

Managing Greater Sage-Grouse Habitats Using the Cow, Plow, Axe, and Fire: Lessons from Leopold



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A. Leopold



“Game can be restored by the creative uses of the same tools which have heretofore destroyed it- axe, cow, plow, fire, and gun.”



Summarize Three Projects



Mechanical and Chemical



Livestock Grazing



Fire



Mechanical and Chemical Treatments

Where: Parker Mountain

Year: 2000-2004

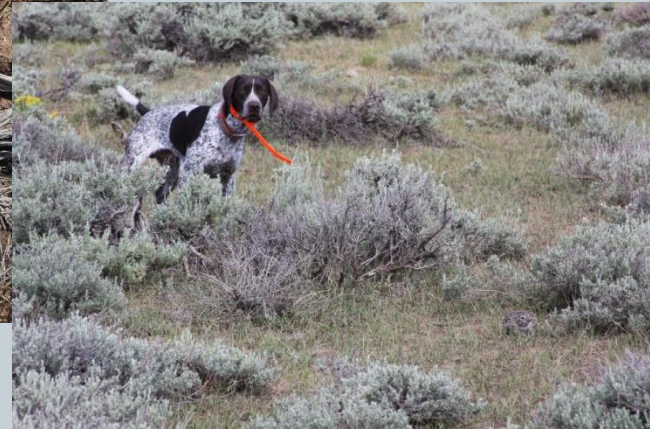
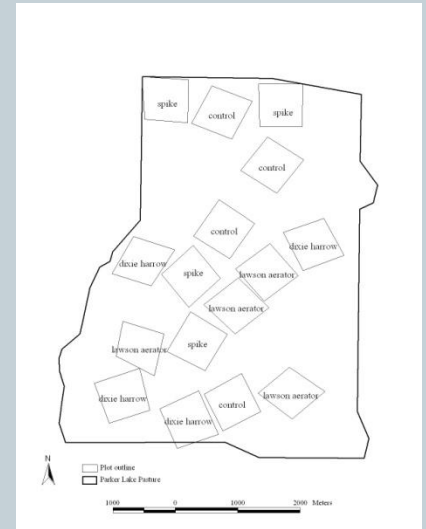
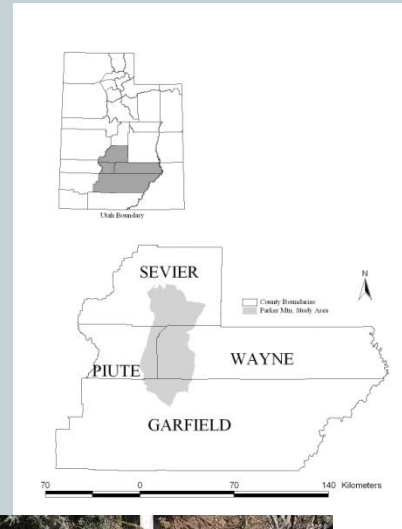
Habitat: Mountain Big Sagebrush

Types: Dixie harrow, Lawson aerator,
Spike, Control

Plots: 16 (4 reps ea.)

Size: 40.5 ha (100 acres)

Monitoring: Vegetation and
Sage-grouse use



Sheep Grazing



Where: Parker Mountain

Year: 2006-2009

Oct-Nov 2006

Habitat: Mountain Big Sagebrush

Types: Sheep (~ 500)

Grazed 7-10 days (supplement)

Plots: 8 paired plots

Size: 3.2 ha (~8 acres)

Monitoring: Vegetation
and Sage-grouse use



Fire



Where: Anthro Mountain

Year: burns from 1991-2008

Habitat: Mountain Big Sagebrush

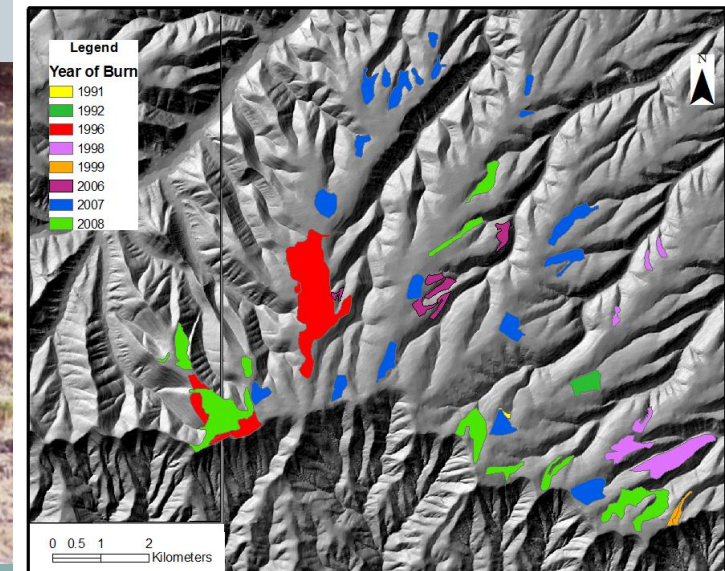
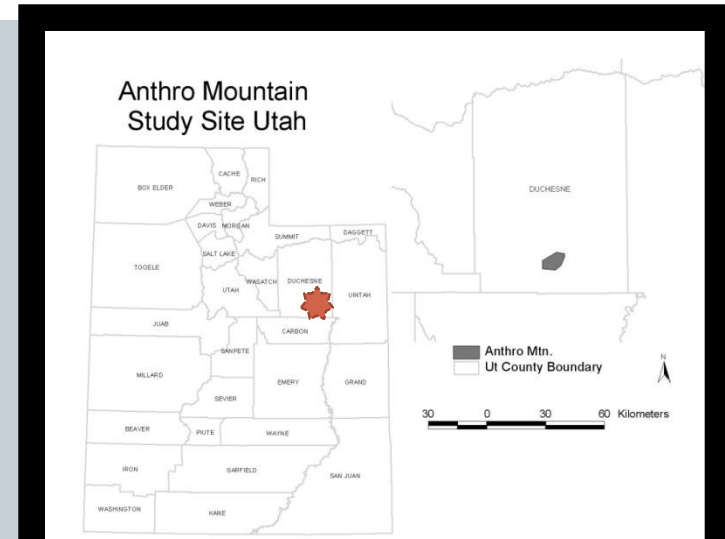
Types: Small Scale Fire

Plots: 44 burn polygons

Size: 8 ha – 92.5 ha

Monitoring: radio-marked

hens/broods 2003-2009



Results: Mechanical and Chemical

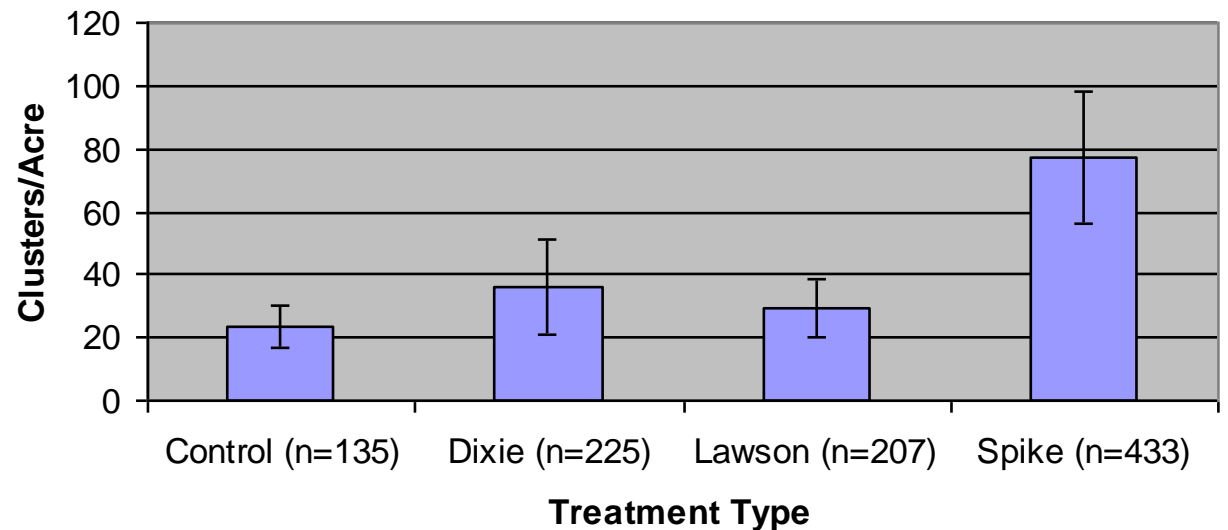


Vegetation Response

Grouse Response



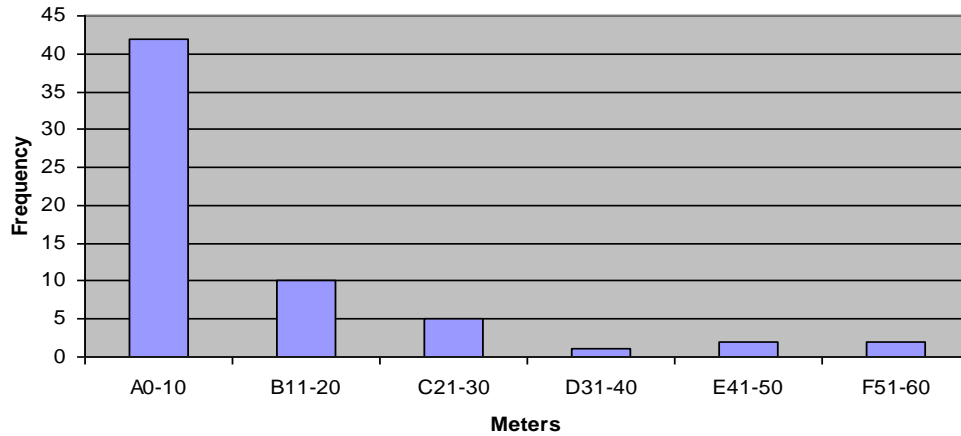
Sage-grouse Pellet Cluster Density by Treatment, Parker Mountain, Utah, 2003 and 2004.



