

## Project Summary

### Rocky Mountains Cooperative Ecosystem Studies Unit

**Project Title:** A Program to Monitor Composition and Structure of Selected Vegetation Types on Fort Laramie National Historic Site

**Discipline:** Natural

**Type of Project:** Research

**Funding Agency:** National Park Service

**Other Partners/Cooperators:** University of Wyoming

**Effective Dates:** 5/1/2005 - 12/30/2006

**Funding Amount:** \$9,534.00

**Investigators and Agency Representative:**

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**Project Abstract:**

The objective of this proposal is to design and establish a monitoring program using permanent sampling plots to assess (1) the success of efforts to restore semi-native vegetation to disturbed areas, (2) the success or failure of recruitment of trees in riparian woodlands, (3) the species composition of native or near-native vegetation types in riparian and upland areas, and (4) the distribution and abundance of exotic plant species in the native or near-native vegetation types in riparian and upland areas.

Fort Laramie National Historic Site is much the same now as it was during the historical times of interest, with the grassland vegetation in parts of the park having been converted to agricultural fields, now abandoned and allowed to become a mix of exotic plants. Park staff have initiated restoration of those fields to native or near-native vegetation thereby providing visitors a more accurate picture of the Fort as it was during the times of interest. The monitoring program being proposed here would provide data to judge the success of their efforts.

The riparian cottonwood woodlands on Fort Laramie NHS played a central role in the history of the park itself, and they also illustrate for visitors a biologically and culturally important component of the Great Plains landscape. Changes in hydrology of the North Platte and Laramie Rivers have changed the pattern of recruitment of cottonwoods. The proposed monitoring program would provide park managers with information to judge whether the riparian woodlands are likely to persist without intervention, or whether managers will need to establish cottonwoods in selected parts of the riparian zones.

Finally, the work done on this project will contribute to the development of a standard protocol for measuring plant community composition and diversity, which the Park Service's Northern Great Plains Inventory and Monitoring Program has identified as one of its "Vital Signs", or indicators of ecosystem health. The data on general species composition will be augmented with data on the distribution and abundance of exotic plant species in the native vegetation types.

**Outcomes with Completion Dates:**

At the end of the project, the park will have a collection of sampling locations (each documented with a GPS receiver and permanently marked so it can be readily re-located). The park also will receive a report from the cooperator explaining the methods used to locate and mark the sampling locations and the methods used for collecting the data for each objective, and summarizing the data collected on the first year of the project. The report will be accompanied by electronic copies of spreadsheets or databases in which the data are stored, and by an electronic layer of the sampling locations.

**Keywords:** native vegetation, species composition, Fort Laramie National Historic Site, Northern Great Plains I&M Network, vegetation monitoring, restoration, invasive plants, University of Wyoming

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Date Annual Report Received:

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