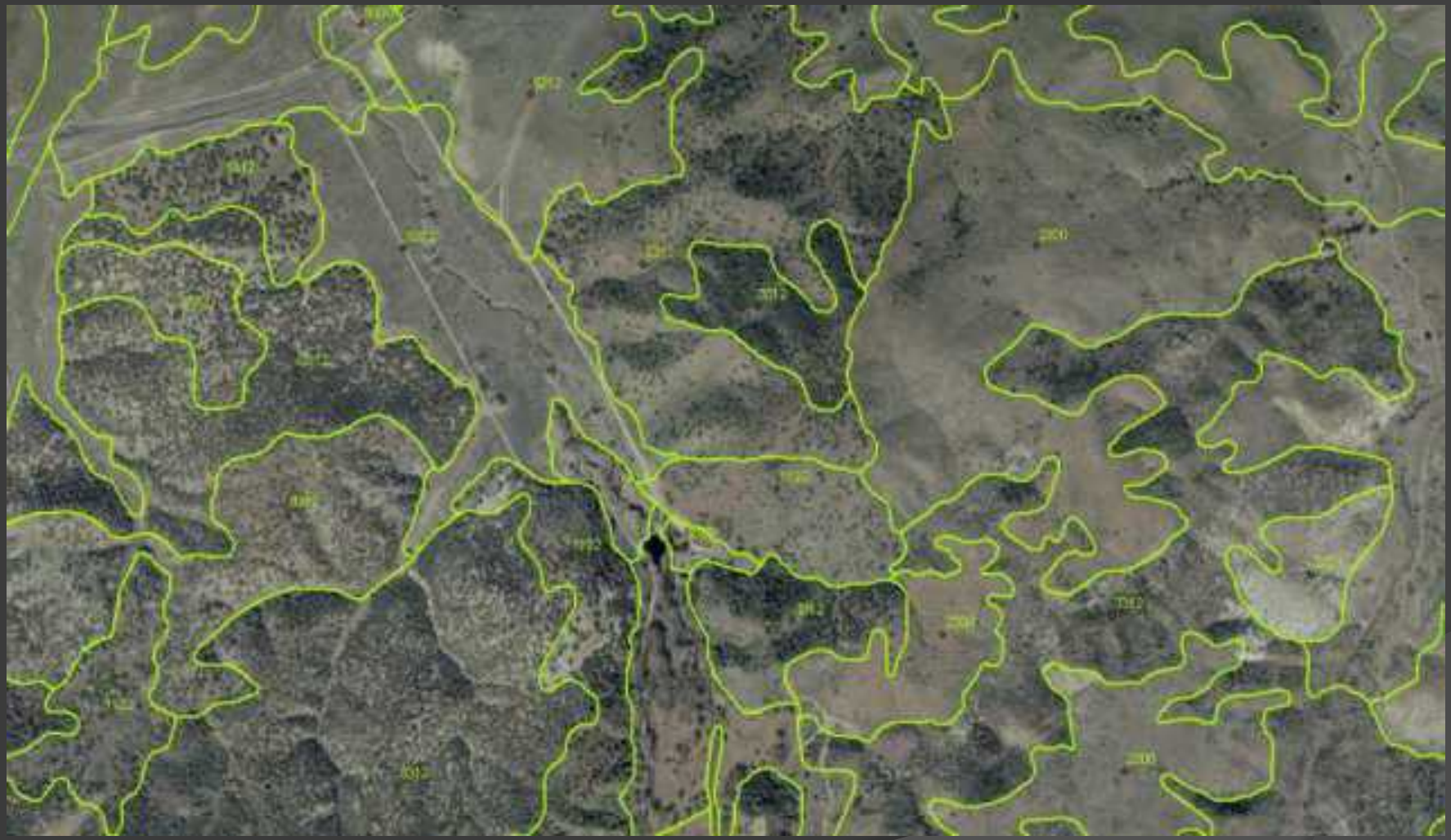
This means that natural processes, Vegetation, and its resilience to different types of processes varies from west to east based on the gradient of climate, soils, etc.

What is the appropriate scale for assessment in the Antelope Valley?

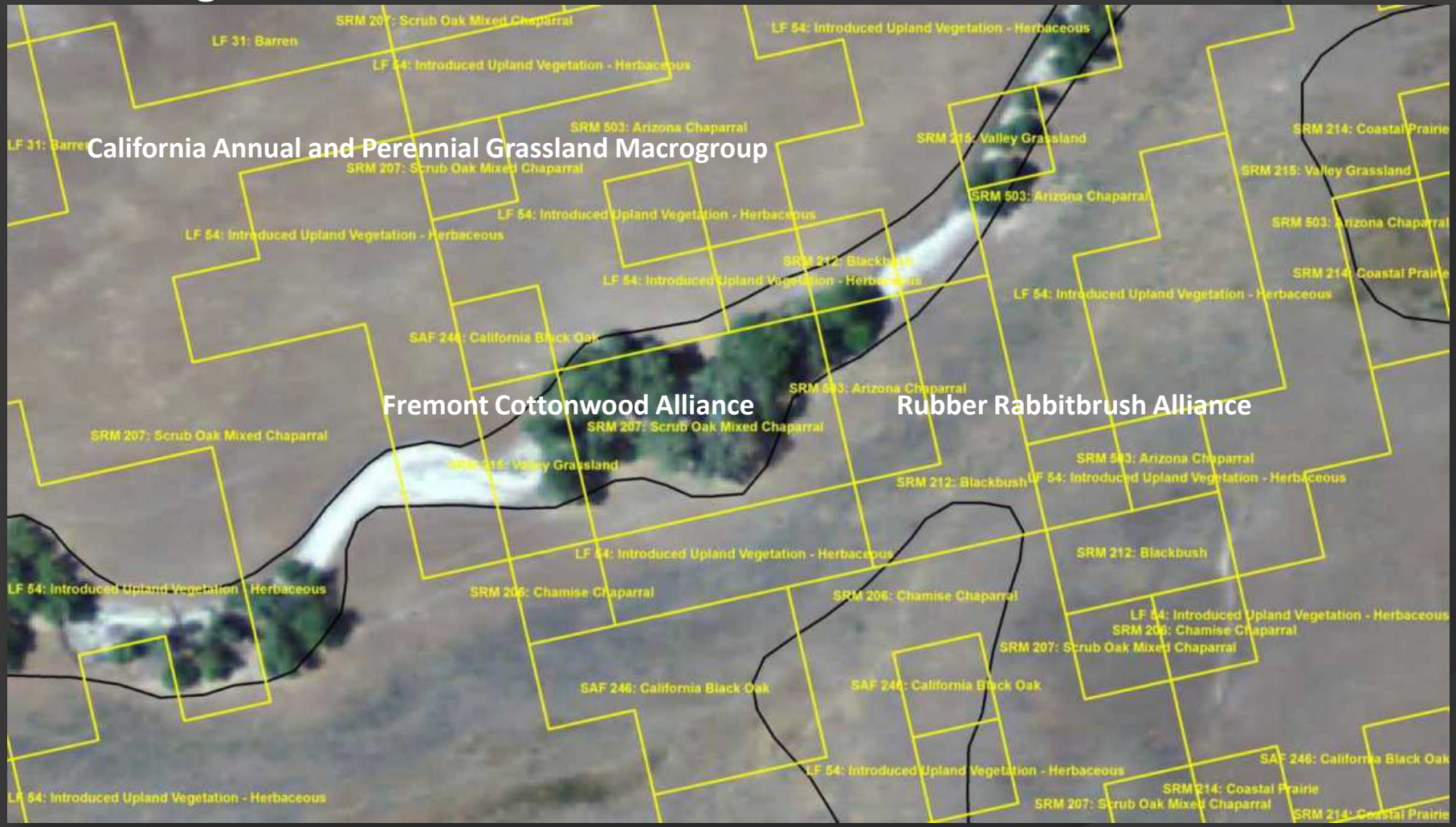
- Recent Existing vegetation layers which cover the entire area include:
  - GAP 2008 (2002 30 m pixel landsat)
  - Landfire 2009 (2002 30 m pixel landsat)
  - Ongoing mapping at alliance level (< 1 m resolution NAIP or 1 ft res. County imagery,both 2010)

Sample CEC-AIS-CDFG DRECP Vegetation Delineations in the La Liebre Ranch Quad



Sample GAP Segmentation in the La Liebre Ranch Quad

Large regional assessments are not adequate to make Sub-regional decisions



LANDFIRE (Yellow) – CEC-AIS-CDFG DRECP Vegetation (Black) Comparison
Western Antelope Valley

Assessments using existing data taken at inappropriate scale make for poor conservation decisions

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conservation
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to support
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road-vehicle
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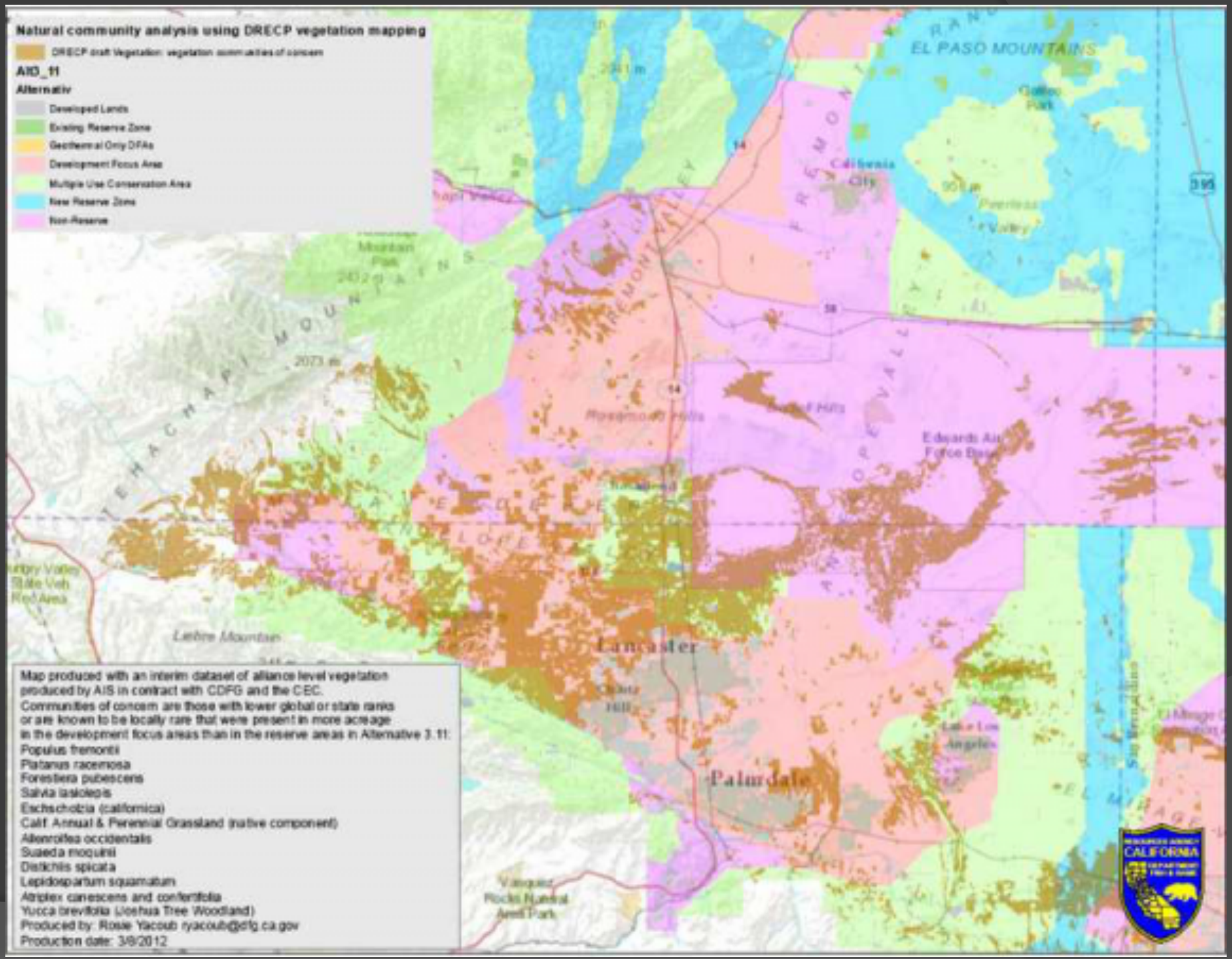
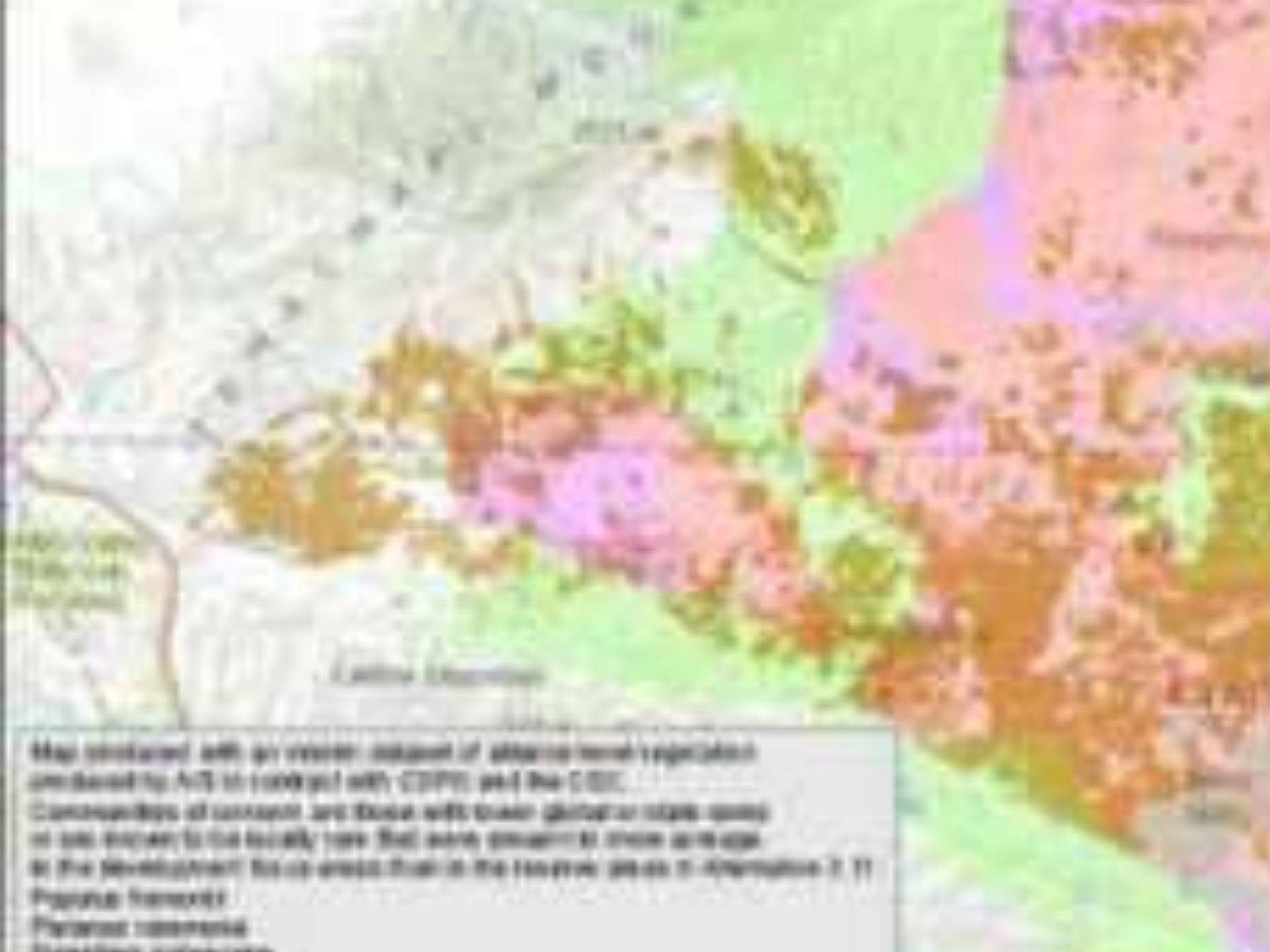
l by human uses