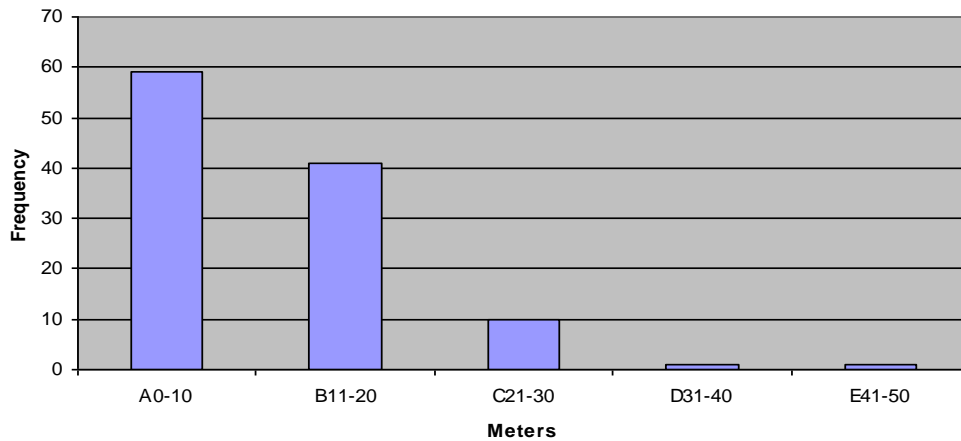
Results: Mechanical and Chemical



Pellet Count 03-04 Dixie ARTR Histogram for Distance to Edge



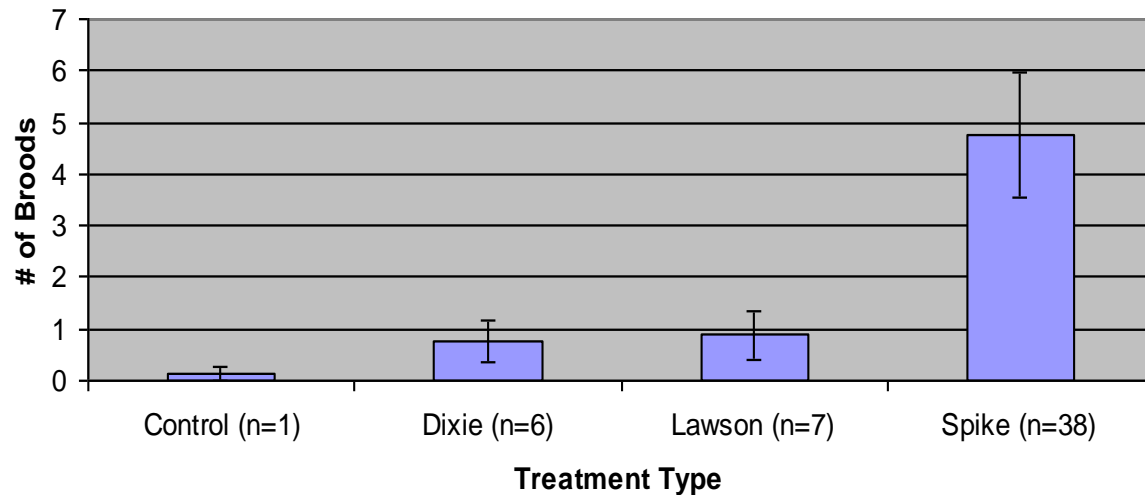
Pellet Count 03-04 Dixie TMNT Histogram of Distance to Edge



Results: Mechanical and Chemical



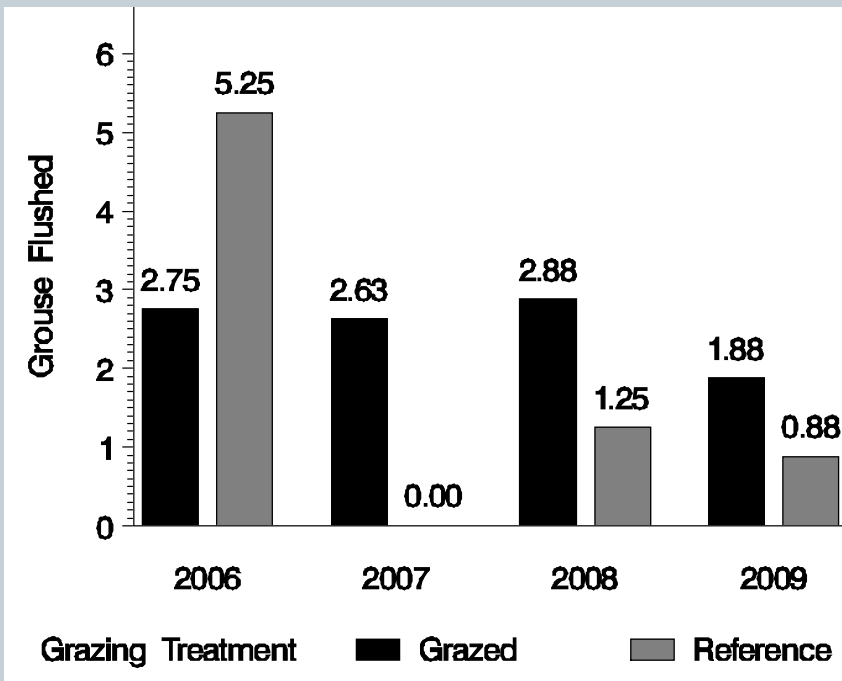
**Sage-grouse Broods Flushed with Birddogs by Treatment
(2 surveys each year combined), Parker Mountain, Utah,
2003 and 2004.**



Results: Sheep Grazing



Results: Sheep Grazing

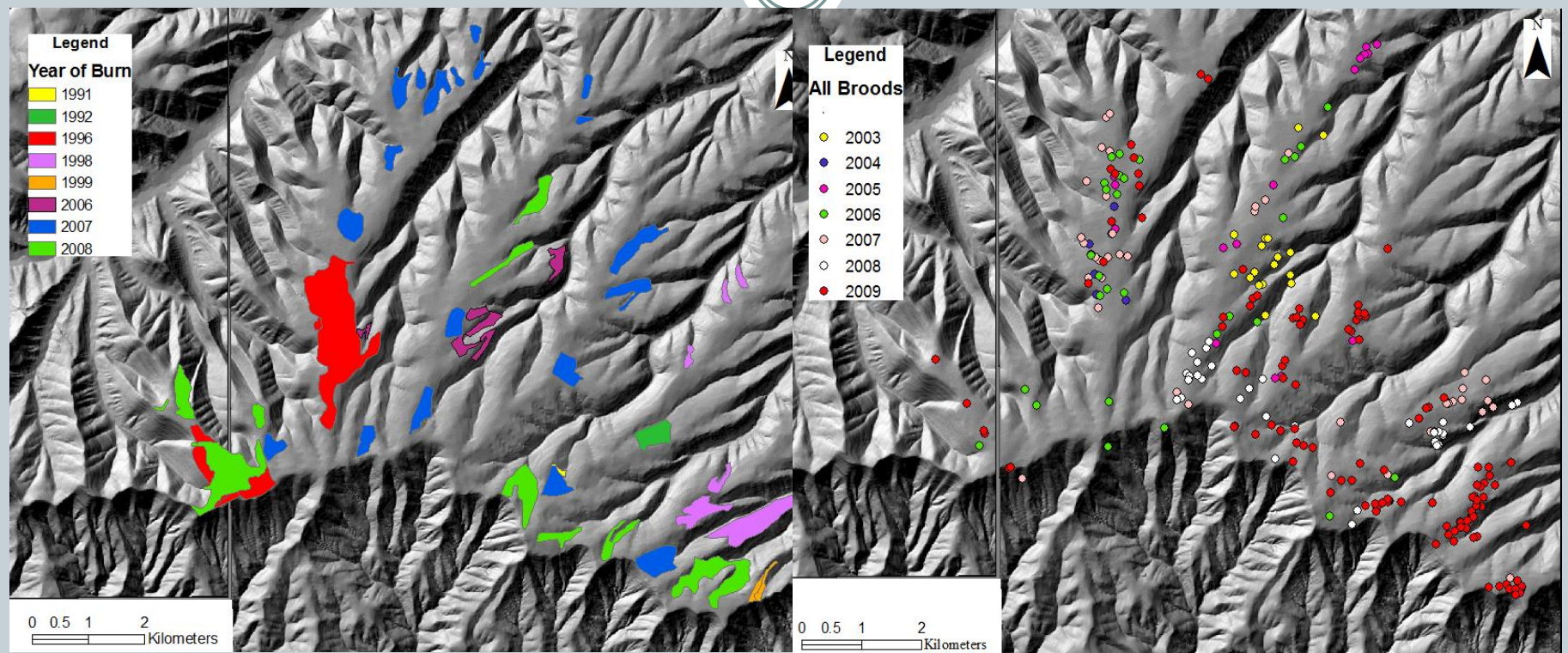


Pellet Counts – same story

Results: Fire



Results: Fire



Burns

Brood Locations

33% of Brood Locations
16% of Random Locations

Conclusions

Target: Brooding Habitat



Sage-grouse and Sagebrush Removal

Seasonal Habitat Issues!!!!!!



Large Expanses

% treated

Overlap

Objectives



-Defendable Objectives

-Sagebrush Type

-Seasonal Habitat (how do you know???)

-Range Condition

-Appropriate Management Technique

-Sage-grouse Project???



