

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Wetland Monitoring Protocol and Survey - Great Sand Dunes National Park and Preserve

Discipline: Natural
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 9/30/08 - 12/31/11
Funding Amount: \$84,765

Investigators and Agency Representative:

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Project Abstract:

This project will tackle two distinct tasks. First, we will develop Wetland Ecological Integrity (WEI) protocols tailored to Great Sand Dunes National Park and Preserve (GRSA). Second, we will initiate a wetland monitoring program and survey in GRSA to test and refine the wetland protocols (including reference condition development) and phase in long-term wetland monitoring in GRSA.

The Wetland Ecological Integrity (WEI) protocol to be developed will be an "integrated" approach, incorporating aspects of vegetation composition and structure, groundwater and surface water hydrology, water chemistry, invasive/exotic plants, focal species (beaver and elk), and landscape composition and dynamics. Wetland monitoring has a rich and complex regulatory context, with federal and state laws requiring attention by ROMN park management. Therefore, several existing wetland protocols have well developed methods and criteria that will be useful in creating the ROMN protocol and in developing assessment methodologies for monitoring data (EPA 2002a,b, Jones 2004, Wilcox et al. 2002). The protocol development process and the monitoring program to be initiated at GRSA will include wetland mapping in watersheds chosen to represent the full range of landscapes and habitats in GRSA. We will also review and compile all existing data from wetlands in GRSA. This protocol would allow the development of an approach for choosing survey and sentinel sites, and instrumentation and analysis of sites (both sentinel sites that would receive annual monitoring and survey sites sampled less frequently, as applicable).

The ROMN wetland protocols will emphasize the measurement of community level floristic composition, vegetation structure, and summer water table depth for use in multimetric indices of wetland ecological integrity (e.g., Jones 2004). We will also attempt to characterize the functions of wetlands both directly and indirectly using select habitat characteristics (e.g., water chemistry, physical habitat structure using HGM methods (Brinson 1993) as well as ground water hydrology and landscape-scale attributes. The general approach will draw upon the well established wetland monitoring literature. Several potential collaborators are actively using and adapting methods for wetland assessment in Colorado and Montana.

The protocol will be developed beginning in April 2009. A complete sketch of the protocol will be available by mid June when field testing in GRSA will begin. The protocols will be developed by David Cooper working with one or more graduate students.

Outcomes with Completion Dates: Monitoring protocol and data (including "final QA/QCed" data) per the ROMN Wetland Ecological Monitoring Protocol and a final report (following the outline and format of the NPS Natural Resource Tech. Report Series). A

presentation and executive summary of the project for park and network management a professional staffs near the end of the project period.

Keywords: Vital Signs Monitoring, wetlands protocols, Rocky Mountain Inventory and Monitoring Network, Great Sand Dunes National Park and Preserve, Colorado State University