Natural community analysis using DRECP vegetation mapping
DRECP draft Vegetation: vegetation communities of concern
AIS_11
Alternativ
Developed Lands
Existing Reserve Zone
Geothermal Only DFAs
Development Focus Area
Multiple Use Conservation Area
New Reserve Zone
Non-Reserve
EL PASO MOUNTAINS
Lancaster
Palmdale
Edwards Air Force Base
Map produced with an interim dataset of alliance level vegetation produced by AIS in contract with CDFG and the CEC.
Communities of concern are those with lower global or state ranks or are known to be locally rare that were present in more acreage in the development focus areas than in the reserve areas in Alternative 3.11:
Populus fremontii
Platanus racemosa
Forestiera pubescens
Salvia lasiolepis
Eschscholzia (californica)
Calif. Annual & Perennial Grassland (native component)
Allenrolfea occidentalis
Suaeda moquinii
Distichlis spicata
Lepidospartum squamatum
Atriplex canescens and confertifolia
Yucca brevifolia (Joshua Tree Woodland)
Produced by: Rosie Yacoub ryacoub@dfg.ca.gov
Production date: 3/8/2012
CALIFORNIA



important realization bringing classification of veg and s and t's closer

Response

- Improved definitions of model concepts
- Increase attention on:

  RESILIENCE MANAGEMENT vs. threshold management
- Increased emphasis on *at-risk plant community phases* *(transitional phase)*

how does resilience relate to vegetation classification

- Ecological resilience describes the degree of ecosystem modification that is required before the system begins to reorganize around an alternative set of reinforcing processes (Briske 2006)
- repeating samples of vegetation that are clustered into veg types show a range of species covers and constancy and a range of environmental variables (same as resilience)

Can we actually propose a refinement of ESDs based on veg. classification?

- Peterson and Stringham (2006) and others have developed S and T models by sampling and analyzing plot data in pre-determined ecological sites
- they generally find a useful relationship between the concepts
- there may be an issue with tautological assumptions of selecting samples based on untested definition of sites
- why not use vegetation as the dependent variable to allocate samples ? Is this already done anyway? e.g., are esd's developed based on independent samples of the veg across the landscape?

Issues of concept congruence vs. Map resolution and aggregation

- If the classification of vegetation were to be done prior to the development of Ecological Site Descriptions
  - There would be great similarities between them
  - Many of the plant communities in ecological states would be equivalent to phases of associations ??
- If the spatial resolution of the maps of soils and vegetation used similar rules
  - Minimum map unit size
  - Aggregations into complexes
  - Independence of soils data from vegetation data
  - Then the similarity of vegetation and soils-based ecological site descriptions would be greater

Characterization of ecosites could be done by looking at vegetation first

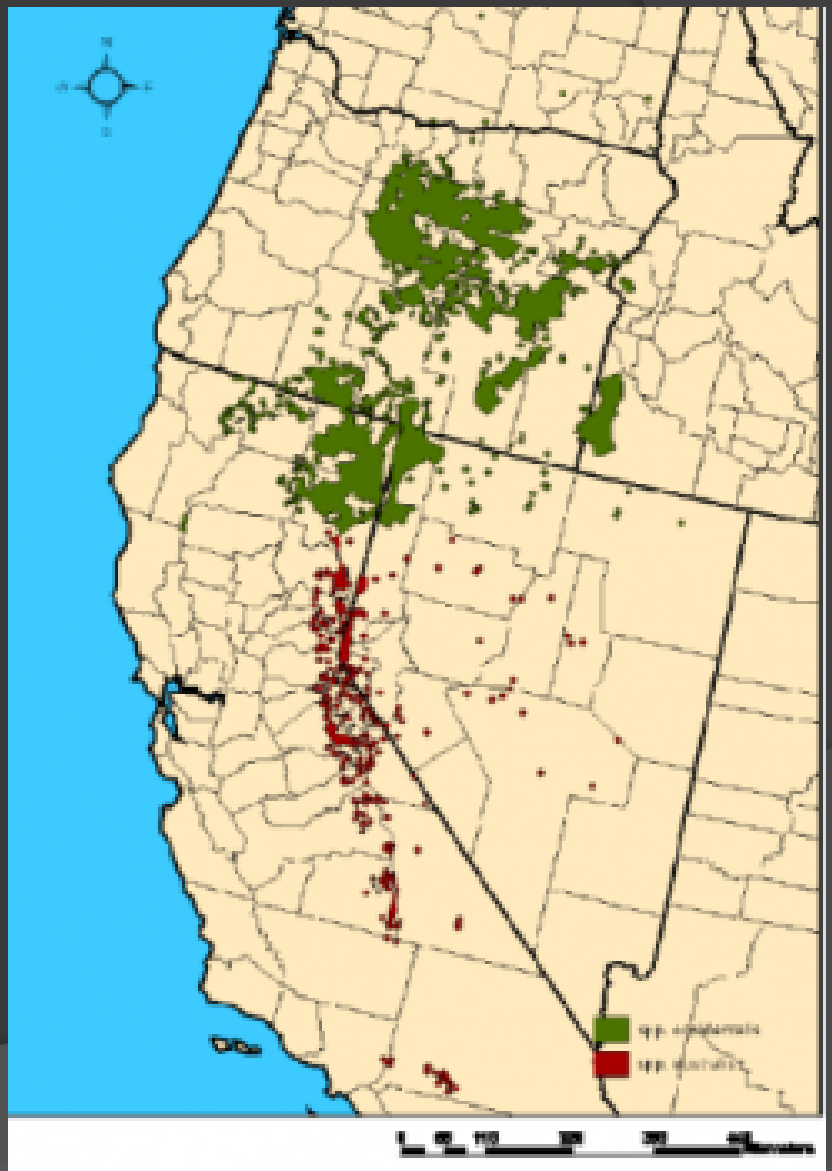
- Since the descriptions are based on modal diagnostic plant species of the landscape unit and what better way to pick those than using constancy and diagnostic values of vegetation rather than estimates sampled a few places around the study area (n=2800 for foothills veg plots, not sure what n=? For eco site descriptions)

Some philosophical questions and consequences:

- Should we attach vegetation primarily to modal or zonal settings just to more efficiently incorporate into a landscape hierarchy?
  - Consequence: we emphasize the mode and deemphasize the range of vegetation
  - We presume to understand potential veg on all zonal sites with limited data, if incorrect, we mismanage for it.
- Should we map vegetation to soils if soils are not the sole driver of the distribution of vegetation?
  - Consequence: decouple veg from other drivers
  - Consequence: proliferate naming of veg types based on tag to soils, increase complexity of nomenclature

Managing Western Juniper (*Juniperus occidentalis*) on wildlife areas of the Modoc Plateau

- Occupies 7.5 million acres in 5 western states 5 million acres in OR and > 2 million in CA
- Generally in the 10-15” precipzone
- 600 -8,000 ft. elevation

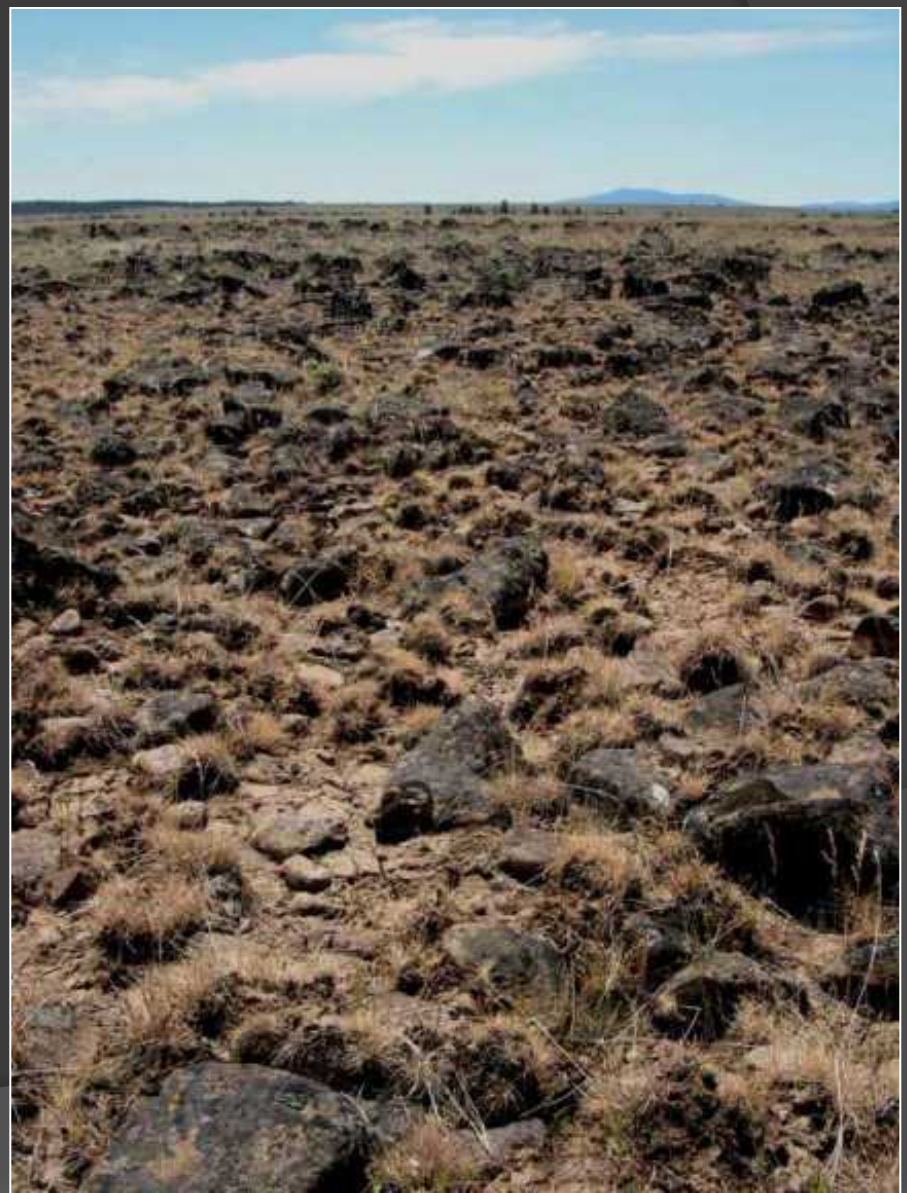


Western Junipers can live to > 1000 years, but are also excellent reproducers and colonizers

Many areas of the Modoc Plateau have been rapidly colonized by Western Juniper over the past 120 years or so.

Open reaches are best habitat for species such as pronghorn and sage grouse and were more common 100 + years ago

colonization is most resistant in fine textured soils such as this self-churning vertisol, where annual and perennial herbs prevail



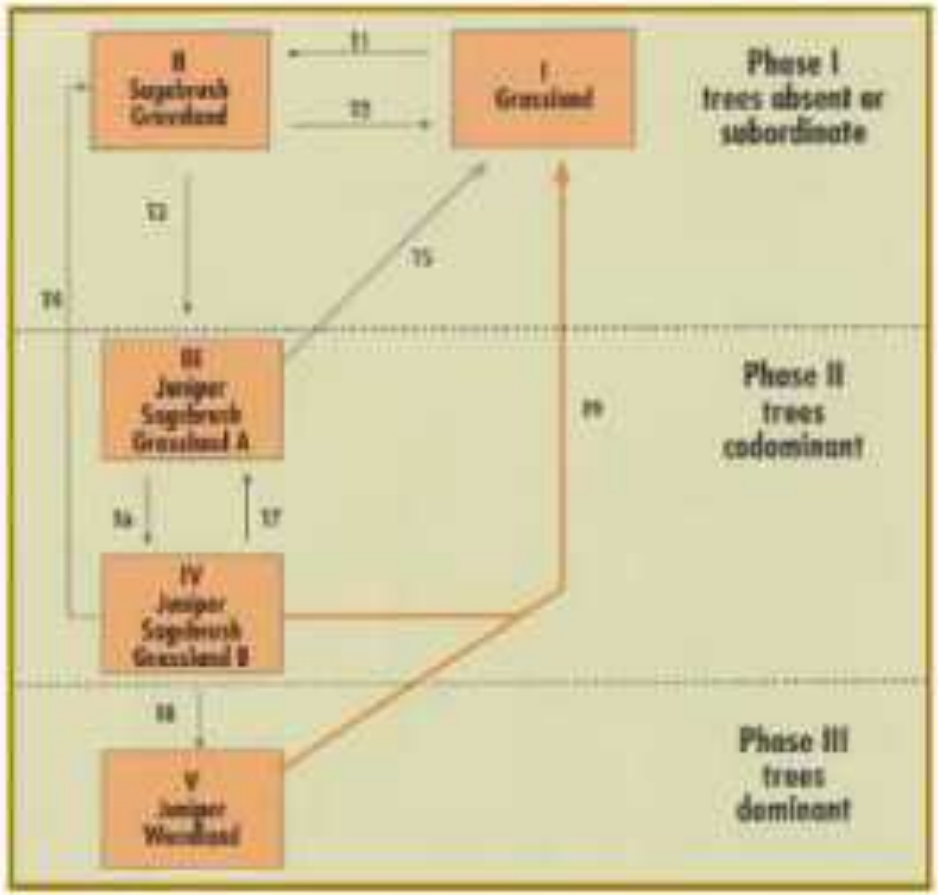
Colonization takes place in more favorable areas

- 90%-95% increase in 130 years

Juniper colonization occurs rapidly in mesic sites with well drained soils

Basic S - T Model from Miller et al. (2005)

- T1 – lack of fire
- T3 – lack of fire
- T5 – fire
- T8 – conversion to woodland
- T9 – cutting or cutting plus fire

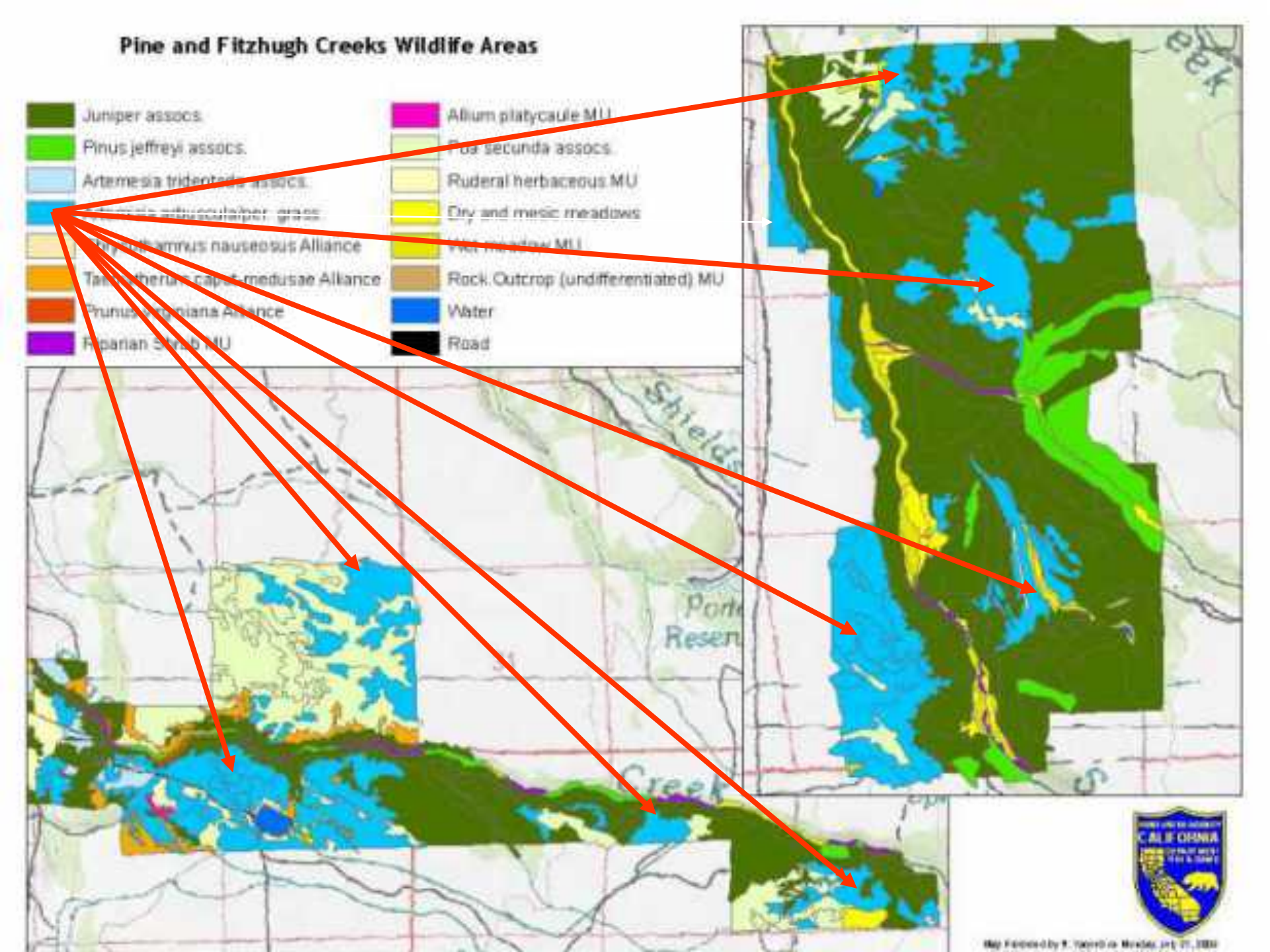


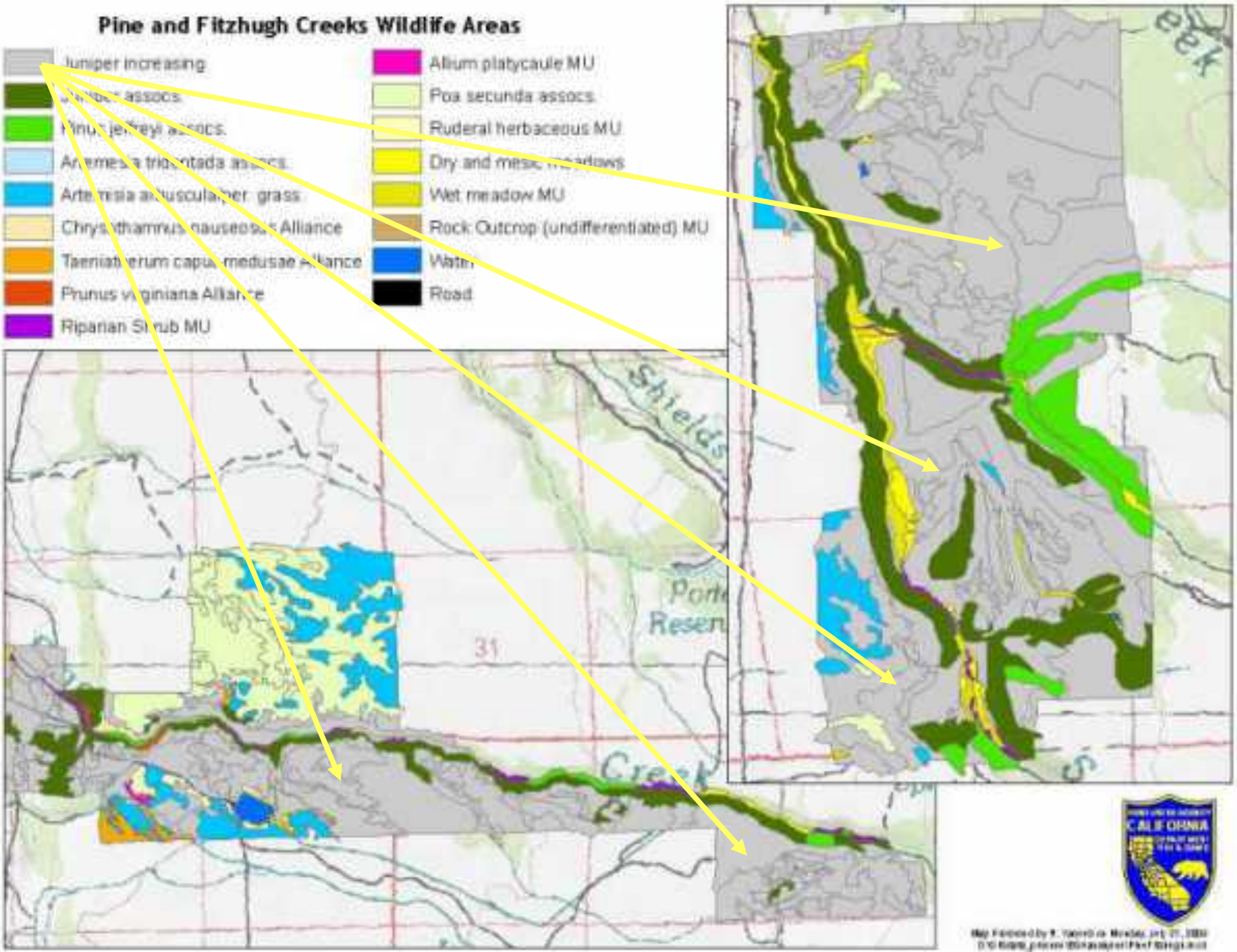
Miller, et al. 2005. Biology, Ecology, and Management of Western Juniper. Technical Bulletin 152. Ag. Ex. Station, Oregon State University, Corvallis, OR.

Where to direct attention when resources are few?

Quantifying western juniper (*Juniperus occidentalis*) increase in Northeastern CA

Juoc is mapped at density, size class, and cover for all polygons in which it occurs


Pine and Fitzhugh Creeks Wildlife Areas
Juniper assocs.
Pinus jeffreyi assocs.
Artemesia tridentata assocs.
Chrysothamnus nauseosus Alliance
Prunus virginiana Alliance
Riparian Shrub MU
Allium platycaule MU
Poa secunda assocs.
Ruderal herbaceous MU
Dry and mesic meadows
Rock Outcrop (undifferentiated) MU
Water
Road
Shields
Creek


Pine and Fitzhugh Creeks Wildlife Areas
Juniper increasing
Pinus jeffreyi assocs.
Artemisia tridentata assocs.
Artemisia arbuscula/per. grass
Chrysothamnus nauseosus Alliance
Prunus virginiana Alliance
Riparian Shrub MU
Allium platycaule MU
Poa secunda assocs.
Ruderal herbaceous MU
Dry and mesic meadows
Wet meadow MU
Rock Outcrop (undifferentiated) MU
Water
Road
Shields
31
Creek