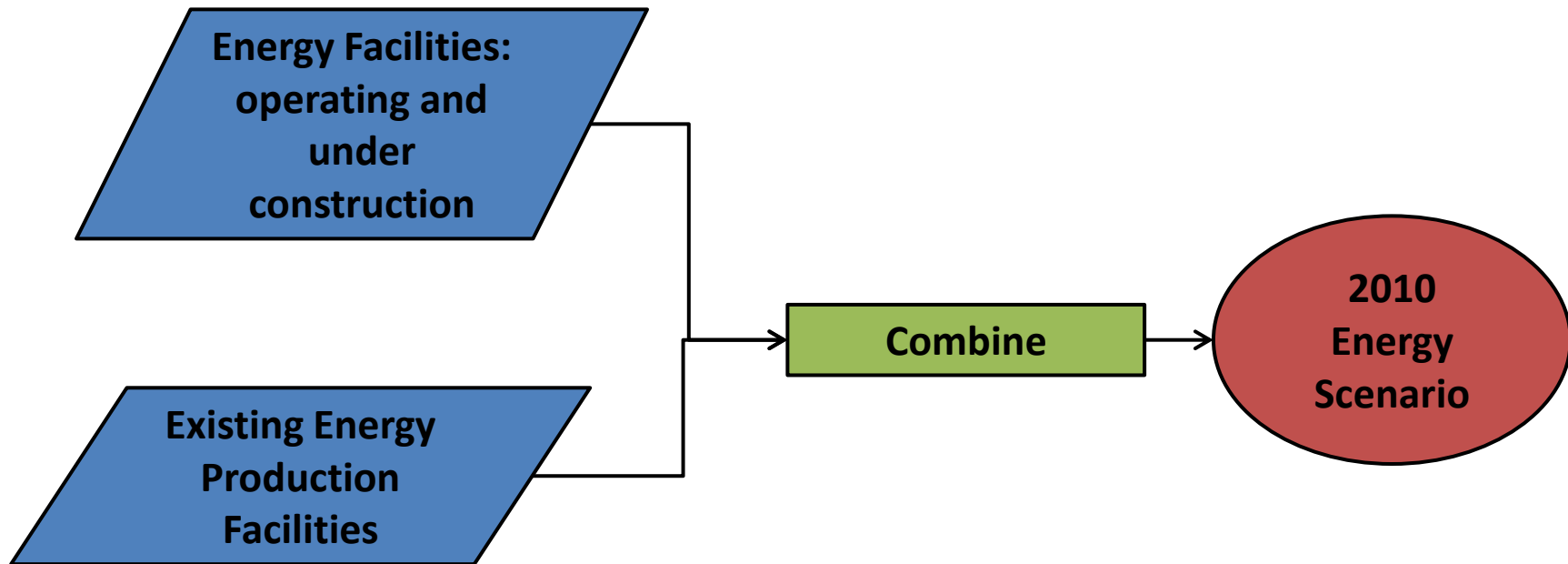


Oil and Gas



Renewable Energy

Current Scenario



Renewable Energy

■ Central Basin and Range

FID	ProjectNam	SerialNumb	Commodity	Scenario	ACRES
	0 Luning Solar	NVN XXXXXX	Wind Energy Facilities	Present	715.7
	1 Crescent Dunes	NVN XXXXXX	Wind Energy Facilities	Present	2075.5
	2 Spring Valley Wind	NVN-084148	Wind Energy Facilities	Present	7090.9
	3 Salt Wells	NVN 077271	Geothermal Energy Facil*	Present	2551.1
	4 Mammoth PLES1	CACA 011667	Geothermal Energy Facil*	Present	1341.5
	5 Steamboat Galena Hills	NVN 063124	Geothermal Energy Facil*	Present	501.6
	6 Brady Ormat	NVN 046566	Geothermal Energy Facil*	Present	120.7
	7 Desert Peak	NVN 013072A	Geothermal Energy Facil*	Present	640.2
	8 Brady Ormat	NVN 065561	Geothermal Energy Facil*	Present	362.5
	9 Dixie Valley	NVN 012862	Geothermal Energy Facil*	Present	1627.9
	10 Stillwater	NVN 051956	Geothermal Energy Facil*	Present	120.9
	11 Empire	NVN 042707	Geothermal Energy Facil*	Present	1793.4
	12 Blue Mountain	NVN 058196	Geothermal Energy Facil*	Present	667.2
	13 Wabuska	NVN 079988	Geothermal Energy Facil*	Present	1517.2
	14 Steamboat Galena Hills	NVN 029821	Geothermal Energy Facil*	Present	39.7
	15 Steamboat Galena Hills	NVN 012085	Geothermal Energy Facil*	Present	501.6
	16 Desert Peak	NVN 085777	Geothermal Energy Facil*	Present	479.6
	17 Blue Mountain	NVN 086668	Geothermal Energy Facil*	Present	596.6
	18 Thermo	UTU 071373	Geothermal Energy Facil*	Present	1786.5
	19 Roosevelt	UTU 027386	Geothermal Energy Facil*	Present	1171.3
	20 Dixie Valley	NVN 012863	Geothermal Energy Facil*	Present	1871.1
	21 Beowawe	NVN 010916	Geothermal Energy Facil*	Present	1330.2 28902.77



