

Range Research Update

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Updates

Williamson Act – Rancher Survey
 Public Grazing Lands Water Quality
 USFS Grazing Policy and Range Condition
 Stakeholder Prescribed Grazing Project – SFREC
 CA Ranch Stewardship Project

California Rangeland Watershed Laboratory

Williamson Act

New Scientific Report Released

“Analysis reveals potential rangeland impacts if Williamson Act Eliminated.”
California Agriculture October-December 2012

- Future conversion figures if the program is eliminated
- Ecological values of rangelands in Williamson Act
- Economic importance of Williamson Act on a ranchers bottom line

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expanding to rapid environmental change

Public Lands Grazing and WQ Project

“Livestock waste found to foul Sierra waters”
 Sac Bee, April 2010

Summer 2011

15 Grazing Allotments Studied

Test for fecal indicator bacteria, N, and P

Sample monthly before and through grazing season

155 WQ sample Collection Sites

743 WQ samples collected

National Forest	Allotment Name	No. Sample Sites
Klamath	Mill Creek	8
Klamath	Shackleford	12
Shasta-Trinity	Bartle	19
Shasta-Trinity	Upper South Fork	14
Shasta-Trinity	Bear Creek	11
Shasta-Trinity	Indian Valley	13
Plumas	Humbug	5
Plumas	Grizzly Valley Community	8
Plumas	Grizzly Valley	15
Tahoe	Smithneck	13
Tahoe	Independence	18
Stanislaus	Eagle Meadow	15
Stanislaus	Herring Creek	18
Stanislaus	Bell Meadow	12
Stanislaus	Jawbone	11

Microbial Water Quality Benchmarks

Benchmark	Overall (% of 743)	Key Grazing Area (% of 462)	Recreation Area (% of 125)	No Concentrated Use Activities (% of 156)
FC > 20	50	48	46	58
FC > 50	31	28	27	42
FC > 200	10	10	6	13
FC > 400	4	5	2	4
<i>E. coli</i> > 126	7	7	5	8
<i>E. coli</i> > 235	3	3	3	4

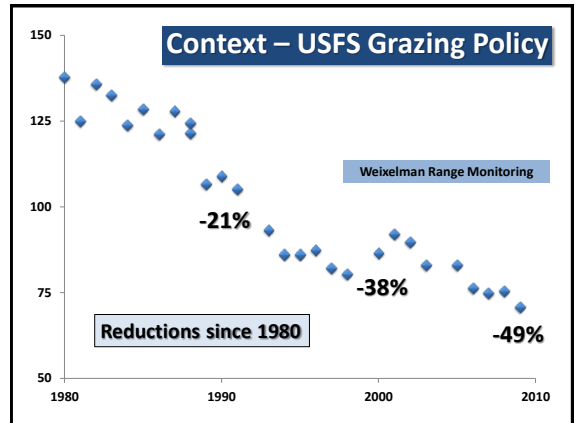
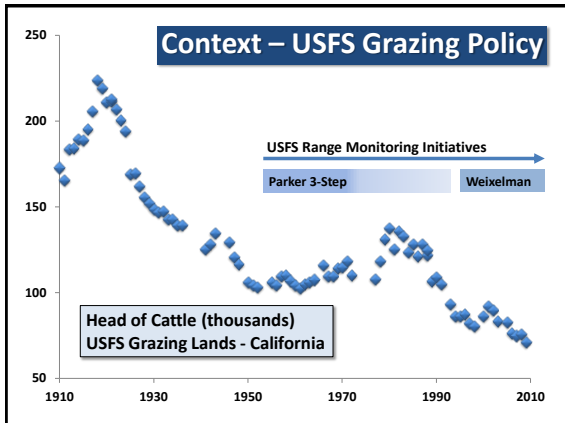
Grazing, Recreation, and Non-Concentrated Use

Resource Use Activity	No. Samples	FC (cfu/100ml)	E. coli (cfu/100ml)
Key Grazing Area	462	87 ± 12 a	42 ± 6 a
Recreation Area	125	55 ± 9 b	29 ± 7 b
No Concentrated Use Activities	156	89 ± 12 a	42 ± 6 a

In Review – PLoS ONE
Kromschroeder, L., L.M. Roche, E.R. Atwill, R.A. Dahlgren, and K.W. Tate. Water quality conditions associated with cattle grazing and recreation on national forest lands.

USFS Long Term Range Monitoring

- D. Weixelman, S. Bishop, B. Davis, Industry.
- Permanent plots on key range sites across Region 5 to monitor range condition.
- 1999 through 2012.
- UCD is partnering with USFS R5 to analyze these data.



Year	Permittees	AUMs
2000	465	543,000
2010	377 (-19%)	428,000 (-21%)

Riparian Standards and Guides
Herbaceous Utilization
Woody Riparian Utilization
Stream Bank Alteration
Stubble Height

Species of Concern
Great Grey Owl, Willow Flycatcher, Yosemite Toad

- Permanent plots
- Plant species composition
- Read about every 5 years
- Analysis
 - initial condition (2000)
 - trends in condition (2000-12)
 - grazing management/policy, weather, site traits, and meadow condition relationships

Over 850 sites
Over 250 sites w/ 10 yrs data

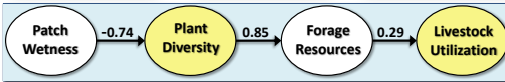
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sites added:	106	164	131	72	76	53	4	1	3	7	12	8	6
Sites re-read:		1	2	13	6	108	125	102	80	75	126	114	52

Examine Tradeoffs and Synergies

Reduced state and local agricultural revenue

Year	Permittees		AUMs	
2000	465		543,000	
2010	377	-19%	428,000	-21%

Changes in plant diversity, ecological functions, etc.

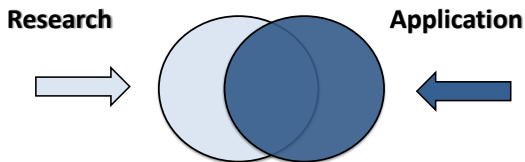


Continuing to Bridge the Gap

Partnerships among scientists, managers, conservationists, and policy makers is providing the most relevant knowledge for managing rangeland systems



Stakeholder Prescribed Adaptive Grazing Management Study



Improve overlap in objectives, adaption of treatments, and outcomes monitored.

Stakeholder Workshops



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

- Rancher, range manager, and conservation professionals.
- Prescribe management goals and management (treatments).
- We implement, monitor, adapt with stakeholder input.

Stakeholder Workshops



Stakeholder Prescribed Adaptive Grazing Management Study - SFREC

- 1) Primary natural resource/agricultural goals.
- 2) Potential challenges/opportunities for these goals.
- 3) Adaptive management strategies to achieve these goals.

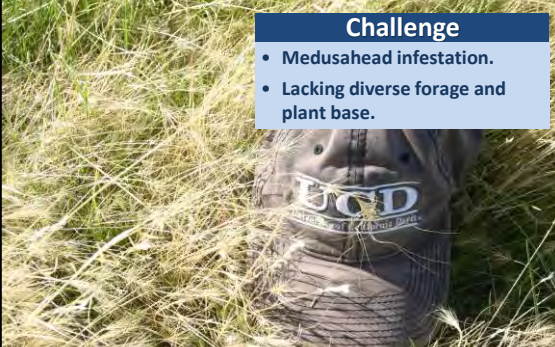
Stakeholder Prescribed Adaptive Grazing Management Study



Goals

- Forage and livestock production.
- Diverse plant and animal communities.
- Soil health (i.e., infiltration, nutrient retention).
- Clean water.

Stakeholder Prescribed Adaptive Grazing Management Study



Challenge

- Medusahead infestation.
- Lacking diverse forage and plant base.

Stakeholder Prescribed Adaptive Grazing Management Study

Grazing Treatments


T1 7 month season long.

T2 4 month Fall-Spring.


T3 4 month Fall-Spring, with targeted grazing using electric fencing.

T4 3 month Winter.

ADAPTIVE – Stakeholder Advisory Group



Timeline



Advisory group meeting Update - Range Science Symposium Field day and tour

Nov Dec Jan Apr Jun

375 steers have arrived.
Baseline data collection.

Grazing treatments and data collection

Monitoring
Steer gains, forage amount, medusahead and other plants, grassland bird cover, fecal/pollutant loading

California Ranch Stewardship Project

Adaptive Management for Profit and Rangeland Health



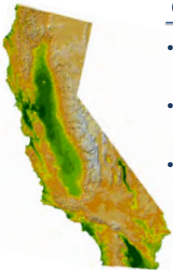





PROJECT LEADERS
L.M. Roche, V. Eviner, A.T. O'Geen, R. Standiford, L. Huntsinger, K.W. Tate

California Ranch Stewardship Project

Adaptive Management for Profit and Rangeland Health



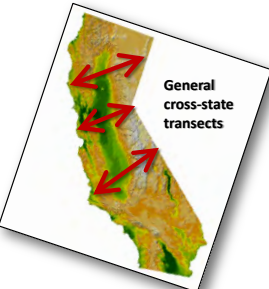
On-Ranch Interviews and Field Surveys

- Connect research and policy with how decisions get made on-the-ground.
- Link decision-making to agricultural and ecological outcomes.
- Integrate rancher knowledge and experimental approaches to provide insights into strategies to adapt to future changes.

Partnerships among scientists, managers, conservationists, and policy makers is providing the most relevant knowledge for managing rangeland systems.

On-Ranch Interviews and Field Surveys

CONNECTING THE SOCIAL, ECONOMIC, AND ECOLOGICAL DOTS OF RANCH DECISION MAKING, IMPLEMENTATION, AND OUTCOMES



- 60 case-studies spanning cross-state transects
- Within each 'climatic bioregion' — ranchers with diverse strategies and goals
- In-person, semi-structured interviews (Summer-Spring 2013)
- On-ranch participatory field surveys (Fall 2013- Summer 2014)

California Ranch Stewardship Project

On-Ranch Interviews – Preliminary Conversations

OPERATION CHARACTERISTICS

- Enterprise ↔ Pasture
- How does your management strategy in *this* pasture fit into overall enterprise?

VALUES AND GOALS

- What gets you up in the morning?
- What keeps you up at night?

MANAGEMENT STRATEGIES/PERSPECTIVES

- What practices have you found to be successful?
- Are practices cost/ecologically-effective?

ADAPTING MANAGEMENT

- How do you deal with drought?



Decision-Making

economic sustainability drought
management goals pasture-scale
community family experience
ranching tool box enterprise-
scale networking public lands
regulation natural resources
information adaptive management

California Ranch Stewardship Project

NEXT STEPS

- Finish preliminary visits.
- Finish survey tool, feedback from collaborators.
- Recruit additional participants, collaborators.
- Semi-structured interviews—
Spring/Summer 2013.





"California Ranch Stewardship Project"



Today's Rangeland Management

Integrating Science, Practices, Partnerships and Policy




2nd Rangeland Science Symposium
8th California Rangeland Conservation Coalition Summit

January 24-25, 2013
UC Davis







California Rangeland Watershed Laboratory

Google "rangeland watersheds"



SFREC Stakeholder Prescribed Grazing Project Focus Group Meeting