Conclusions: Scale and Design

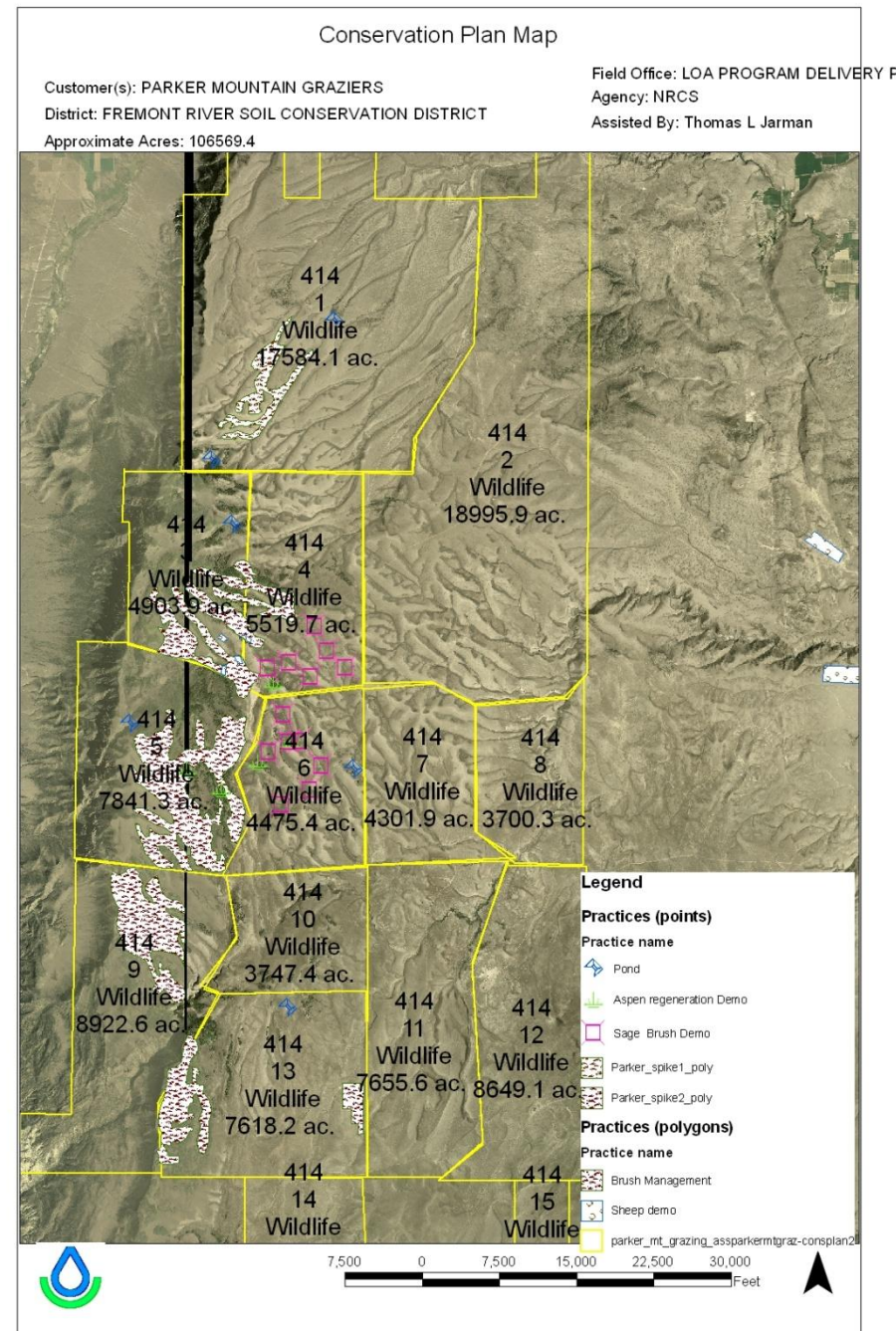


- Percent Treated: overlapping <20%
- Mechanical: 60 meters, sinuous/mosaic
- Chemical: low active ingredient/spotty design
- Fire: Fall burns, sinuous design



Adaptive Management

- Small Scale - monitoring
- To Large Scale



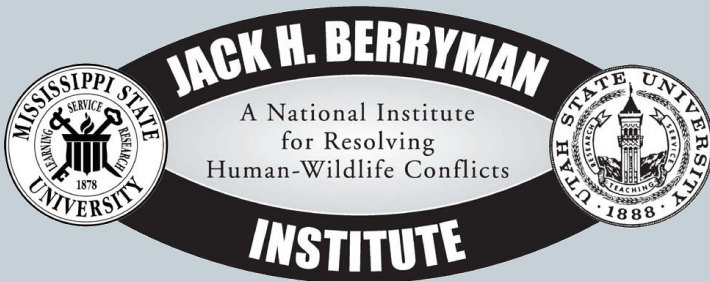
Acknowledgments



UTAH STATE UNIVERSITY WILDLIFE EXTENSION



Community Based Conservation



Utah Trust Lands

THE STATE OF UTAH SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION