

## **Project Summary**

### **Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title:** Characterize the riparian community to identify "witness" trees to the Battle of Little Bighorn 1876, to determine historic river course, and to determine climate history

**Discipline:** Natural  
**Type of Project:** Research  
**Funding Agency:** National Park Service  
**Other Partners/Cooperators:** University of Wyoming  
**Effective Dates:** June 6, 2011 - September 30, 2012  
**Funding Amount:** \$10,000

**Investigators and Agency Representative:**

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**Project Abstract:** Little Bighorn Battlefield National Monument commemorates one of the last armed actions between the U.S. Army and the Northern Plains Indians as the tribes fought boldly to preserve their way of life. In 1876 Lt. Col. George A. Custer and 262 soldiers and attached personnel of the Seventh Cavalry met defeat and death by an overwhelming force of more than 1,500 Lakota Sioux, Cheyenne, and Arapaho warriors. The primary purpose of Little Bighorn is to preserve and protect the historic and natural resources pertaining to the Battle of the Little Bighorn and to provide visitors with a greater understanding of those events which led up to the battle, the encounter itself, and the various effects the encounter had on the two cultures involved. The riparian cottonwood forest at Little Bighorn was, and remains, a critical element of the cultural landscape, providing shelter, timber, firewood, forage, and wildlife habitat. In addition, individual cottonwood trees along Little Bighorn River, both living and dead, have cultural and spiritual significance because of their association with the Indian encampments and the battle itself.

This riparian ecosystem appears to have changed significantly over the 134 years since the battle. Historical photographs show far fewer trees along the river than are now present. Management of this riparian ecosystem will require better understanding of the site's environmental history, current conditions, changes that have occurred over time, and possible causes of those changes.

Main objectives of the proposed research are (1) to describe the age structure of cottonwood trees, targeting in particular trees that may have been alive in 1876; (2) to identify the hydroclimatic factors (e.g. floods, drought) that have influenced development of the stands; and (3) to identify cottonwoods and other trees with potentially dateable fire scars. This research project can only be successful if funded with the proposed technical assistance project to 'Characterize the Riparian Community', because substantial expertise is required in the field of dendrochronology. This study will explore how hydroclimatic regimes of the past have influenced riparian area development, while also informing assessments of how future climatic conditions might influence these stands. The scientific data will supplement 3 park projects (Historic Map Update, Environmental History, and Vegetation Map) by supporting historical depictions of the river course, adding to the knowledge of the area's fire history, and including demography of cottonwoods.

The project area is the 3.2 mile reach of the Little Bighorn River which forms the southwest boundary of the Custer Battlefield. Little Bighorn is within the Crow Indian Reservation; therefore NPS staff will be consulting with the Crow Tribe in order to comply with NEPA & NHPA laws and to gain access to forest outside the NPS boundary.

**Outcomes with Completion Dates:** September 30, 2012

**Keywords:** University of Wyoming, Little Bighorn Battlefield National Monument, **riparian** area, cottonwood trees, **climate history**