Post-Wildfire Livestock Grazing Management

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Central California Livestock Symposium
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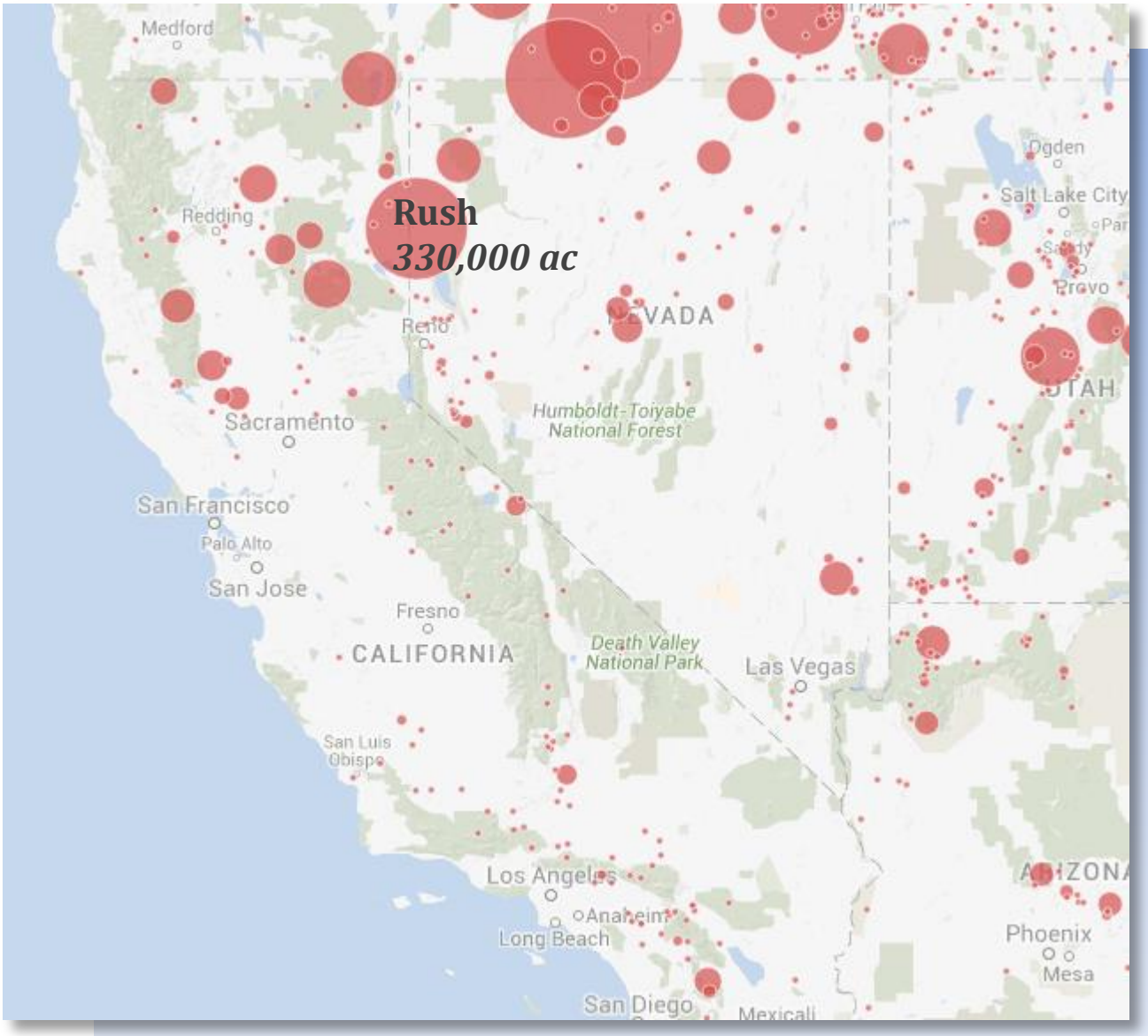
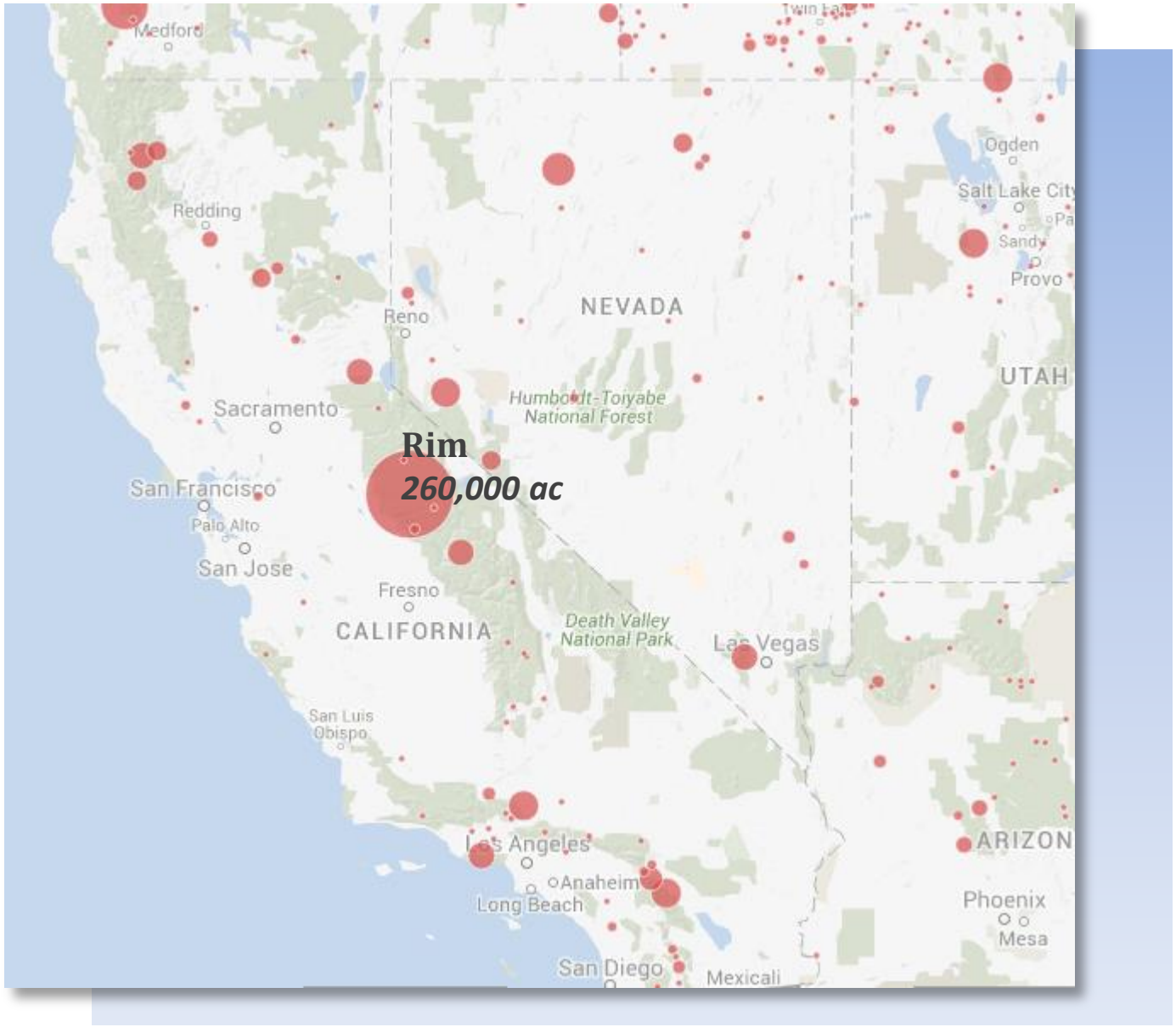
Today's Roadmap

- California's rangeland wildfires – Trends and impacts
- Post-wildfire grazing – Management questions, state of the science, and knowledge gaps
- Next steps – Filling in the science gaps

