

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Persistence of Willows on the Northern Range of Yellowstone National Park, Wyoming (continuation of CSU 04)

Type of Project: Research

Funding Agency: National Park Service

Other Partners/Cooperators: Colorado State University

Effective Dates: 9/15/2004 - 7/1/2007

Funding Amount: \$40,009

Investigators and Agency Representative:

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Project Abstract:

A collaborative effort was initiated in 2000 for a 4-yr study of the hydrological and herbivore influences on willow persistence in the northern range of Yellowstone National Park. Funds were directed to the project in FY2000 and again in FY2004 to support additional fieldwork and analysis. Drought conditions over the past 4 years, however, have limited the variance in spring runoff and the ability to infer hydrological influences on willow performance across the spectrum of moisture conditions. As such, we wish to extend a series of core measurements for an additional 2 field seasons (2005 and 2006) in an attempt to capture more variability in snowpack and spring runoff conditions. By continued analysis we can determine the long-term effects of reduced herbivory and/or water table rise on willow growth and overall plant size.

During FY 2005-2006, we will continue with the willow measures to include both total annual growth (late summer) and utilization (spring). We will also continue our analysis of the water sources used by willow in different browsing and water table depth situations, and for plants of different age, height, and condition. Finally, we will continue to analyze the physiological response of willows to our treatments, focusing on plant water potential and stomatal conductance—indicators of plant water stress and water status.

Staff biologists within the Yellowstone Center for Resources will work collaboratively with university biologists on site maintenance, compliance, securing the necessary research and collecting permits, and overall logistics of the study.

Outcomes with Completion Dates:

A progress report will be submitted to Yellowstone National Park in October of each year documenting the work accomplished during the given year. A final report will be submitted in March of 2007 providing all data, analyses, and conclusions.

Keywords: willow persistence, herbivore influence, Yellowstone National Park, Colorado State University, hydrology

For Administrative Use Only:

Date Annual Report Received:

Date Final Report Received:

Publications, etc. on file: