

Project Completion Report

Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)

Project Title: Analysis of Soils at Weippe Prairie Site

Project Code: J9375070015 , UID-20

Type of Project (Research, Technical Assistance or Education): Research

Funding Agency: National Park Service

Partner University: University of Idaho

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Start Date of Project: August 1, 2007

End Date of Project: December 1, 2010

Funding Amount: \$15,980

Project Summary, including descriptions of products, work accomplished and/or major results. If the information is restricted (e.g. location of endangered species or cultural resources), indicate the title and location of the final report. Also add web sites where project-related information may be found.

This project was initiated to provide baseline information about soils of the Nez Perce National Historical Park (NEPE) Weippe Prairie site. In fall 2007, six sites representing a range in landscape position and camas density were described and sampled for a suite of chemical, physical, mineralogical analyses. In addition, equipment was installed at all six sites to monitor seasonal changes in soil moisture content at 15- and 40-cm depths, soil temperature at 15 cm, and water table levels.

Results indicate that soils of the Weippe Prairie are primarily of alluvial and lacustrine origin. Because they occupy a broad, relatively low-lying plain, they are often waterlogged during the winter and spring months. This is due, in part, to the presence of dense, slowly permeable subsoil horizons that impede drainage and help create perched water tables. Laboratory analyses revealed that these soils tend to have textures dominated by silt and clay, and are very strongly acid. Kaolin is the predominant mineral found in the clay fractions of these soils, which have also been influenced by more recent additions of volcanic ash and loess.

Hydrological monitoring indicates that all soils have water tables present for approximately 5-7 months per year. At the wettest sites, water tables are very near or above the soil surface for the majority of time during which the soils are saturated.

Results of this project do not indicate that a specific soil property is related to observed differences in camas density at the Weippe Prairie. It may be that factors such as disturbance and past management are more influential than edaphic factors in this regard. However, this project does provide site-specific, baseline information about soils of the NEPE Weippe Prairie site. This information can, in turn, be used to guide informed management strategies and contribute to a better understanding of the edaphic factors related to camas ecology in the region.

Number of students participating in this project: undergraduates, graduate students, degrees conferred. One undergraduate student participated in the study; no degrees were conferred based solely on the work conducted here.

Lessons Learned from this project.

The park has decided to continue data collection on the hydrological monitoring stations installed via this study for another three year interval (2010-2013). In addition, we are expanding the study to encompass a larger portion of the NPS site over the upcoming three year period. The research conducted under this project has also formed the basis for a potentially larger project we're currently in the initial phases of planning regarding wetland meadow restoration across the site. This additional project may potentially be conducted in cooperation with Colorado State University and the NPS WRD.