

RM CESU Completion Report Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)

Project Title: Draft Best Management Practices and Further Development of BEHAVE Program with Cattle (Cows Eating Weeds)

Project Code: MSU-188/201 P09AC00065

Type of Project: Technical Assistance

Funding Agency: National Park Service

Partner University: Montana State University

NPS Agreement Technical Representative:

Jason Smith
Natural Resources Specialist
Grant-Kohrs Ranch NHS
266 Warren Ln
Deer Lodge, MT 59722
406-846-2070, x232
406-846-3962 fax
Jason_f_Smith@nps.gov

Principal Investigator:

Dr. Bret Olsen
Animal and Range Sciences Department
Montana State University
P.O. Box 173780
Bozeman, MT 59717
406-994-3721
bolson@montana.edu

Start Date of Project: July 1, 2009

End Date of Project: September 30, 2013

Funding Amount: \$69,000

Project Summary: The project had two components: 1) research and draft agricultural Best Management Practices (BMPs) specific to Grant-Kohrs Ranch; and 2) the continuation and expansion of the cattle livestock Behave Program (Cows Eating Weeds). In addition, a separate but directly related Cows Eating Weeds project (MSU-219) is ongoing through September 30, 2014 with the same PI.

1.) BMP Component

The "BMP Report, Grant-Kohrs National Historic Site, Deer Lodge, Montana, 2011" was

prepared by the Montana State University Animal and Range Sciences Department by Dr. Bret Olson and Bob Lienard. The report addresses and provides management application of six BMP's specific to Grant-Kohrs Ranch:

- Irrigated Hayland;
- Pasture and Hayland Planting;
- Irrigation Water Management;
- Nutrient Management;
- Rangeland Prescribed Grazing; and
- Riparian and Wetland Prescribed Grazing.

Grant-Kohrs staff worked closely with MSU staff in development of BMP's for the site, has received the BMP report and has been using the guidelines for resource management decision making.

2.) Cows Eating Weeds Component

The goal of this component was to validate the success of the 2004 work of training cattle to eat weeds, to determine if this behavior was passed onto their off-spring, and to purchase/train additional cattle towards an ultimate goal of all cattle at Grant-Kohrs Ranch being weed grazers.

MSU graduate student, Katie Tierney, completed the thesis, "Effects of Training on Cattle Grazing Spotted Knapweed and Canada Thistle, April 2013." Evaluation of cattle grazing weeds began in 2010 with the fully designed study being implemented in 2011 through 2012.

The separate by related project "Expansion of Behavior Research and Program (Cows Eating Weeds – MSU-219)" is ongoing (completion date September 2014) and is using the results from this project to assess how cattle use the landscape containing weeds, and whether cattle distribution across the landscape is positively or negatively influenced by populations of weeds.

While the thesis (project scope of work) has been completed and submitted to Grant-Kohrs Ranch for this project, the additional data collected for the expansion project will be incorporated by MSU into one final Cows Eating Weeds report.

Number of students participating in this project: undergraduates, graduate students, degrees conferred.

3 undergraduates

1 graduate student awarded with MS in Animal and Range Sciences, MSU 2013

Lessons Learned:

The results of the research indicate that cattle (both trained and untrained) at Grant-Kohrs Ranch innately grazed spotted knapweed and, to a much lesser extent, Canada thistle. Results showed that individual cattle with the innate behavior to graze spotted knapweed can be identified and should be retained in herds to potentially increase grazing of spotted knapweed and that cattle grazing can be used as one tool in an integrated approach to control spotted knapweed on rangelands.