
Bridging the Gap between the Research Plot and the Ranch
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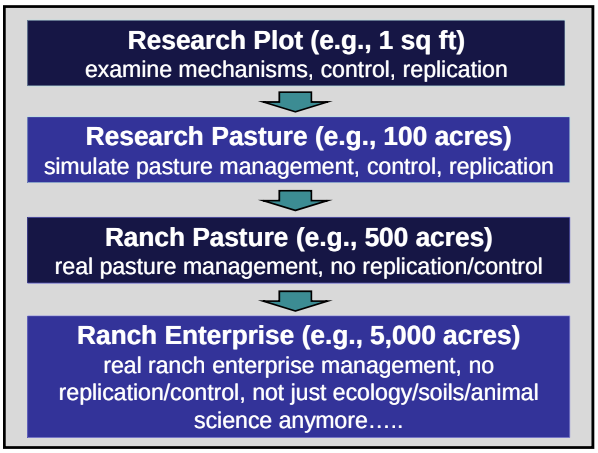
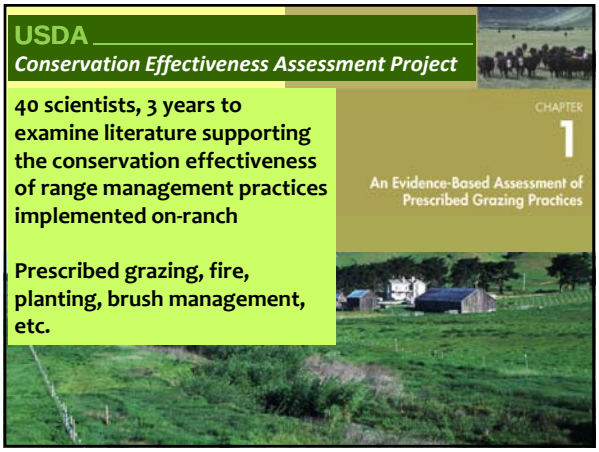
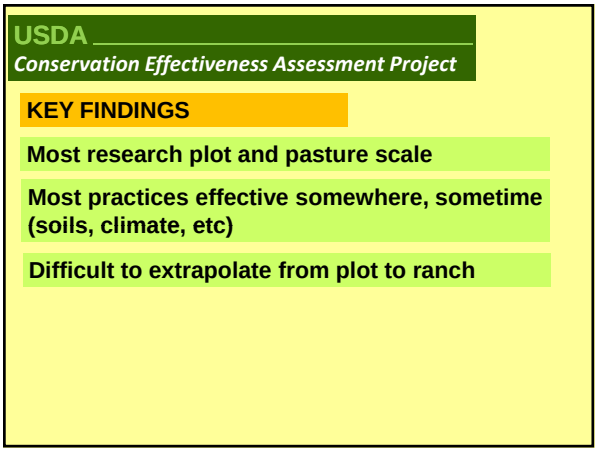

Research Plot (e.g., 1 sq ft)
examine mechanisms, control, replication
Research Pasture (e.g., 100 acres)
simulate pasture management, control, replication
Ranch Pasture (e.g., 500 acres)
real pasture management, no replication/control
Ranch Enterprise (e.g., 5,000 acres)
real ranch enterprise management, no replication/control, not just ecology/soils/animal science anymore…..


USDA
Conservation Effectiveness Assessment Project
40 scientists, 3 years to examine literature supporting the conservation effectiveness of range management practices implemented on-ranch
Prescribed grazing, fire, planting, brush management, etc.
CHAPTER 1
An Evidence-Based Assessment of Prescribed Grazing Practices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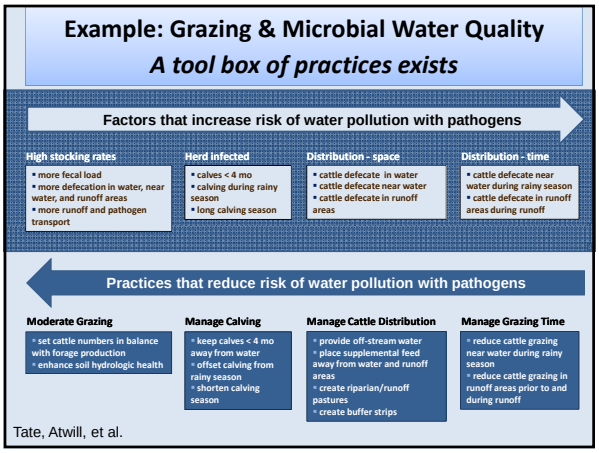
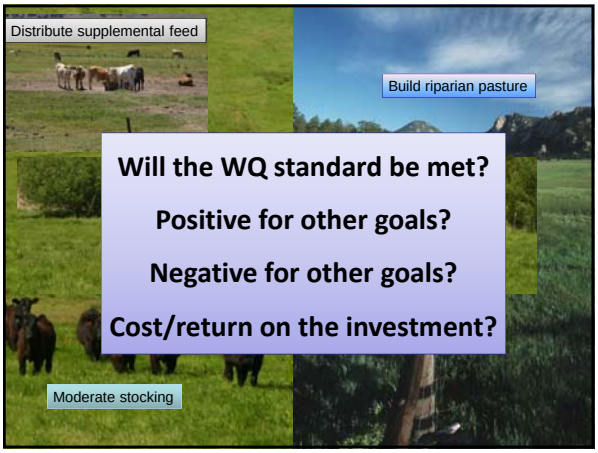
KEY FINDINGS
Most research plot and pasture scale
Most practices effective somewhere, sometime (soils, climate, etc)
Difficult to extrapolate from plot to ranch

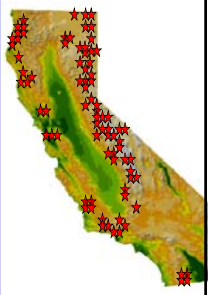

Example: Grazing & Microbial Water Quality
A tool box of practices exists
Factors that increase risk of water pollution with pathogens
High stocking rates
• more fecal load
• more defecation in water, near water, and runoff areas
• more runoff and pathogen transport
Herd infected
• calves < 4 mo
• calving during rainy season
• long calving season
Distribution - space
• cattle defecate in water
• cattle defecate near water
• cattle defecate in runoff areas
Distribution - time
• cattle defecate near water during rainy season
• cattle defecate in runoff areas during runoff
Practices that reduce risk of water pollution with pathogens
Moderate Grazing
• set cattle numbers in balance with forage production
• enhance soil hydrologic health
Manage Calving
• keep calves < 4 mo away from water
• offset calving from rainy season
• shorten calving season
Manage Cattle Distribution
• provide off-stream water
• place supplemental feed away from water and runoff areas
• create riparian/runoff pastures
• create buffer strips
Manage Grazing Time
• reduce cattle grazing near water during rainy season
• reduce cattle grazing in runoff areas prior to and during runoff
Tate, Atwill, et al.


Distribute supplemental feed
Build riparian pasture
Will the WQ standard be met?
Positive for other goals?
Negative for other goals?
Cost/return on the investment?
Moderate stocking

Example: Learning at the management scale

Survey of 130 Grazed Riparian Areas

- Streams across CA ranging from excellent to poor health.
- Which practices are associated with excellent and poor health?



Practices and Riparian Health

- Off-stream attractants such as water tanks and supplement – days/yr (+).
- Herding to control utilization and time spent in riparian area – days/yr (+).
- Rest period duration – days/yr (+).
- Cattle density (cows/ac) during grazing bouts (-).
- Frequency of grazing bouts per year (-).

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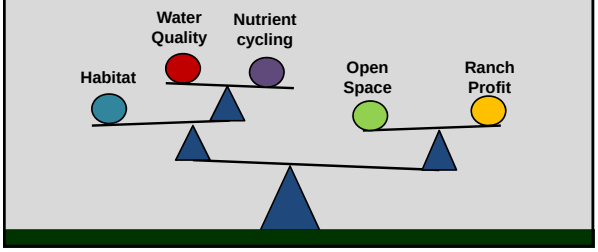
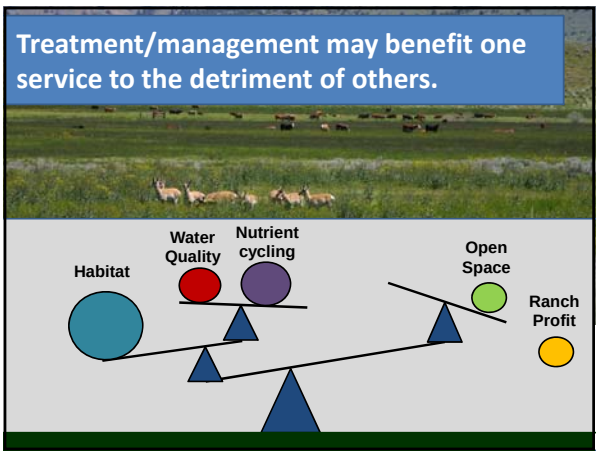
Focus on one, maybe two ecosystem services