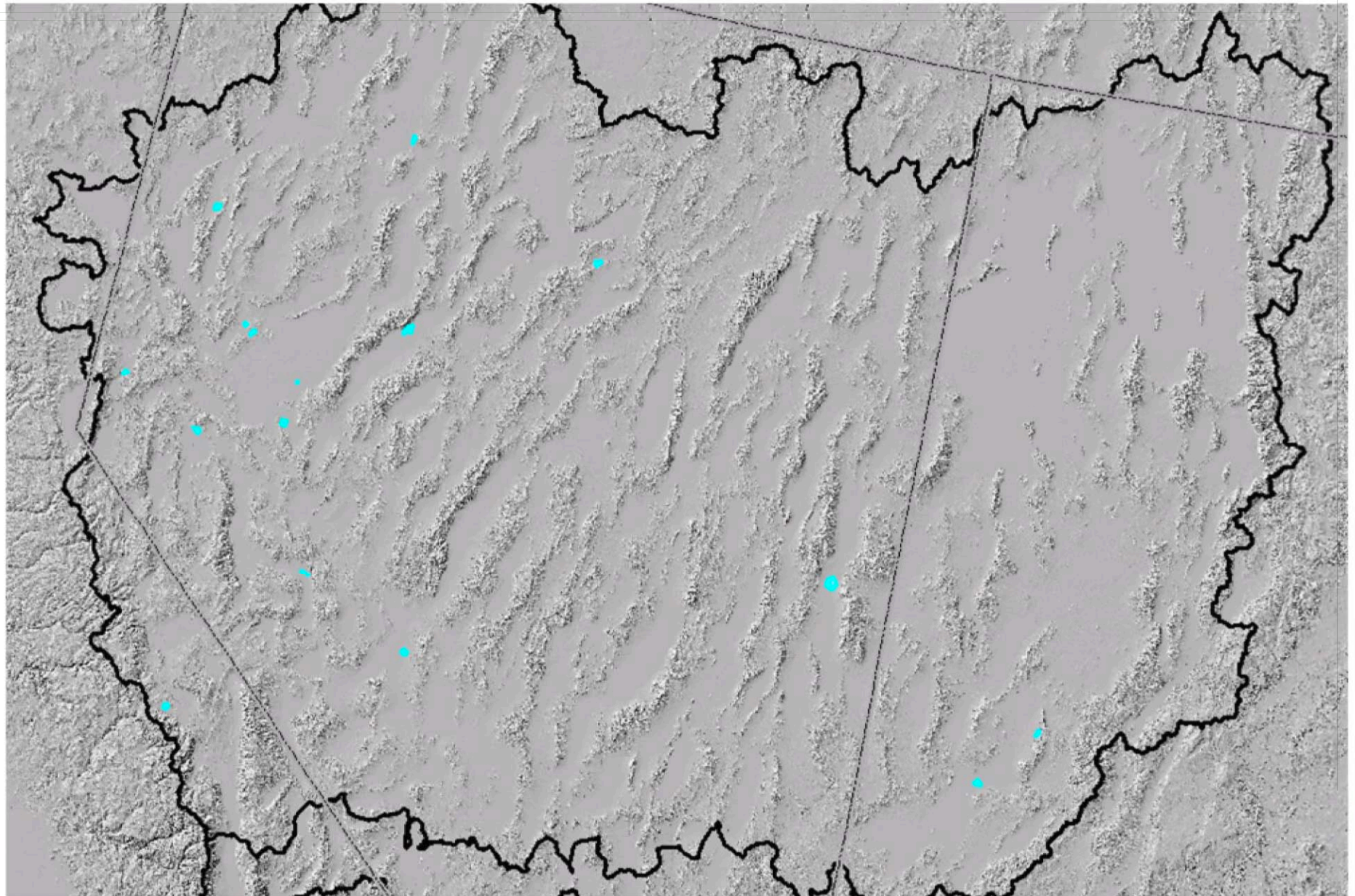
Renewable Energy

■ Mojave Basin and Range

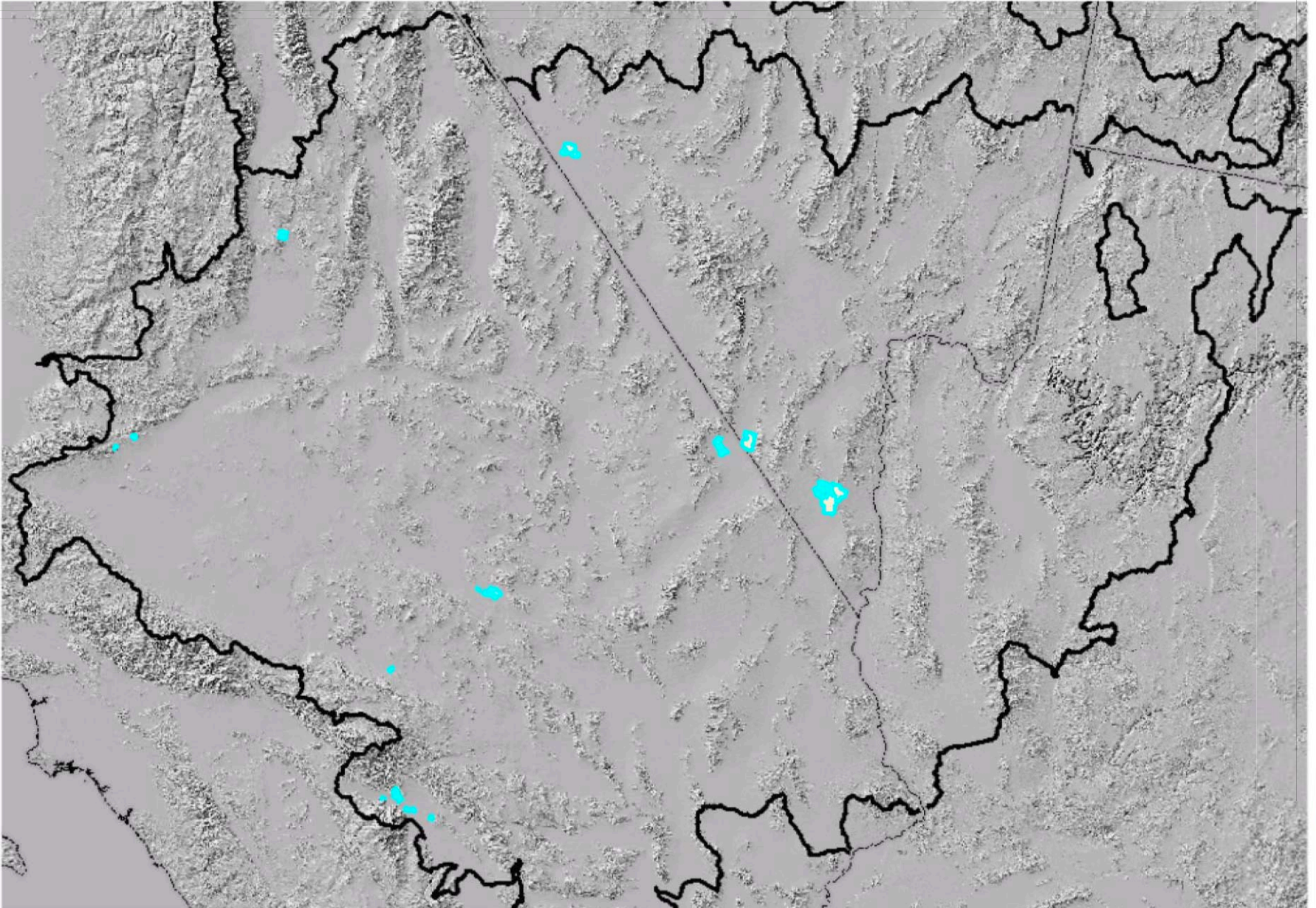
FID	ProjectNam	SerialNumb	Commodity	SCENARIO	ACRES
	0 Chevron Energy Solutions - Lucerne Valley	CACA 049561	Solar Energy Facilities	Present	461.1
	1 Solar Partners I - Ivanpah 2	CACA 048668	Solar Energy Facilities	Present	3479.4
	2 Calico Solar, LLC - Calico	CACA 049537	Solar Energy Facilities	Present	4604.4
	3 Silver State Solar (combined South and North proj)*	NVN-085077	Solar Energy Facilities	Present	7850.9
	4 Amargosa Farm Road, Amargosa Valley, Nye County	NVN-084359	Solar Energy Facilities	Present	6279.7