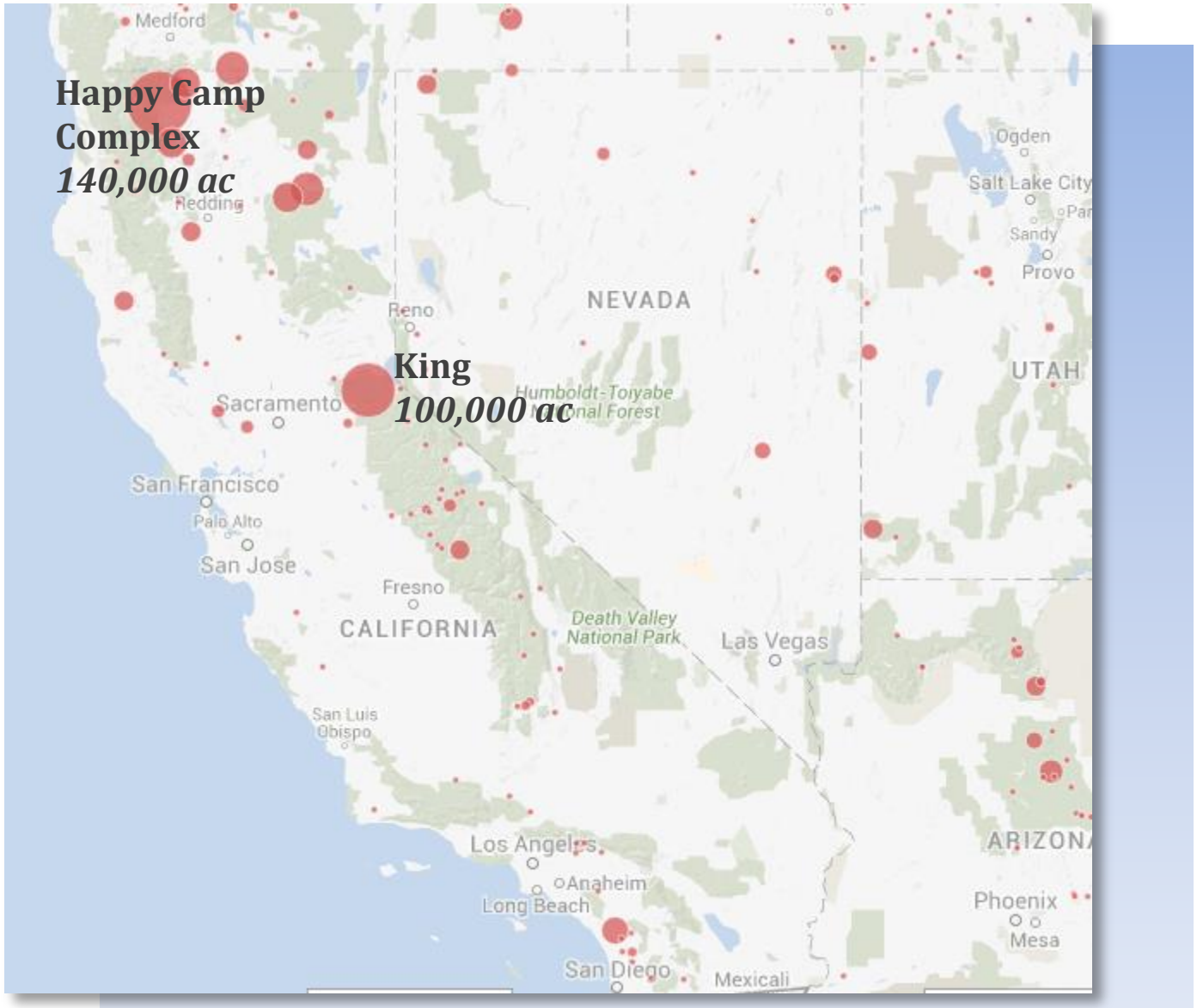
California Wildfires in 2012



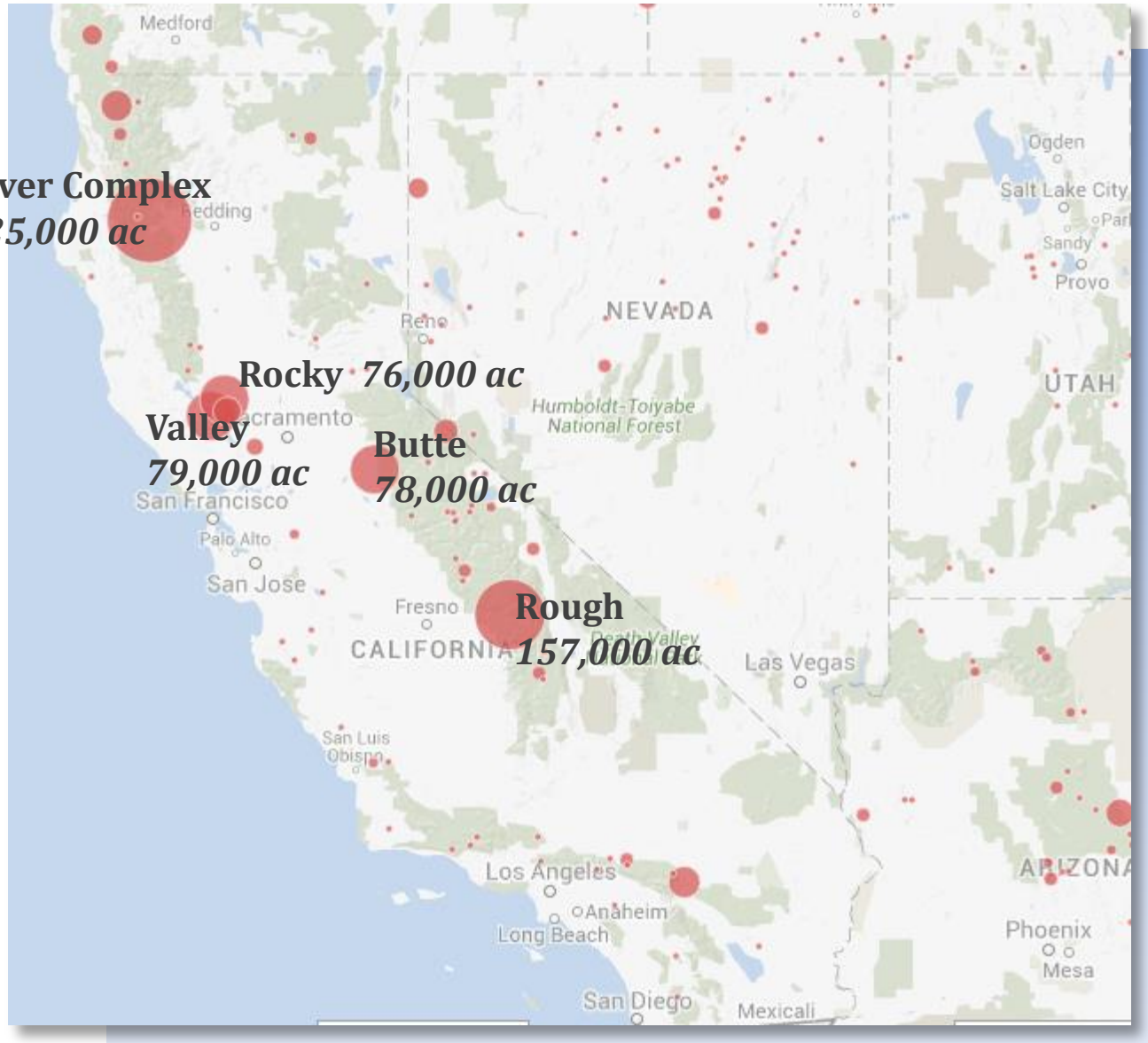
California Wildfires in 2013

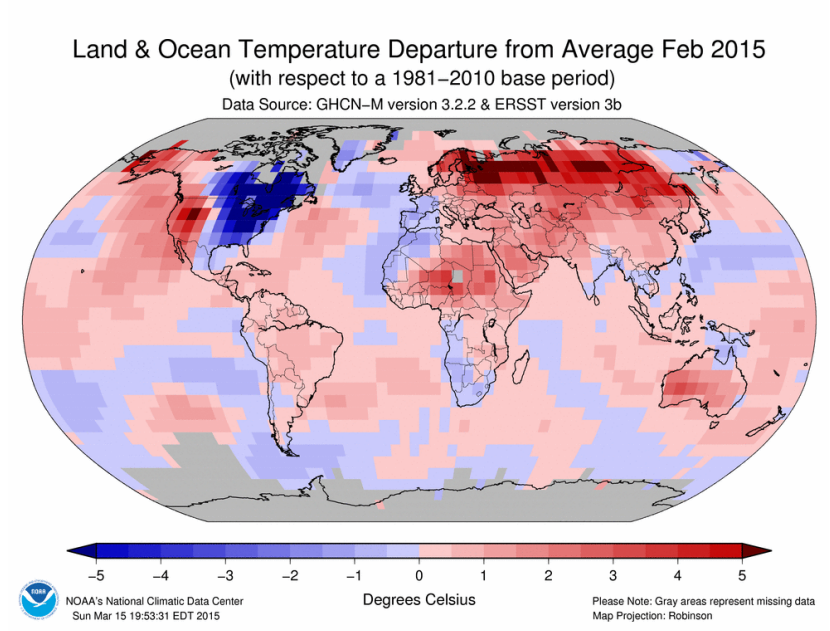


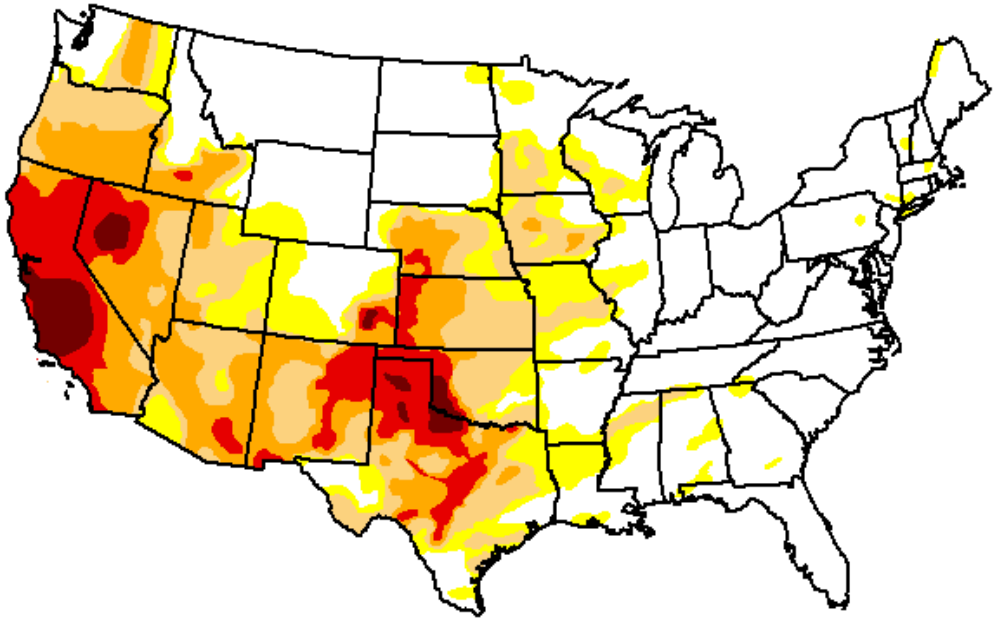
California Wildfires in 2014

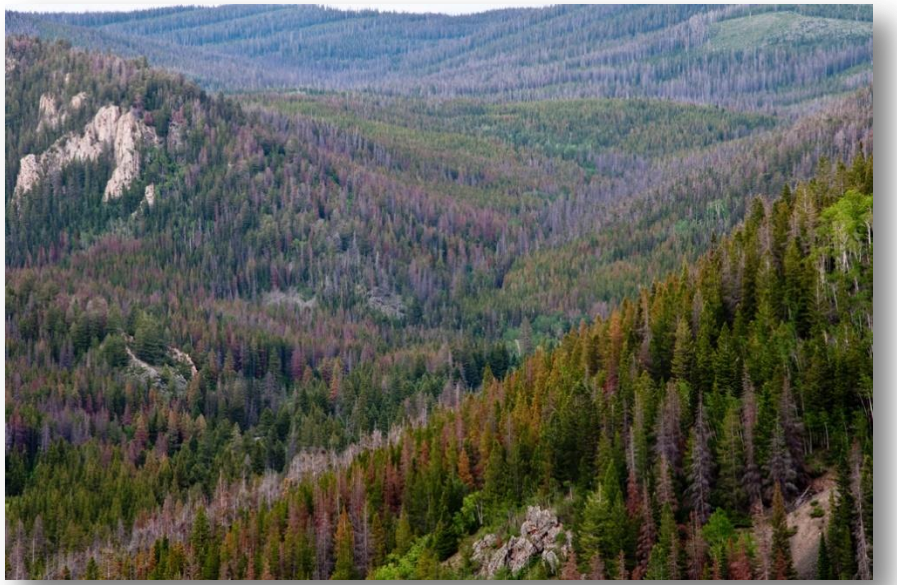


California Wildfires in 2015




Land & Ocean Temperature Departure from Average Feb 2015
(with respect to a 1981–2010 base period)
Data Source: GHCN–M version 3.2.2 & ERSST version 3b
−5 −4 −3 −2 −1 0 1 2 3 4 5
Degrees Celsius
NOAA's National Climatic Data Center
Sun Mar 15 19:53:31 EDT 2015
Please Note: Gray areas represent missing data
Map Projection: Robinson





Federal Grazing Allotments in California

US Forest Service

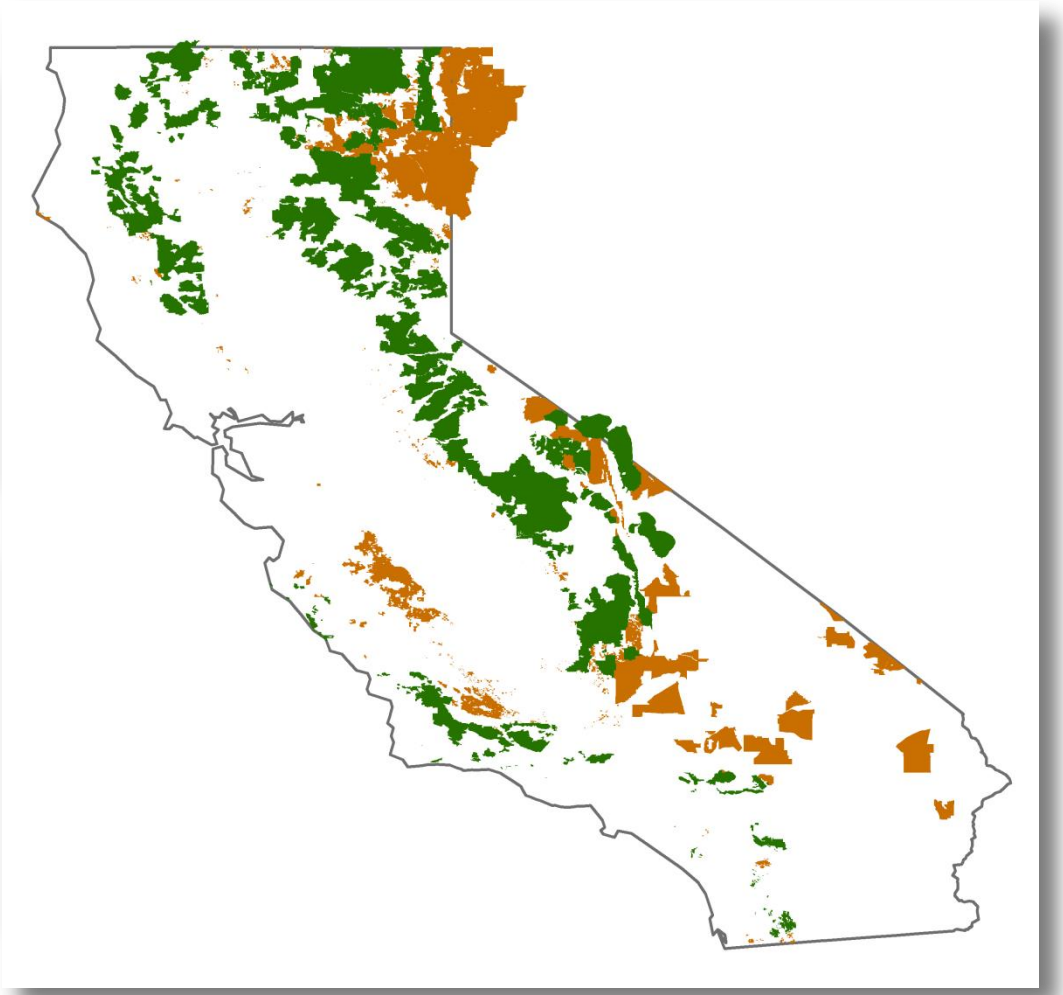
8 Million Acres

332,000 AUMs

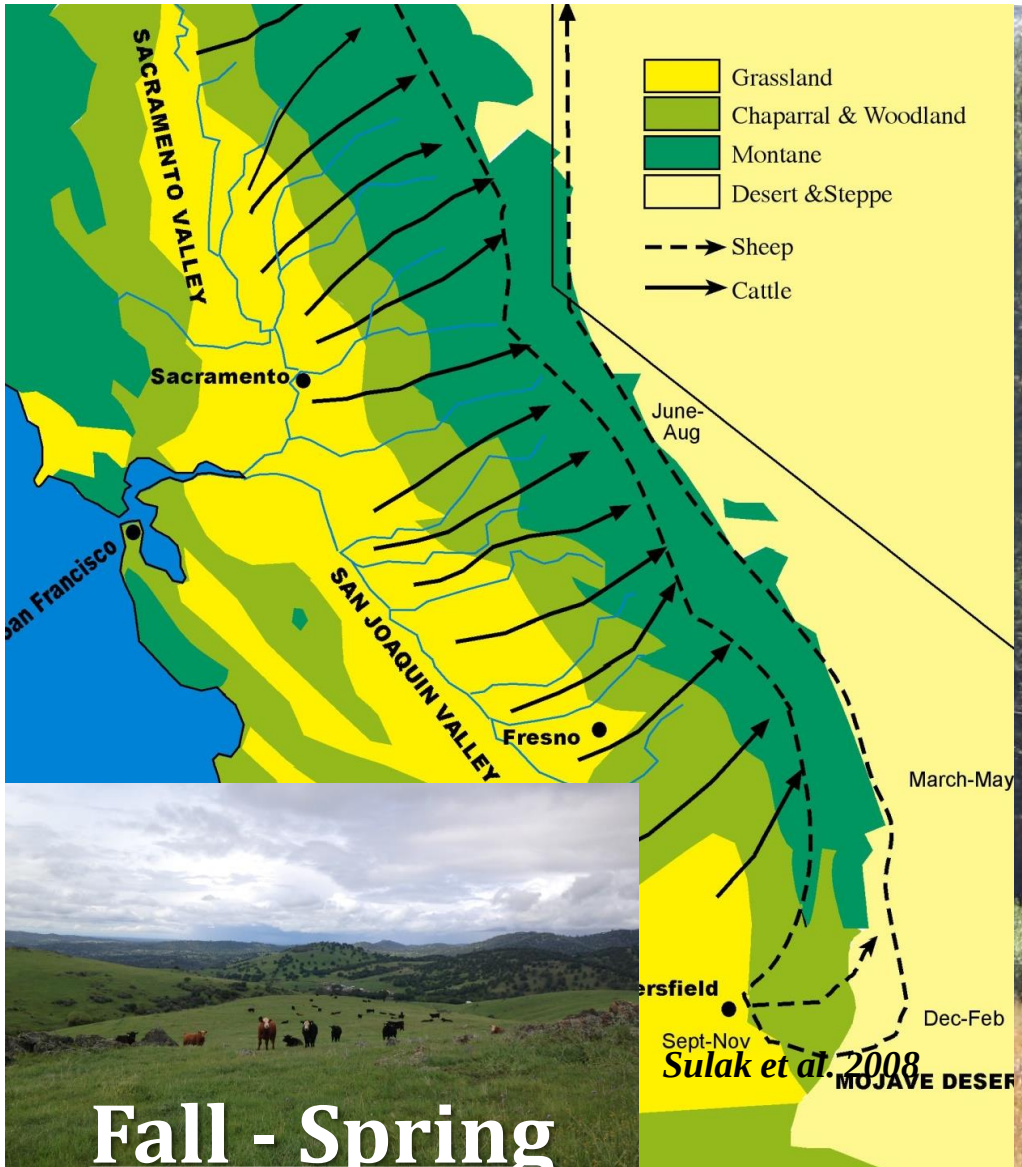
BLM

6.7 Million Acres

172,000 AUMs

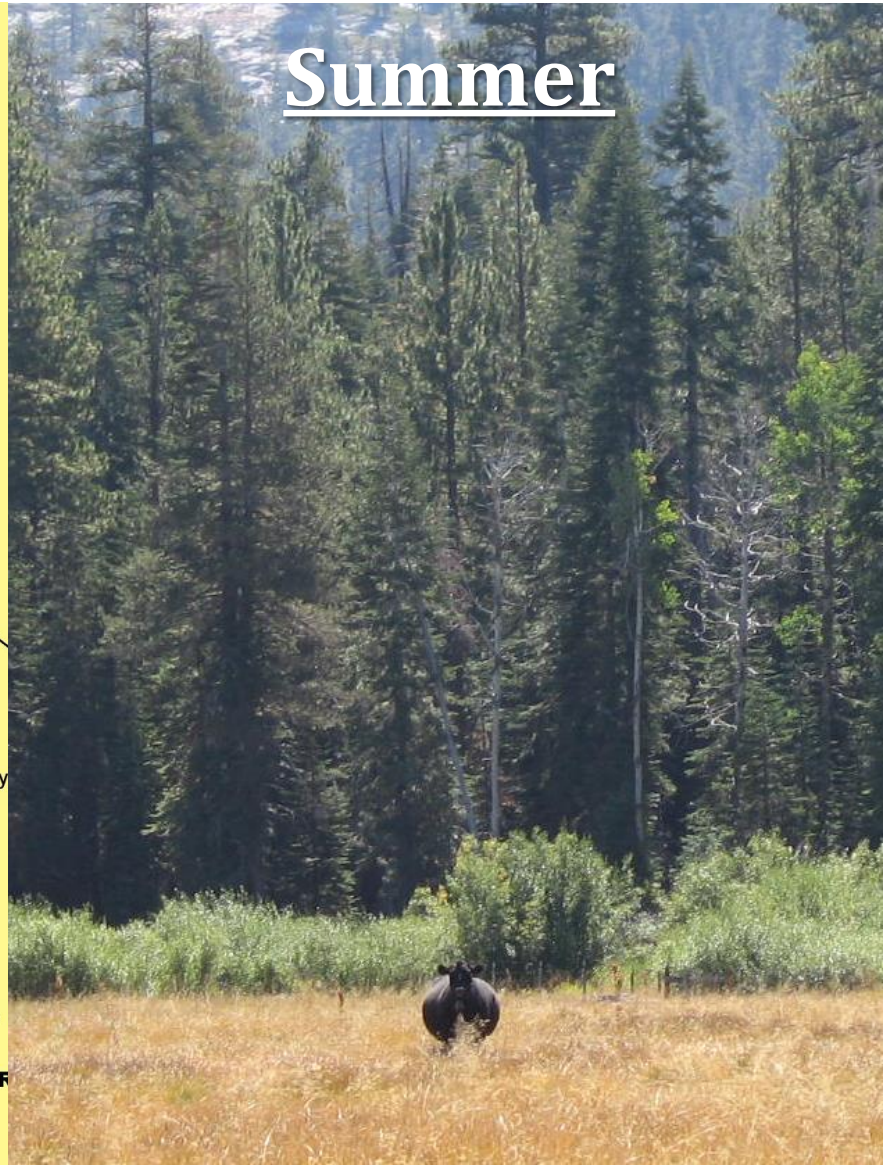


High Elevation Public Lands & Private Foothill Ranches Connection



Sulak et al. 2008

Fall - Spring



Summer

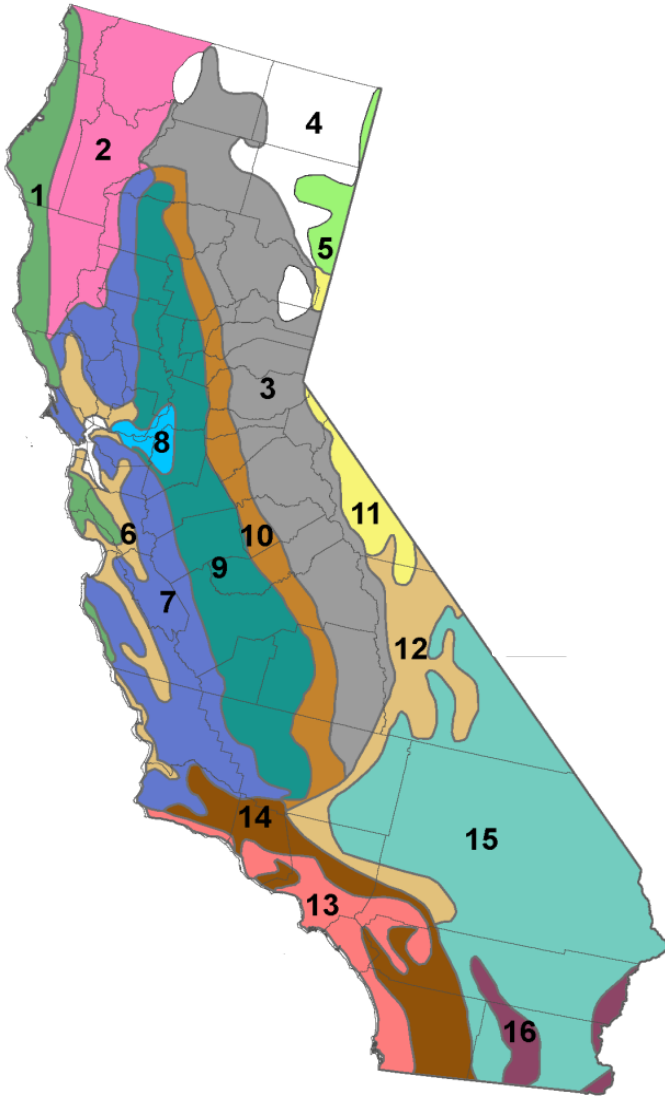
Central policy and management question…

How quickly will rangeland health recover and allotments become ready to support livestock grazing without risking long-term natural resource damage following wildfire?

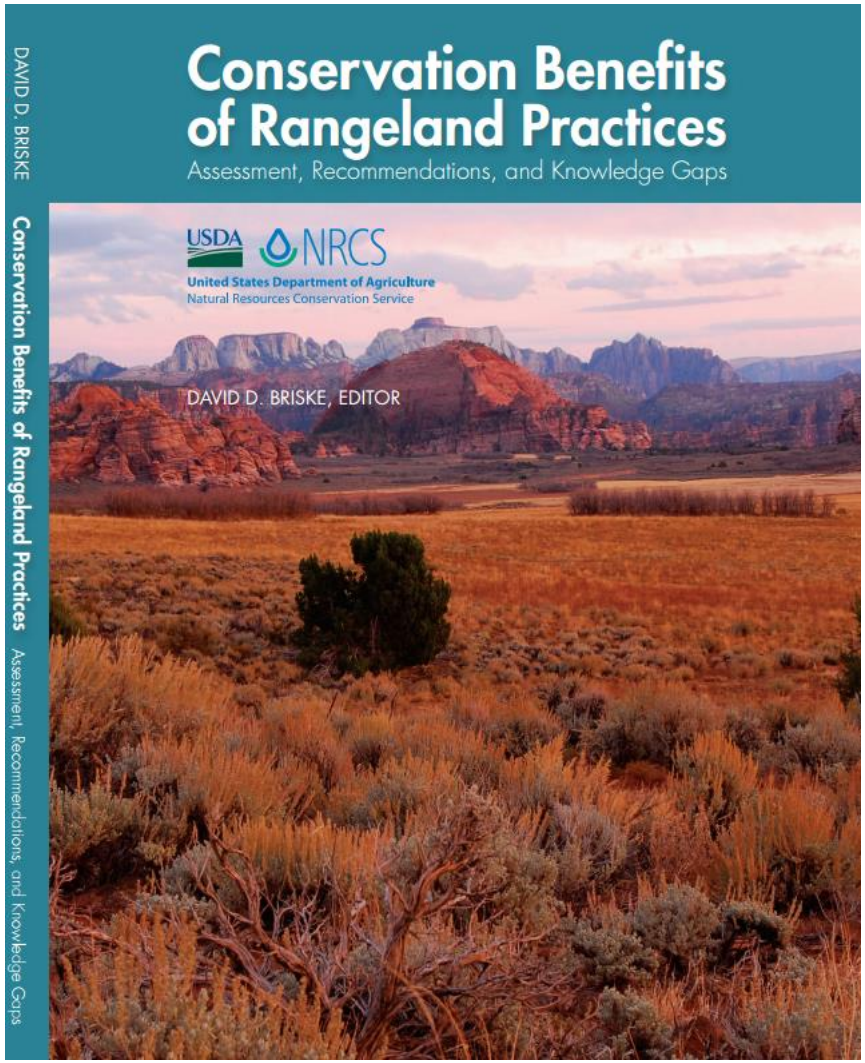
One-size-fits-all?

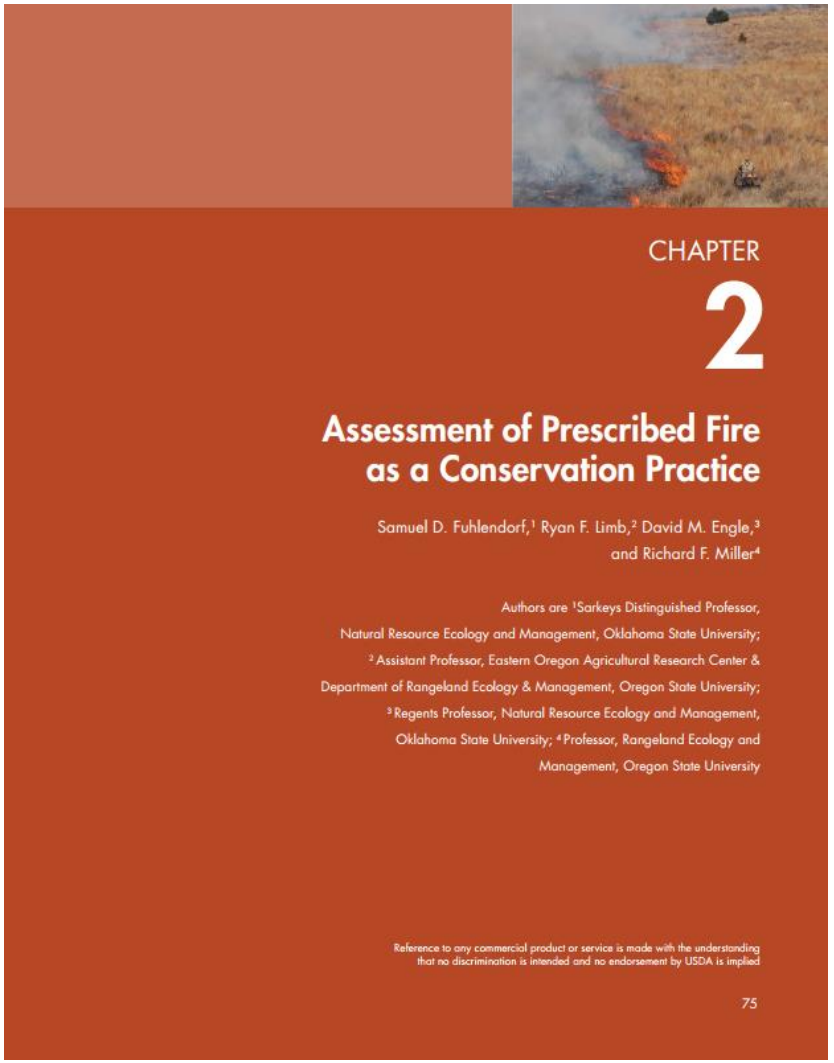
Species- and site-specific post-fire responses

- Fire/grazing tolerance
- Climatic and ecological diversity
- Fire intensity, size, seasonality, spatial pattern
- Grazing frequency, season, duration, intensity
- Pre- and post-fire site/weather conditions



State of the Science





State of the Science

"Fire" + *Topic*	No. Peer-Reviewed Papers
Shrubland	24
Savanna	157
Grazing	86
Woodland	61
Wildland	150
Rangeland	18
Grassland	107

Fuhlendorf et al. 2011. Rangeland CEAP

State of the Science

Rangeland CEAP Review (2011)

- **Most research conducted at temporal and spatial scales inappropriate to management.**
- **Complex landscapes - Most research failed to evaluate fire in context of other disturbances (grazing, drought).**
  - **Grazing was a part of the experimental design in <15% of the studies.**

State of the Science

"**Wildfire**"+"**Grazing**"= 12 peer-reviewed papers

- Mostly pre-suppression management
- Mostly arid/semi-arid environments (desert, sagebrush steppe)

Central policy and management question…

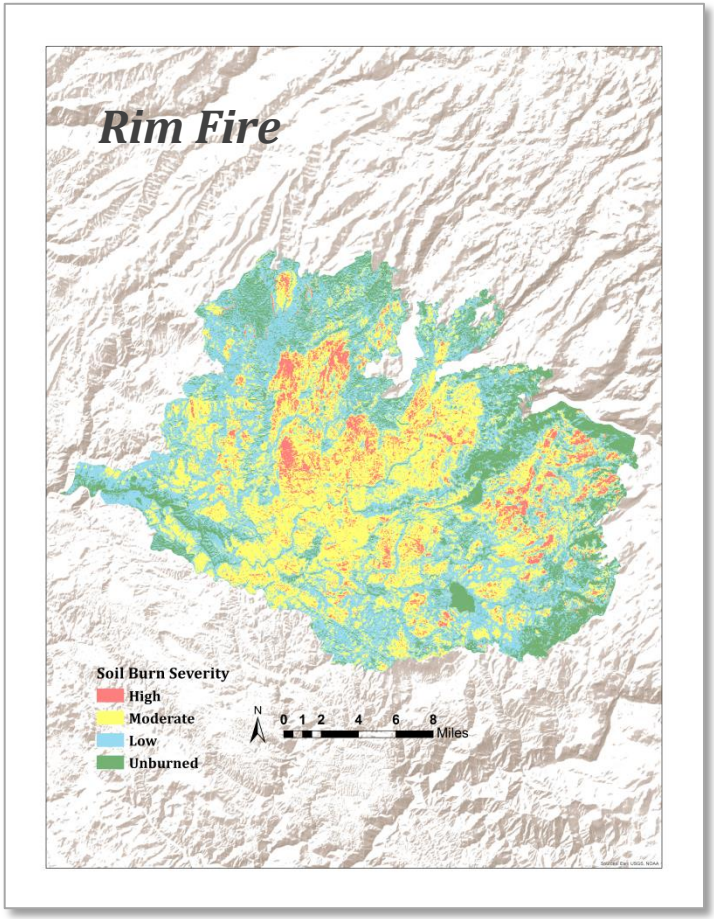
How quickly will rangeland health recover and allotments become ready to support livestock grazing without risking long-term natural resource damage following wildfire?

