

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Elk impacts on alpine willow communities, Rocky Mountain National Park, Colorado and the Development of a Protocol for Assessing Alpine Tundra Vegetation

Discipline: Natural

Type of Project: Research

Funding Agency: National Park Service

Other Partners/Cooperators: Colorado State University

Effective Dates: 4/15/2005 - 7/31/2007

Funding Amount: \$47,999.00

Investigators and Agency Representative:

NPS Contact: Terry Terrell, Rocky Mountain National Park, 1000 Highway 36, Estes Park, Colorado 80517, (970)586-1394, terry_terrell@nps.gov,

Investigator: David J. Cooper, Department of Forest, Rangeland and Watershed Stewardship, Colorado State University, Fort Collins, CO 80523, Phone: (970) 491-5430, davidc@cnr.colostate.edu

Project Abstract:

The objectives of this research are to test the following two hypotheses on the effects of elk populations on willow communities at high elevation:

1) Browsing and grazing by elk on high elevation plant communities suppresses the height of willows.

2) Height suppression drives other changes in these communities including reductions in snow distribution and depth, reductions in soil water recharge, and shifts in the composition of herbaceous plant communities and willow biomass.

A related, but separate objective, is to research and design a system for monitoring ecological conditions of the alpine including, but not limited to, vegetation composition and structure, herbivory, and soil quality, as indicators of the effects of climate change, nutrient deposition, and other natural and anthropogenic disturbances to the system.

Outcomes with Completion Dates:

- One hard copy and one electronic copy of the final report and the monitoring protocol will be delivered to the ROMO key contact, one hard copy and one electronic copy of the final report and monitoring protocol will be provided to Mike Britten, Natural Resources Program Center, 1201 Oakridge Drive, Suite 200, Fort Collins, CO 80525, and one electronic copy is to be provided to Kathy Tonnessen, RM-CESU, University of Montana, College of Forestry and Conservation, Missoula, MT 59812.

- An oral presentation will be provided to the ROMO staff describing the research findings and the resulting management implications of this work.

Keywords: elk, alpine willow, Rocky Mountain National Park, Colorado State University, monitoring protocols, Rocky Mountain I&M Network, herbivory, tundra

For Administrative Use Only:

Date Annual Report Received:

Date Final Report Received:

Publications, etc. on file: