Rangeland Research Update

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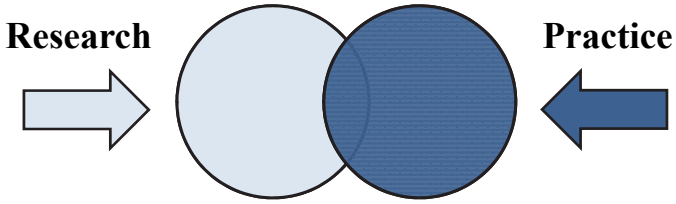
UC Cooperative Extension Spring Range Tour
Tehama, Glenn, Colusa Counties
April 13, 2013

Integrated Approaches

- **Rangeland Decision-Making Mail Survey**
  California Cattlemen's Association
  Wyoming Stock Growers Association
- **Stakeholder-Prescribed Grazing Project**
  Sierra Foothill REC grazing experiment
  Central Plains Experimental Range
- **CA Ranch Stewardship Project**
  On-Ranch Interviews & Field Surveys

Integrated Approaches

Finding economically and ecologically effective strategies to sustain rangeland resources.



Collaborators and Partners

Project Leaders: Leslie Roche, Justin Derner, Valerie Eviner, Mark Lubell, Mel George, Toby O'Geen, Emily Kachergis, Bethany Cutts, Lorien Jasny, Rick Standiford, Lynn Huntsinger, Ken Tate

Project Collaborators: Sheila Barry, Theresa Becchetti, Josh Davy, Julie Fenzel, Larry Forero, Morgan Doran, John Harper, Roger Ingram, Jeremy James, Royce Larsen, Stephanie Larson, David Lewis, David Lile, Neil McDougald, Glenn Nader, Tracy Schohr....

Stakeholder Focus Groups

California Cattlemen's Association SINCE 1917

California Farm Bureau Federation

University of California Cooperative Extension

University of Wyoming New Thinking

UC Davis University of California

USDA ARS

NRCS

Russell L. Rustici Research Endowment

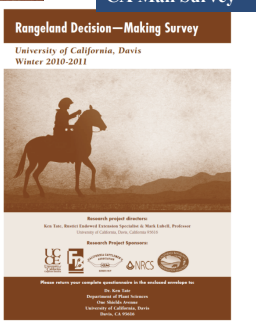
USDA NIFA United States Department of Agriculture National Institute of Food and Agriculture

Western SARE Sustainable Agriculture Research & Education

Rangeland Decision-Making Survey

WY Mail Survey

CA Mail Survey

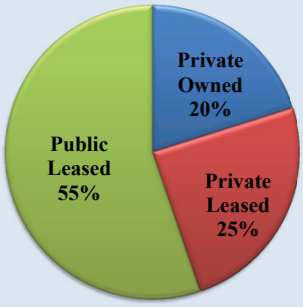


- Determine factors driving grazing management decisions.
- Understand how managers receive, assess, and use information.
- Perspectives on adaptive grazing management for multiple goals.
- 1700 ranchers in California.
- 700 ranchers in Wyoming.

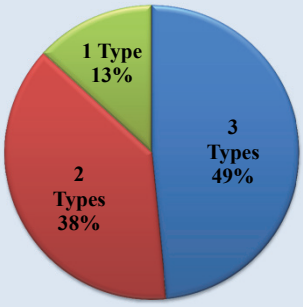
Rangeland Decision-Making Survey

California Operation Characteristics

Mean Reported Acres of Grazing Land Types



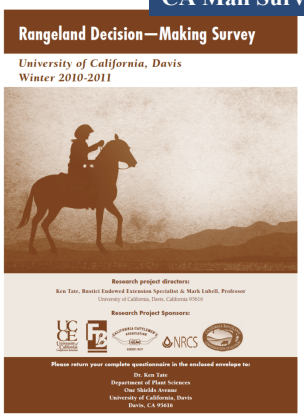
Percent of *Respondents* Reporting Number of Grazing Land Types



Diverse operations with a strong reliance on public lands.

Rangeland Decision-Making Survey

CA Mail Survey



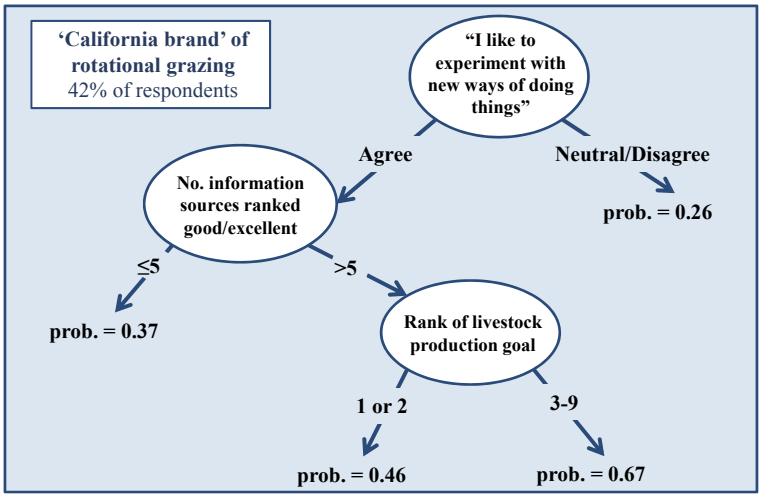
GOALS

1. **Livestock and Forage Production**
2. **Water Quality, Invasive Weed Management, and Soil Health**
3. **Riparian/Meadow Health and Wildlife**
4. **Recreation and Carbon Sequestration**

Characterizing On-Ranch Strategies

3 Classes of Strategies

- Rotational Grazing
- Season-Long Continuous Grazing
- Year-Long Continuous Grazing



Stakeholder-Prescribed Adaptive Grazing Management Project

UC Sierra Foothill Research and Extension Center
USDA-ARS Central Plains Experimental Range

- **Ranchers, range managers, and conservation professionals.**
- **Prescribe goals and management strategies (treatments).**
- **Implement, adapt, and monitor with stakeholder input.**

Project Partners

UC SFREC Adaptive Management Advisors

Ranchers & Ranch Managers
Audubon California
Beale Air Force Base
CA Department of Fish and Wildlife
Center for Natural Lands Management
City of Fairfield
Contra Costa Water District
Defenders of Wildlife
Department of Fish & Game
East Bay Municipal Utility District
East Bay Regional Parks
Environmental Consultants
Hedgerow Farms
Natural Resource Conservation Service
Nevada Irrigation District
Placer Land Trust
Point Reyes National Park
PRBO Conservation Science
San Francisco Public Utilities Commission
The Nature Conservancy
UC Cooperative Extension
UC Davis Natural Reserve System
US Fish & Wildlife Service
US Forest Service

Stakeholder Workshops

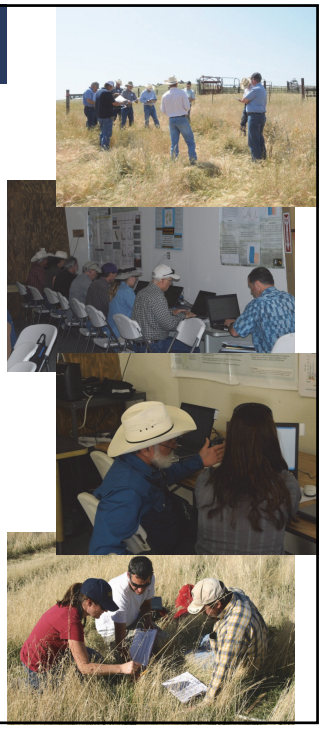
Request to Stakeholder Advisory Groups

8 pastures, 1200 acres

1) Primary natural resource and agricultural goals.

2) Potential challenges and opportunities for goals.

3) Adaptive management strategies to achieve goals.



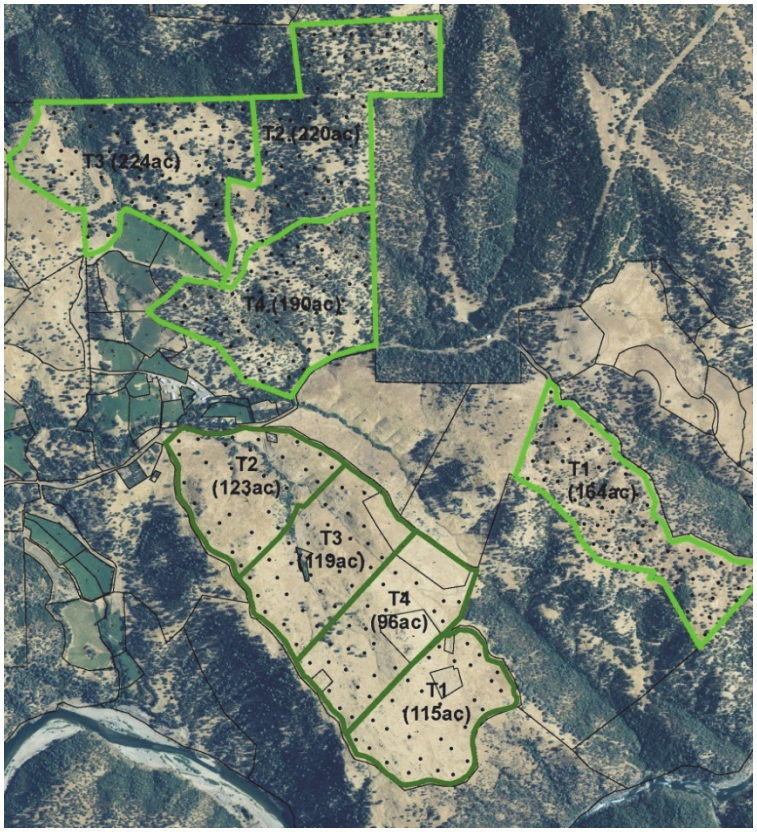
Stakeholder Goals and Objectives

"Economically and Ecologically Sustainable"

GOALS

Vegetation	Livestock	Habitat	Soil health/ Water quality
SPECIFIC OBJECTIVES			
• Increase native plant diversity • Increase forage species diversity • Increase forage production • Reduce Medusahead	• Maintain or increase livestock weight gain • Minimize operating/ practice costs	• Increase grassland bird diversity • Increase variation in vegetation structure • Increase native wildlife and habitat diversity	• Minimize compaction • Restore soil fertility • Maintain or restore water quality

Stakeholder Prescribed Adaptive Grazing Experiment – Year 1



Grazing Treatments

T1 **7 month season-long**

Oak - 27 steers; Grassland – 45 steers

T2 **4 month fall-spring grazing**

Oak - 63 steers; Grassland – 85 steers

T3 **4 month fall-spring, targeted**

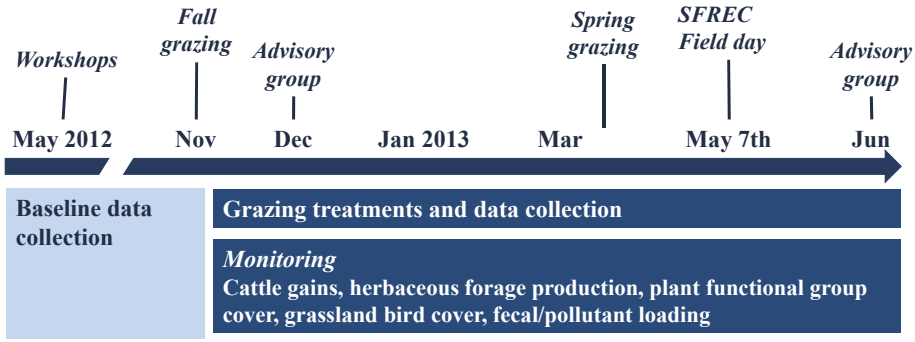
Oak - 65 steers; Grassland – 82 steers

T4 **3 month winter**

Oak - 65 steers; Grassland – 82 steers

Adaptively implemented and monitored with stakeholder participation

Timeline



California Ranch Stewardship Project

On-Ranch Interviews and Field Surveys

- Connect research and policy with how decisions get made on-the-ground.
- Link decision-making to agricultural and ecological outcomes.
- Merge management and scientific knowledge to identify adaptive strategies for multiple goals.
- Compile the knowledge and expertise of experienced ranchers and rangeland managers.

Connecting the social, economic, and ecological dots of decision-making, implementation, and outcomes.

Interviews and Field Surveys

Cross-Sectional Observational Study

- ≥60 case-studies spanning state-wide transects.
  - Diverse strategies & goals
- In-person, semi-structured interviews
  - Spring-Fall 2013
- Subset of follow-up on-ranch field surveys.
  - Annual monitoring
  - Start Spring 2014

Interview Questions (examples)

Operation & Operator Characteristics

- 'Annual Forage Clock'
  - Big picture of different land and cattle types within operation
- General Marketing Strategies; Diversification

Goals

- What are your goals, and how do you evaluate success?
- How many goals do you manage for, and how are goals prioritized?
- Would you be interested participating in an ecosystem market where you would receive payments to produce specific ecosystem services (e.g., clean water, carbon sequestration, wildlife habitat).

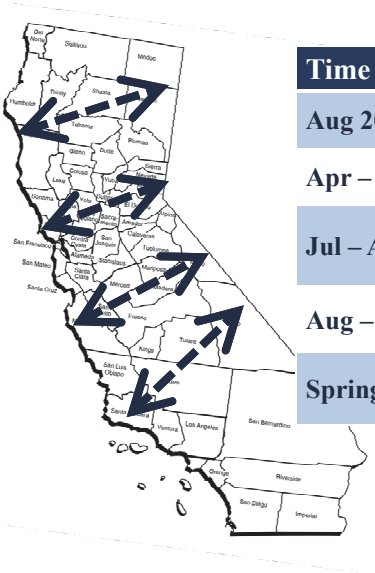
Management Strategies (~*Goals*)

- What practices have been successful/unsuccessful?
- Do you see potential opportunities where you could change your land or livestock management strategy(s) to provide for multiple goals?

Adapting Management

- How do you manage for drought impacts?
- If the frequency of drought were to increase, would your current strategies be adequate?

Timeline 2012-2014



Time Period	General Plan
Aug 2012 – Mar 2013	Interview Development
Apr – Jul 2013	Northern CA Interviews
Jul – Aug 2013	Cascades/Sierra Nevada Interviews
Aug – Nov 2013	Southern CA Interviews
Spring-Fall 2014	Start Follow-up Field Surveys*

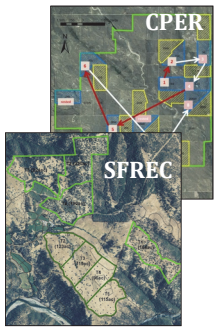
** Subset of sites selected in collaboration with participants, and monitored for 3-5 years.*

Balancing Multiple Goals on Working Rangelands

Mail Surveys

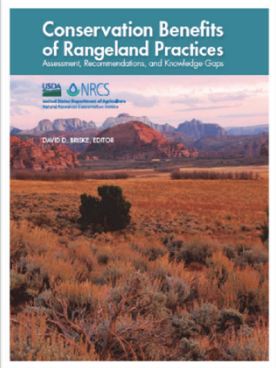
On-Ranch Interviews

Adaptive Grazing Project



Multi-Pronged Approach

Rangeland Practices Assessment



40 scientists, 3 years to examine literature on the conservation effectiveness of rangeland management practices.

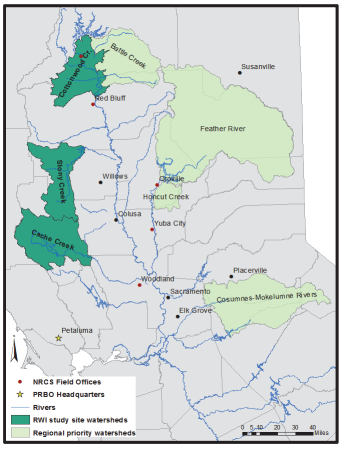
- Prescribed grazing, fire, planting, brush management, riparian management, etc.

Key Recommendations

1) Expand collaborations between scientists and land managers.
2) Integrate socio-economic and ecological factors in examining outcomes.
3) Evaluate roles of adaptive management in meeting goals.

Rangeland Practices Assessment

Objective: Quantify effectiveness of rangeland management practices in enhancing soil and riparian hydrologic functions, upland and riparian habitat and diversity, and habitat use by birds.



Cross-sectional Survey focused on the Cottonwood Creek, Stony Creek, and Cache Creek watersheds.

Establish a network of study locations to look at direct mid- (3-5 years) and long-term (10 years) responses to management.

Project Partners

California Rangeland Watershed Laboratory
UCDAVIS
UNIVERSITY OF CALIFORNIA
prbo
PRBO Conservation Science
NRCS