	5 BP-Edom Hills Project	CACA 014632	Wind Energy Facilities	Present	364.7
	6 Mark Technologies Corp. - Mesa	CACA 041695	Wind Energy Facilities	Present	277.3
	7 Oak Creek Energy - Tehachapi	CACA 013528	Wind Energy Facilities	Present	159.5
		CACA			
	8 PAMC Management Corp. - Alta Mesa	011688A	Wind Energy Facilities	Present	874.2
	9 FPL Energy - Cabazon Wind	CACA 013198	Wind Energy Facilities	Present	210.2
	10 Desert Wind Energy	CACA 015549	Wind Energy Facilities	Present	79.1
	11 Energy Unlimited Inc. - Eastridge	CACA 017192	Wind Energy Facilities	Present	77.4
	12 DIF Wind Farms V	CACA 037869	Wind Energy Facilities	Present	39.3
	13 DIFCO - Whitewater Floodplain	CACA 015562	Wind Energy Facilities	Present	962.5
	14 Cameron Ridge, LLC	CACA 009501	Wind Energy Facilities	Present	545.3
	15 San Gorgonio Farms - Whitewater Hill	CACA 009755	Wind Energy Facilities	Present	13.4
	16 Searchlight Wind Energy, Searchlight, Nevada	NVN-084626	Wind Energy Facilities	Present	24049.1
		CACA	Geothermal Energy		
	17 Navy BLM China Lake	011402	Facil*	Present	2569.6
		CACA	Geothermal Energy		
	18 Navy BLM China Lake	011402	Facil*	Present	2569.6
		CACA	Geothermal Energy		
	19 Navy BLM China Lake	022512	Facil*	Present	40.7
		CACA	Geothermal Energy		
	20 Navy BLM China Lake	025690	Facil*	Present	631.5 56138.9