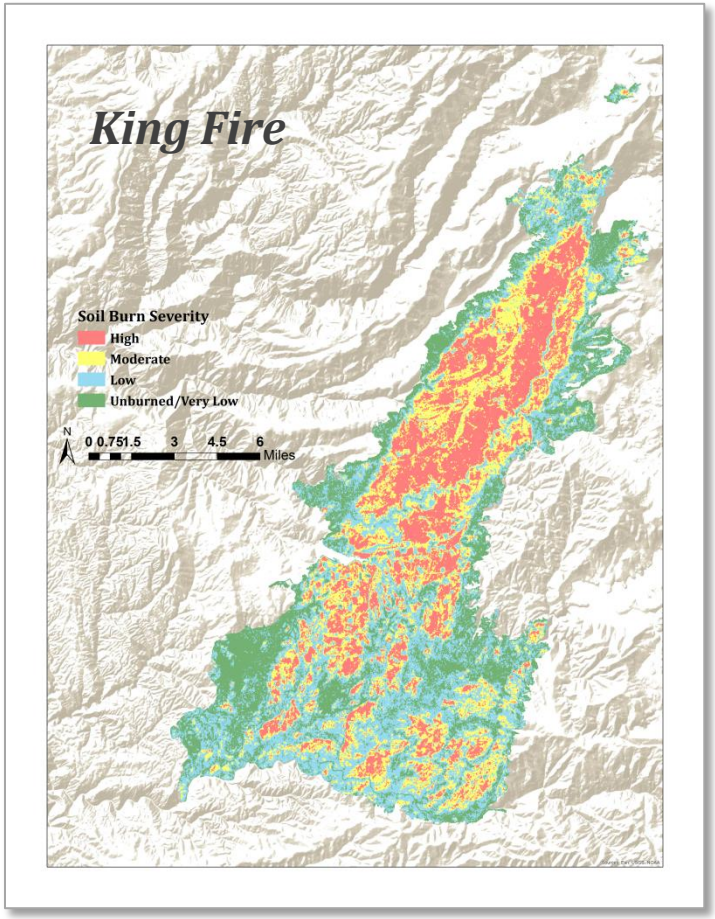
Decision-making factors

- Forage available post-fire

Decision-making factors

- Vegetation changes
  - Affects on cattle distribution patterns





Decision-making factors

- Vegetation changes
  - Affects on cattle distribution patterns

Decision-making factors

- Recovery rates of sensitive areas

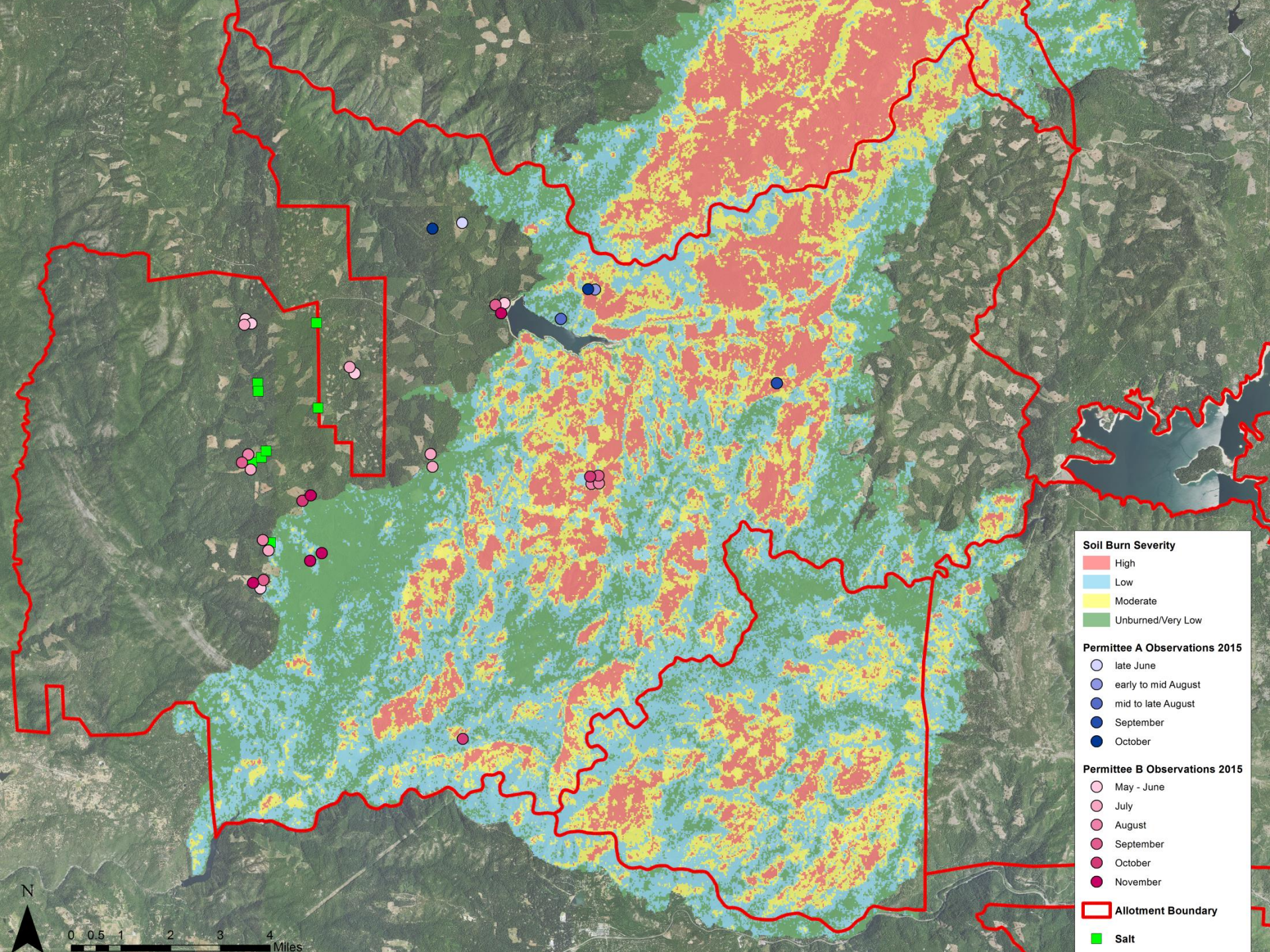
Monitoring Metrics

- Shrub/herbaceous vegetation regrowth
- Total ground cover – *protection*
- Sensitive area responses post-fire
  - Essential to meet utilization standards



Recommendations

- Monitor to ensure management decisions are encouraging desirable plant growth.
- Some areas may need to be deferred until plant growth is adequate to support grazing.
- Herding, mineral, and salt locations to better distribute grazing.


Soil Burn Severity
High
Low
Moderate
Unburned/Very Low
Permittee A Observations 2015
late June
early to mid August
mid to late August
September
October
Permittee B Observations 2015
May - June
July
August
September
October
November
Allotment Boundary
Salt
N
0 0.5 1 2 3 4
Miles

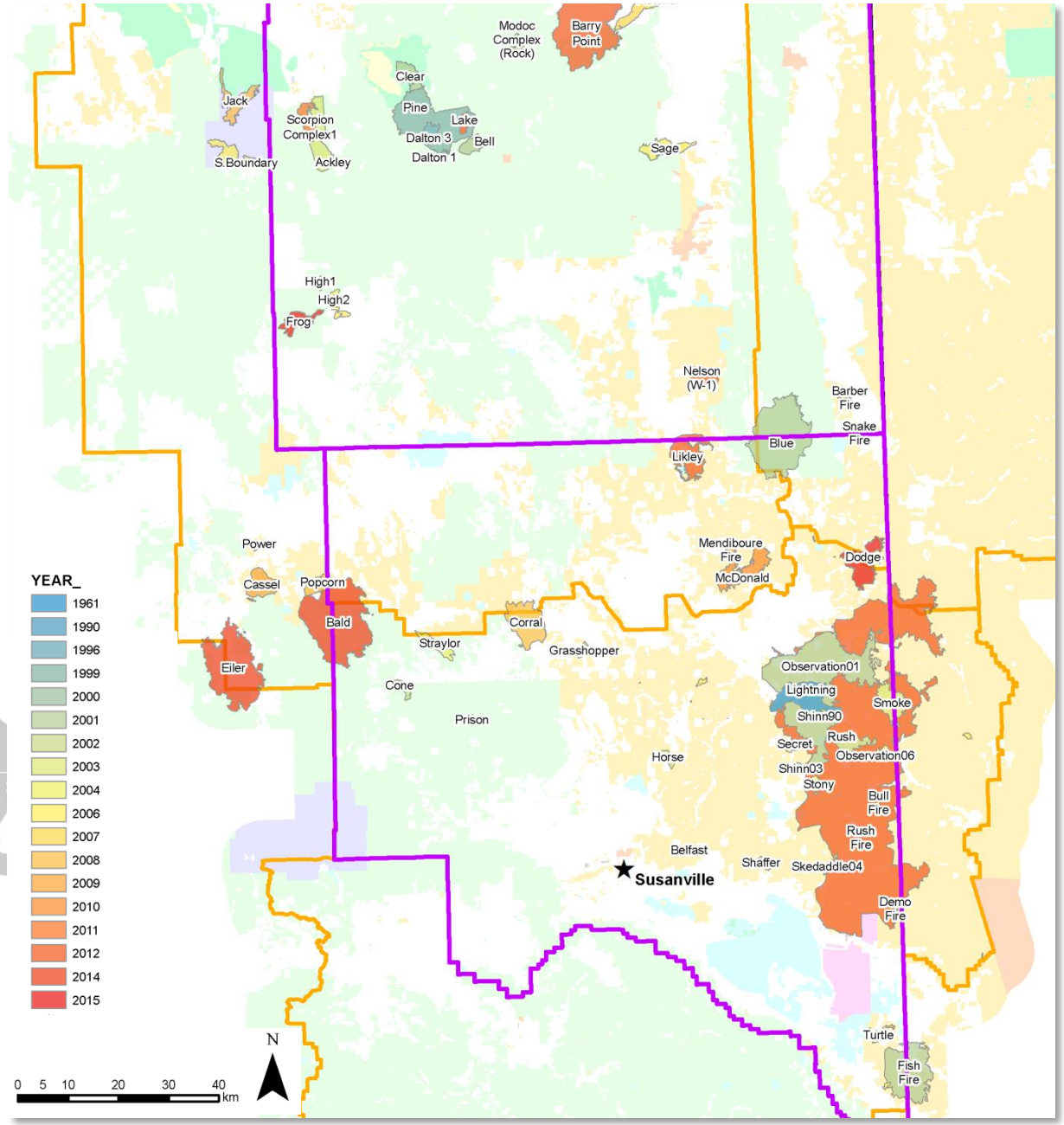
Post-Wildfire Grazing Management

L. Snell, L. Roche, D. Lile, S. Oneto, E. Gornish, K. Tate, F. Mashiri

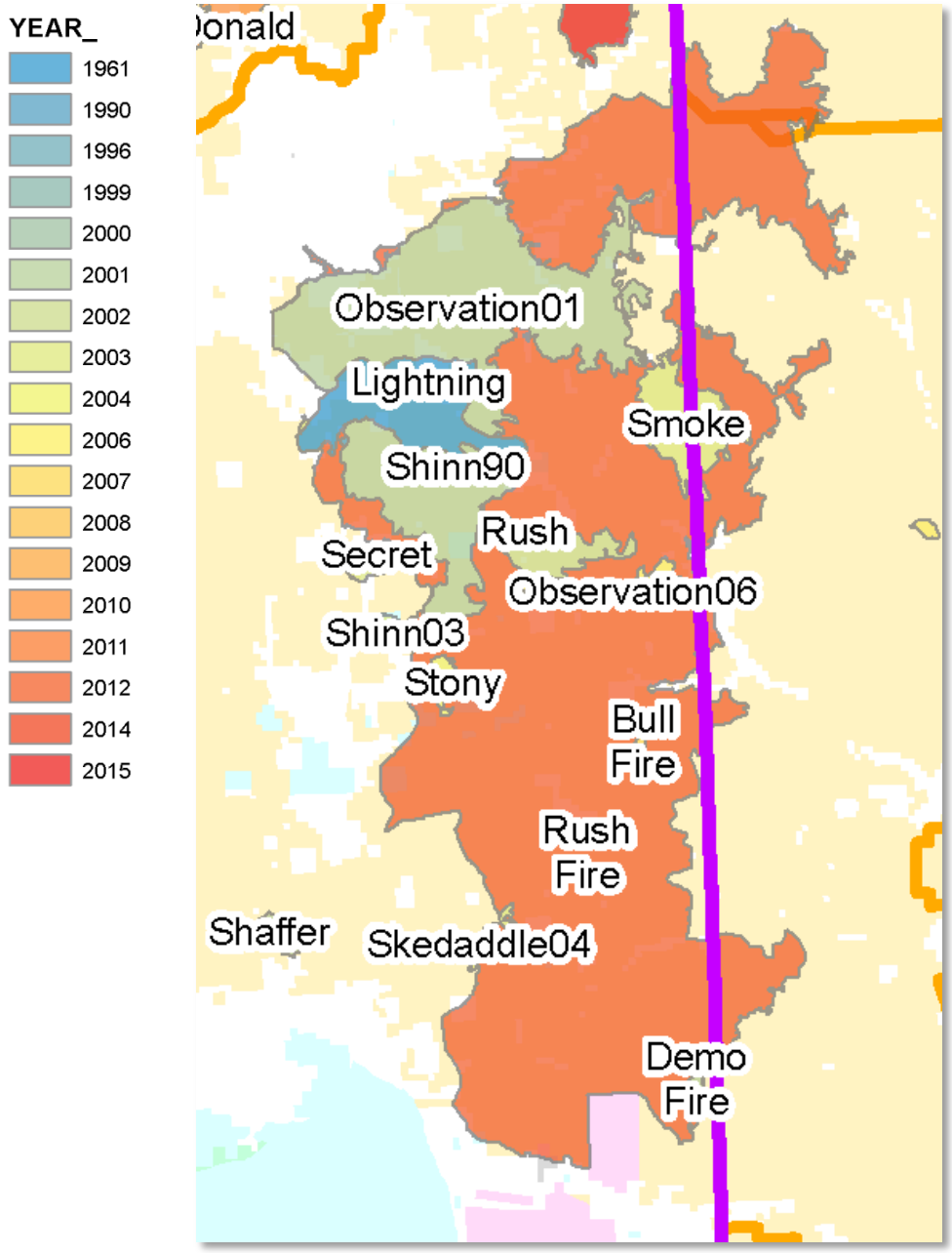
- Develop key indicators to assess rangeland readiness following wildfire.
- Survey existing wildfire burned areas to estimate recovery trajectories (chronosequence).
- Establish long-term study sites in new wildfire areas to directly measure site-specific trends.

Rustici Rangeland & Cattle Research Endowment

Post-Wildfire Grazing Management



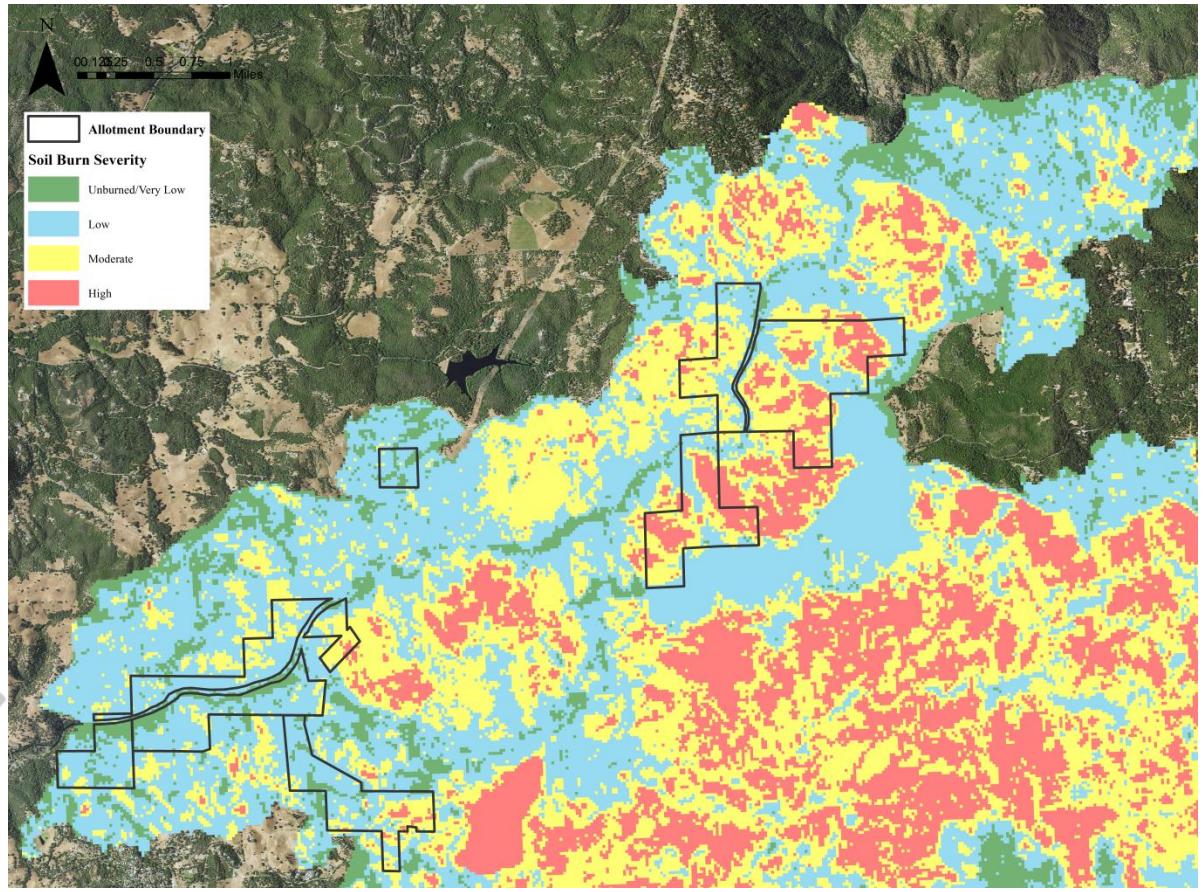
Post-Wildfire Grazing Management



Post-Wildfire Grazing Management

*Plant community trajectories following **0 to 3 years** of grazing exclusion post fire.*

Post-Wildfire Grazing Management



rangelands.ucdavis.edu

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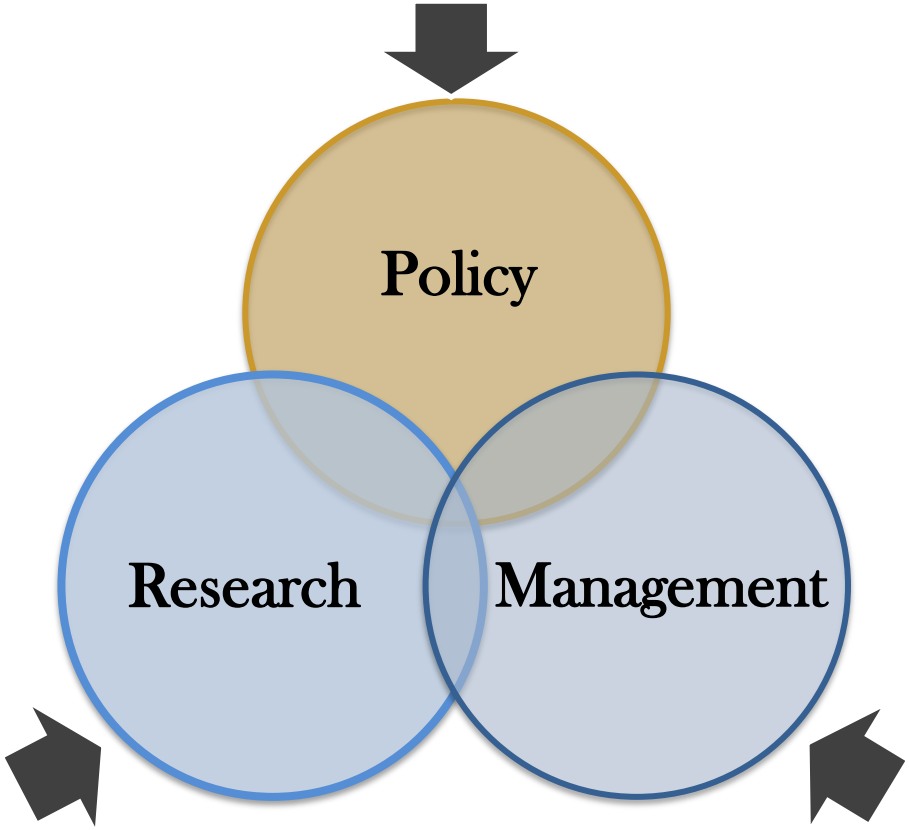
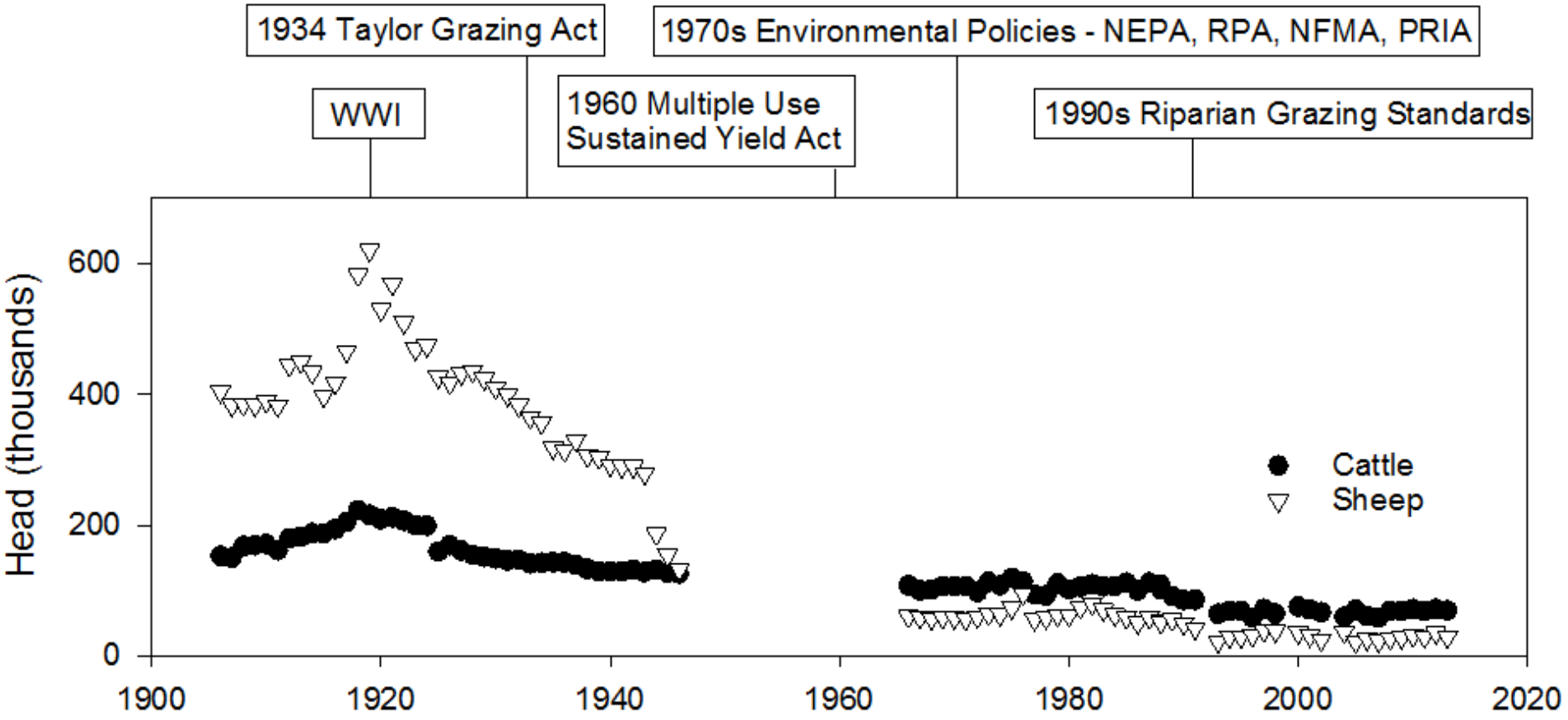
University of California
Agriculture and Natural Resources

“Partnerships among scientists, managers, and policymakers provide the most relevant knowledge…”

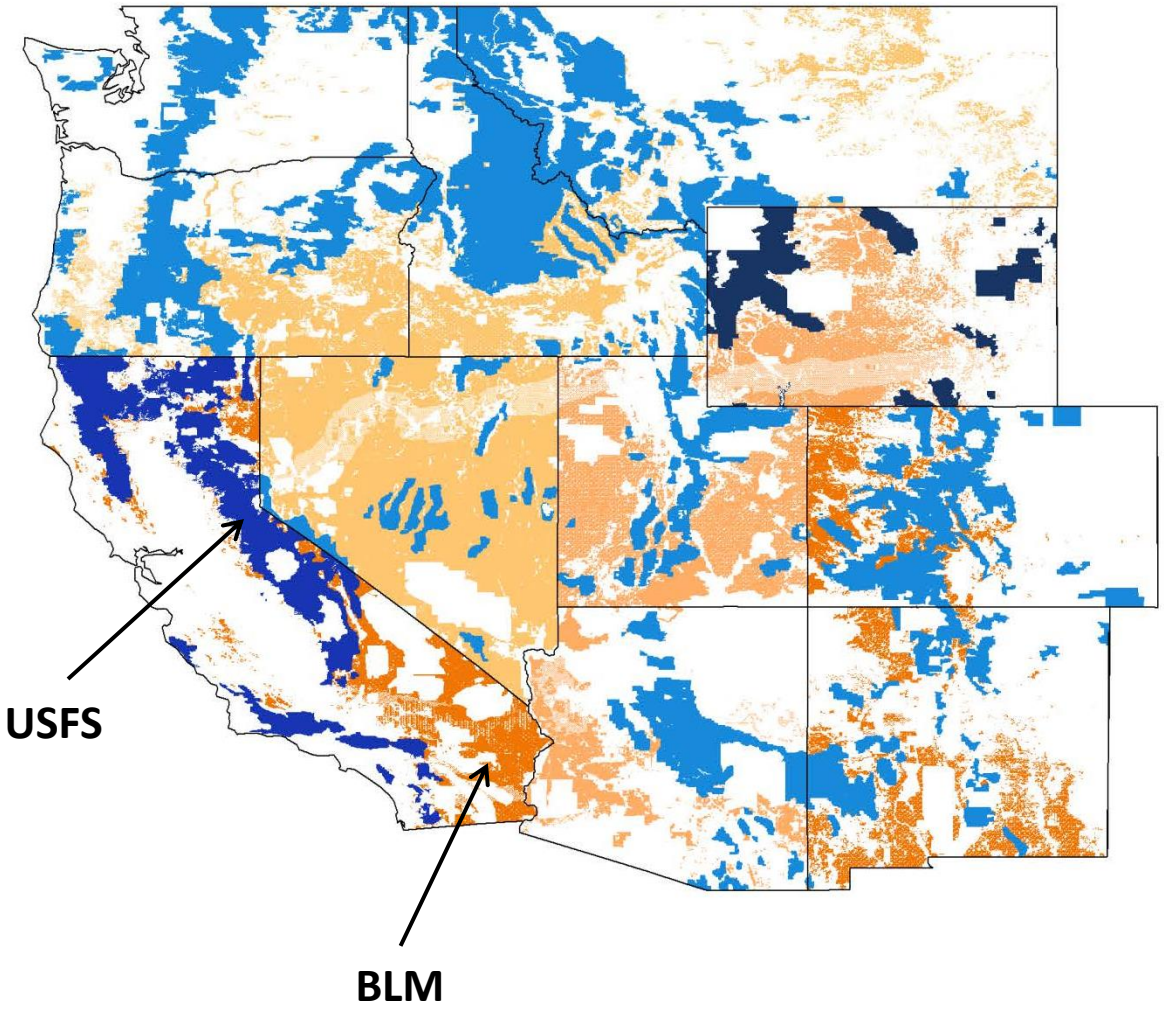
Rangeland CEAP, 2011



Policies and Trends in Livestock on USFS Lands in CA



2000-2013 Livestock Animal Unit Months (AUMs) on Federal Forest and Rangelands



Change in USFS Authorized-Actual Use AUMs

- -4 to -18%
- -19 to -28%
- -29 to -52%

Change in BLM Authorized-Actual Use AUMs

- 1 to -9%
- -10 to -19%
- -20 to -34%