

## **Project Summary**

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

**Project Title:** Monitoring protocols for the Greater Yellowstone Network inventory and monitoring program, including report on aridland soil stability and structure protocol

**Type of Project:** Technical Assistance

**Discipline:** Natural

**Funding Agency:** National Park Service

**Other Partners/Cooperators:** Montana State University

**Effective Dates:** 8/1/2004 - 6/1/2009

**Funding Amount:** \$365,385

#### **Investigators and Agency Representative:**

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#### **Project Abstract:**

The goal of our partnership is to develop a scientifically robust and credible plan to monitor and to detect change in the Parks of the Greater Yellowstone Network and thus contribute towards the implementation of a Vital Signs Monitoring Plan for the Greater Yellowstone Network.

We will accomplish this goal through the following tasks:

- Plan a strategy for monitoring exotic plants, whitebark pine and other priority indicators in the Greater Yellowstone Network and coordinate between and among the Greater Yellowstone Inventory and Monitoring Network and the member parks (including Yellowstone National Park, Grand Teton National Park and Bighorn Canyon National Recreation Area).
- Prepare background information, synthesizes resource threats & management issues, develops monitoring objectives and seeks peer review and approval from member parks.
- Develop conceptual models that integrate ecosystem indicators and help formalize and communicate an understanding of ecosystem health.
- Develop a bioclimatic model
- Field component: The field component of this work would "test" the model by choosing a select number of sites where climate change is predicted to affect the alpine/treeline system and then examining the evidence for this change using dendroecological methods.
- Finalize monitoring protocols for whitebark pine, amphibian, land use change and climate monitoring.
- Revise chapters 1-12 of the VSP for both the GRYN and NCPN and update the GRYN web site
- Prepare "program highlights" and accomplishments for the 2006 Annual Administrative Report and the Annual Superintendents Report.
- Develop a specific monitoring protocol for aridland soil stability and structure needed at Bighorn Canyon NRA.

In addition, Big Sky Institute will offer administrative support to the overall project by hiring and supervising personnel who are assigned responsibility for researching and communicating information on park natural resources and for planning, preparing and publishing monitoring protocols.

#### **Outcomes with Completion Dates:**

- 1) Chapters 1-12 of the Vital Signs Monitoring Plan
- 2) Report and synthesis of threats and issues of whitebark pine in the GRYN

- 3) Report and synthesis of threats and issues of exotic plants in the GRYN
- 4) Interim Report: Bioclimatic model: (thesis proposal and initial model results)
- 5) Annual 2005, 2006 and 2007 progress report suitable for the NPS Annual Administrative Report and Work Plan
- 6) Monitoring protocols for various vital signs
- 7) updated web site for GRYN
- 8) Final draft - Protocol narrative and associated Standard Operating Procedures for Aridland Soil Stability Monitoring by November 30, 2006

**Keywords:** monitoring protocols, Vital Signs Monitoring Plan, Yellowstone NP, Grand Teton NP, Bighorn Canyon NRA, Montana State University, Big Sky Institute, Greater Yellowstone I&M Network