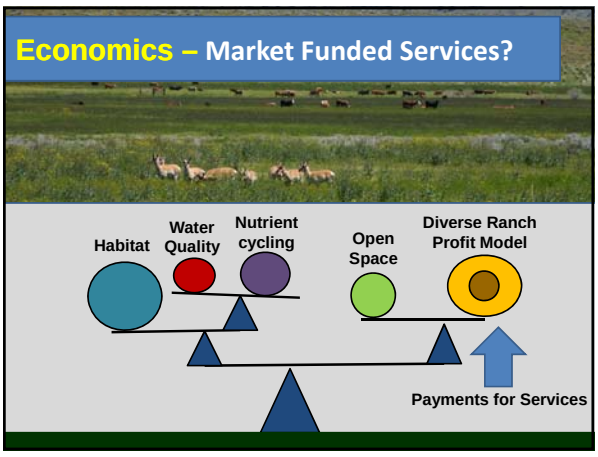
Balancing Act – Management can enhance (synergy) or diminish (tradeoff) multiple services.



Treatment/management may benefit one service to the detriment of others.



Economics – Market Funded Services?



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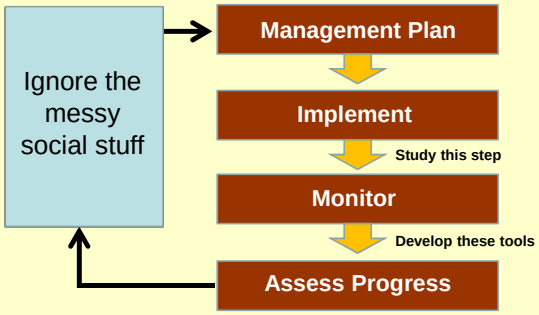
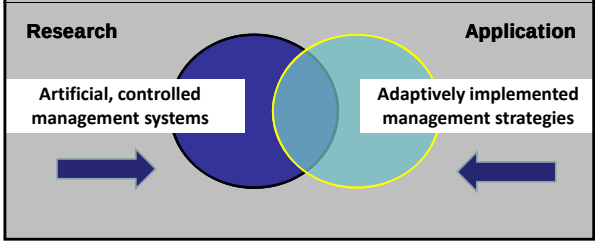
- **Managers adaptively manage, treatments fixed**

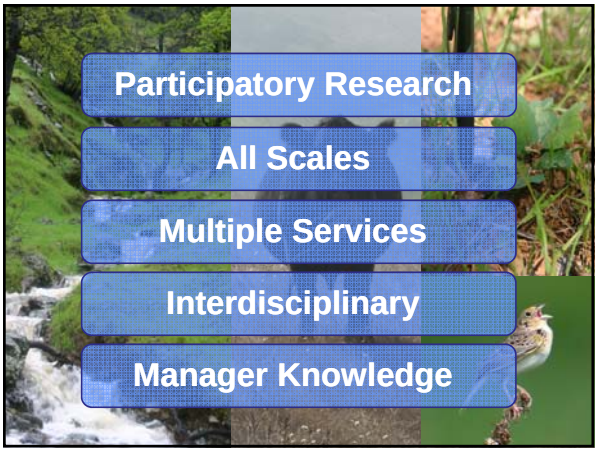
Adaptive Management



CEAP

"Partnerships among scientists, managers, and policy makers will provide the most relevant knowledge to guide conservation science and planning."





Some Current Projects

- Mail survey of CA & WY ranchers.
- Manager defined adaptive treatments at our research stations.
- Ranch enterprise research linking social, economic, ecological factors.
- Case study analysis.