

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: The role of herbivory and hydrologic condition in cottonwood establishment: Determining barriers to establishment and persistence in Yellowstone's northern range.

Type of Project: Research
Discipline: Natural Resources
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 5/1/2007-12/31/2009
Funding Amount: \$20,502

Investigators and Agency Representative:

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Project Abstract: This is a pilot study to determine the feasibility of research to quantify the factors affecting the establishment and persistence of cottonwoods in the northern range of Yellowstone NP. The summer 2007 preliminary study will have the following objectives: (1) determine where recruitment and establishment are occurring and the proportion of sexual and asexual reproduction at each site, (2) reconstruct the patterns of cottonwood establishment for the past century, (3) determine the effects of climate, hydrologic processes and elk on the establishment and persistence of cottonwoods.

Outcomes with Completion Dates: Upon completion of the first year of research a report of initial findings will be provided to the NPS by January 31, 2008. This report will consist of maps (both hardcopy and electronic format) of mature cottonwood plant locations with corresponding species, sex and size class descriptions and immature cottonwood cohort locations, greenhouse germination results from seed collection, and the ages and modes of reproduction of cottonwoods collected to date. The second year progress report is due by June 1, 2009, Upon completion of this second year of field study, a report consisting of results from genetic analysis compared with past and current harvest data, characterization of the geomorphic environment where cottonwoods are and are not establishing, results from monitoring herbivory cages, and a demographic distribution of ages classes within the seedling and sapling sized cottonwoods in the study area. Any relevant maps and data will be provided to YNP along with this report

Keywords: cottonwoods, herbivory, hydrology, climate change, northern range, Yellowstone National Park, Colorado State University

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Date Annual Report Received:
Date Final Report Received:
Publications, etc. on file: