

## **Project Summary**

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

**Project Title:** Support implementation of five needle pine climate change response project

**Discipline:** Natural Resources  
**Type of Project:** Technical Assistance  
**Funding Agency:** National Park Service  
**Other Partners/Cooperators:** Montana State University  
**Effective Dates:** September 1, 2011 - December 30, 2014  
**Funding Amount:** \$54,922 (FY12: \$16,200; FY11: \$38,722)

**Investigators and Agency Representative:**

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**Project Abstract:** In May 2010, a workshop, titled "Monitoring Ecological Response to Climate Change in High Elevation Parks in the Great Northern Landscape Conservation Cooperative," was held to engage managers from high-elevation parks with agency and university scientists and partners. During this workshop a 7 vital signs were chosen for enhanced monitoring (visit <http://www.greateryellowstonescience.org/node/1085> and click on STUDY PLAN to view the High Elevation Climate Change Response Strategy). Five-needle pines were the highest ranked vital sign identified. There is no annual funding for this strategy so the approach is to use the existing funds in such a way to provide the most beneficial information

The goal of our partnership is to collaborate towards a scientifically robust and credible inventory and monitoring program designed to detect change in natural resources within the parks of the ROMN, Greater Yellowstone Network (GRYN), and other networks in the west. To meet these needs, Montana State University (MSU) will support student interns to implement the project. GRYN has offices near the MSU campus that provides the venue for supporting these students during the implementation of this project.

*Phase 1.* Conduct a literature review and synthesis of existing management, monitoring, and research and available data in and surrounding GLAC, ROMO and GRSA. Compare that with similar information for GRYN parks (Yellowstone and Grand Teton NPs). Determine how monitoring programs can be linked across the west and how they can collect data to measure trends related to climate change.

*Phase 2.* Develop monitoring framework or plan and Standard Operating Procedures to be implemented at select parks from the High Elevation Parks that are part of the ROMN. Ensure this is compatible with ongoing monitoring in GRYN parks. The monitoring framework will recognize and include ongoing management, monitoring and research being conducted in and near ROMN parks by the parks and their partners (e.g. the USFS).

**Outcomes with Completion Dates:** December 30, 2014

**Keywords:** five needle pine, climate change, base line data, Greater Yellowstone Network I & M Network, Montana State University