Renewable Energy- CBR



Renewable Energy- MBR



Recreation models

Type	Constraints	"Gates"	Destinations
R - general	Public lands but not DOD/DOE	None	None
Ra - Boater/fisher *assume 10 mph boat speed	Reservoirs, rivers, Non-wilderness, non-DOD	Marinas, boat ramps	Beaches, fishing holes, camping spots
Re - OHV enthusiast *assume no highway travel	Public, non- wilderness, non-DOD	OHV staging areas, trail heads	Potentially: race courses, ravines, washes
Rf – Hiker, cyclist	Public, non-DOD	Trail heads, campgrounds, RCAs/LTVAs	Springs, slot canyons, peaks, arches
Rr - OHV hunter/rock hounder	Public, non- wilderness, non-DOD	OHV trail heads, campgrounds, RCAs/LTVAs	Caves, mines, ruins



Recreation

Type

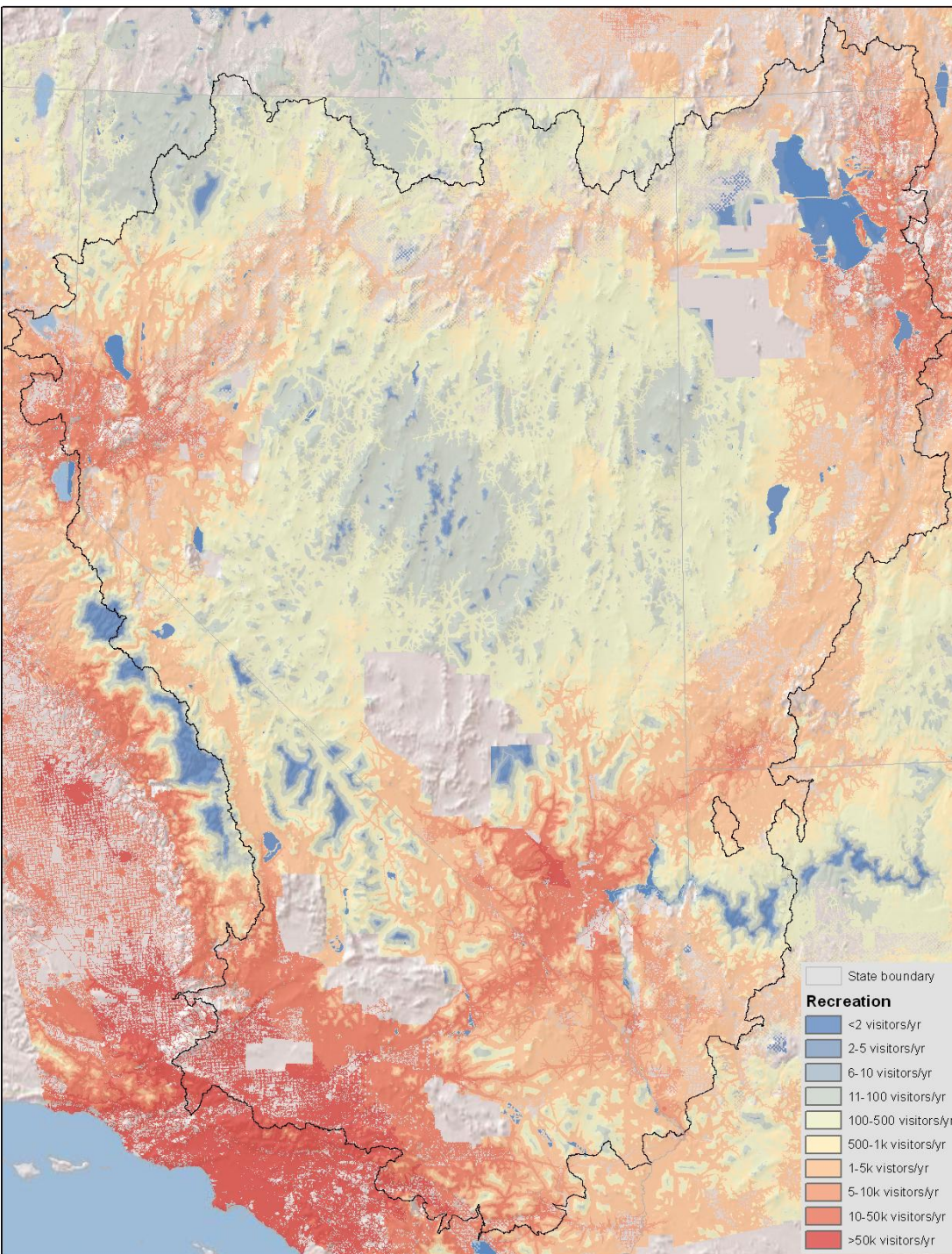
R - general

Ra -
Boater/fisherman
*assume 10 mph
boat speed

Re - OHV
enthusiast
*assume no
highway travel

R - Hiker, cyclist

Rr - OHV
hunter/rock
hopper



ons

fishing holes,
spots

ly: race
ravines,

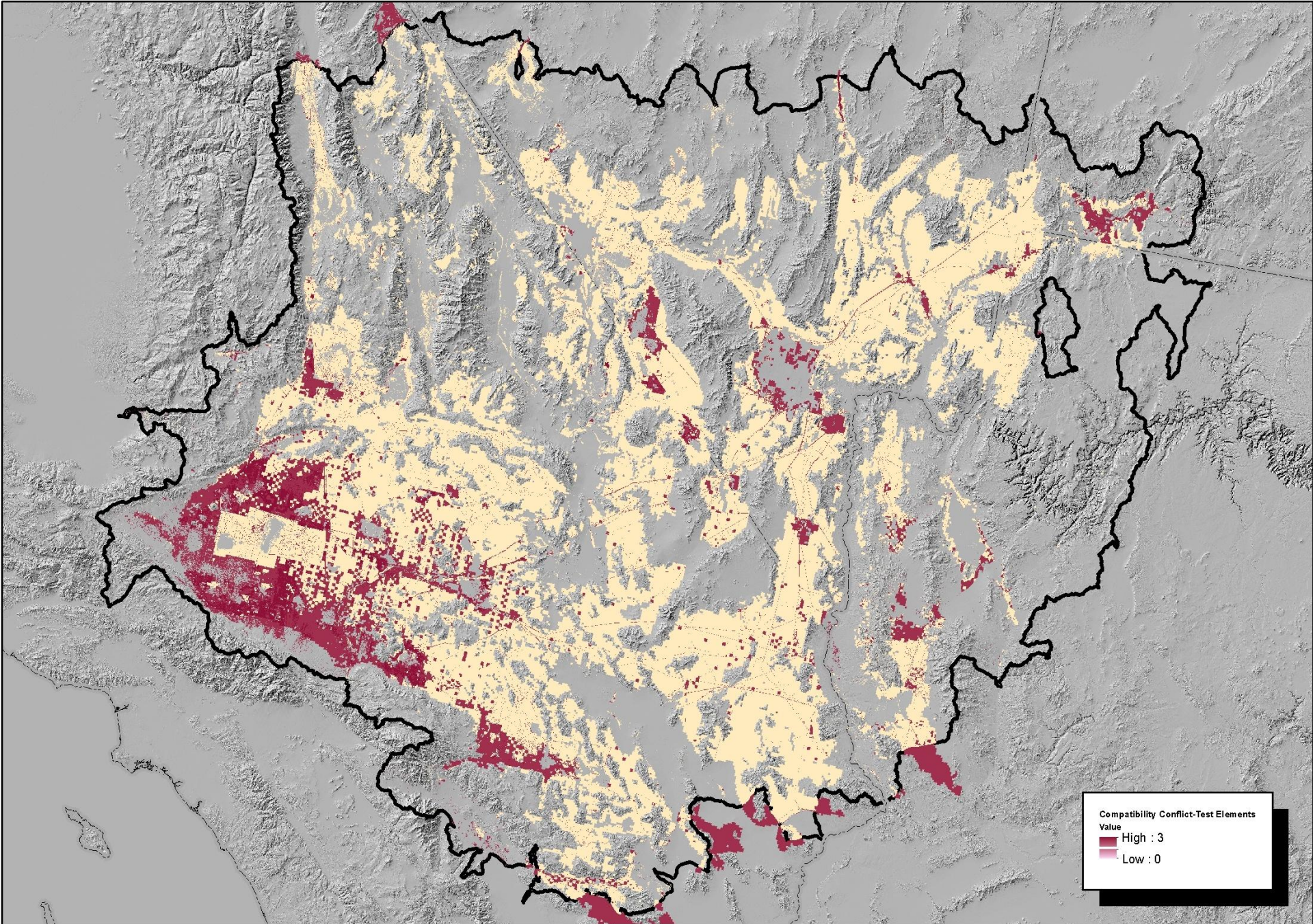
slot canyons,
ches

ines, ruins

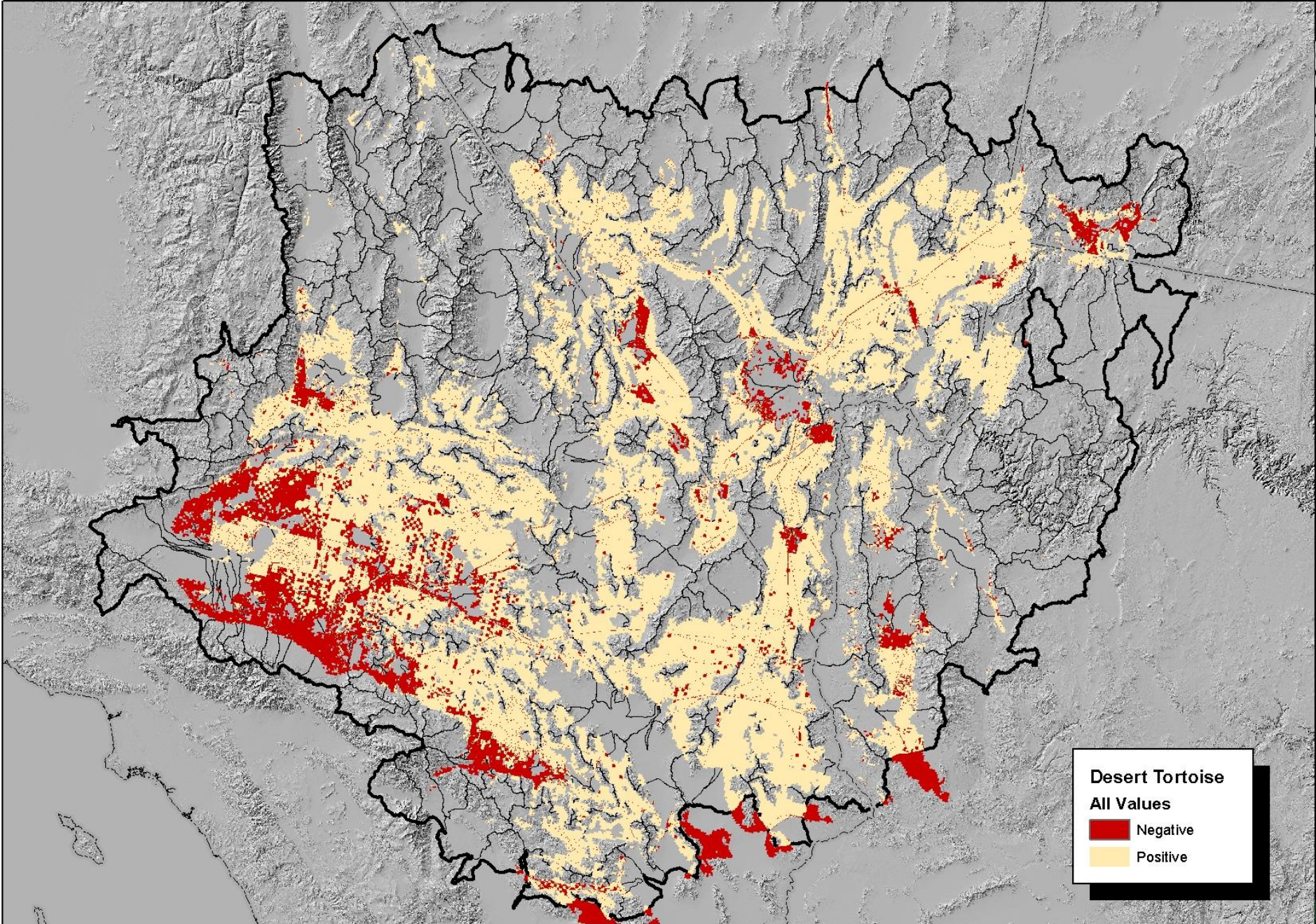
Assessments

- Where do locations of current CEs overlap with development Cas?

Name	Conservation Elements				
Scenario	Current MBR				
Cell size	0.22 acres				
Goal Performance by Element					
Name	Area (acres)	Occs	Area (acres)	Occs	Percent Compatible
Sonoran Mojave Salt Desert Scrub	2,250,909.32	406642	1,472,473.86	300079	65.42%
North American Warm Desert Riparian Shrub	107,201.38	22926	81,664.44	17616	76.18%
Desert Tortoise	13,681,304.78	667	10,996,615.52	649	80.38%

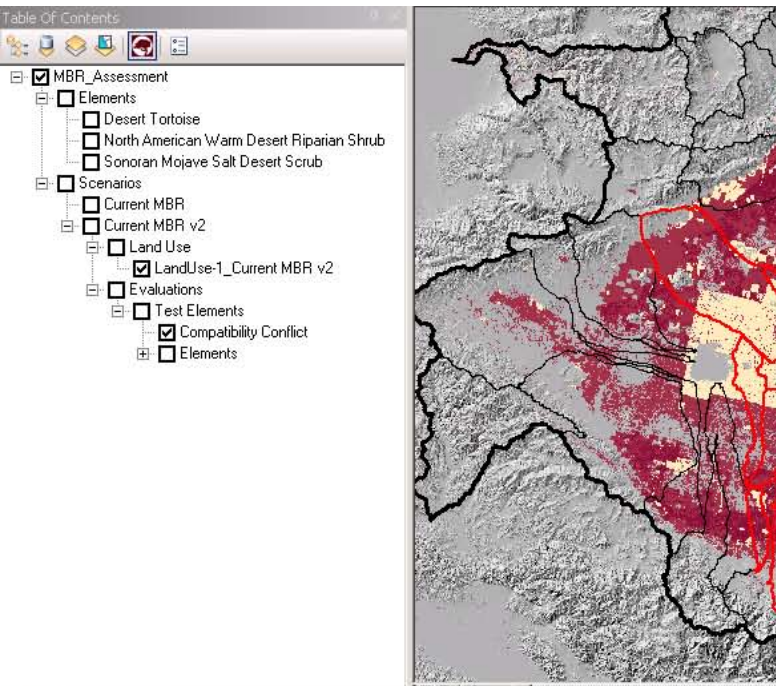


0 30 60 120 Miles



Assessments

■ Reporting Units: HUCs, HMAs, Allotments



Site Explorer

Test Elements

Scenario Evaluation

Site Layer: PLIV_MBR_huc10_watersheds

Selection Attributes

FID: 156

FID: 157

FID: 158

Element Name	Total
Sonoran Mojave Salt Desert Scrub	406,642 occ's.; 2,250,909.32
North American Warm Desert Riparian Shrub	22,926 occ's.; 107,201.38 ac.
Desert Tortoise	667 occ's.; 13,681,304.78 ac.

Site Selection Report

Back Forward Stop Refresh Print Export Show XML Customize

Site Selection Report

Based on Scenario Evaluation [Test Elements](#)

- Element Inventory - Summary
- Element Inventory - Detail
 - Sonoran Mojave Salt Desert Scrub
 - North American Warm Desert Riparian Shrub
 - Desert Tortoise
- Scenario Inventory
 - By Source Layer
 - By Land Use and Policy Type
 - By Land Use with Element Response
- Selected Sites Listing

Element Inventory - Summary

Element	Total	Selection	Compatible Area	% Compat	Selection Compat	Response
Sonoran Mojave Salt Desert Scrub	406,642 occ's.; 2,250,909.32 ac.	54,924 occ's.; 443,607.78 ac.		73.8% occ's.; 65.4% area	29,224 occ's.; 225,234.9 ac.	(None)
North American Warm Desert Riparian Shrub	22,926 occ's.; 107,201.38 ac.	401 occ's.; 1,442.76 ac.		76.8% occ's.; 76.2% area	191 occ's.; 335.28 ac.	(None)
Desert Tortoise	667 occ's.; 13,681,304.78 ac.	5 occ's.; 929,887.86 ac.		97.3% occ's.; 80.4% area	3 occ's.; 506,974.16 ac.	(None)

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Scenario Detail

By Source Layer

[Back to top](#)

By Land Use and Policy Type

[Back to top](#)

By Land Use and Element Response

[Back to top](#)

Element Inventory - Detail

Sonoran Mojave Salt Desert Scrub

Element	Sonoran Mojave Salt Desert Scrub
Total	406,642 occ's.; 2,250,909.32 ac.

Done

Clarifications

- MQ #52 Where are ecological areas with significant recreational use?
 - A reporting unit question: what is the proportion of high biodiversity sites with recreation use?
 - A CE question: what CEs and their proportions are overlapped by recreation?
 - An EI question: what areas of high ecological integrity are overlapped by recreation?
 - Or like this one: Where are the areas of CEs that fall below their EI threshold due to development [recreation] CAs?



Options for reporting units relevant to basic MQs (where are CEs/CAs/Places and their overlaps?)



Reporting Units

MQs:

Where are CEs?

Where are CAs?

Where do CAs affect CEs?

Where might CAs affect CEs in 2025?

Where might CEs occur in 2060?

Where might CAs occur in 2060?



Reporting Units

- **5th level watersheds**
- **other forms of ‘gap analysis’**
- **Places: High Biodiversity areas**
- **Places: Herd Management units**
- **Others?**



Lunch break on your own



Assessing current ecological status & integrity of [upland] CEs

