

## **Project Summary**

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

**Project Title:** Biogeochemical Cycling in Pinyon Juniper Ecosystems on the Colorado Plateau

**Discipline:** Natural  
**Type of Project:** Research  
**Funding Agency:** USGS  
**Other Partners/Cooperators:** University of Colorado Boulder  
**Effective Dates:** 9/1/2005 - 12/31/2007  
**Funding Amount:** \$44,546 [FY07: \$20,192; FY05: \$ 24,354]

**Investigators and Agency Representative:**

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**Project Abstract:**

Land use change in Southwestern US ecosystems can impact the fertility and sustainability of public lands. Our previous work has highlighted the potential impacts of grazing on soil carbon and nutrient content in areas near Canyonlands National Park in SE Utah. In this project, we outline an expansion of this research to encompass a transect of sites from Southern Utah to Northern Arizona. In this project, Neff laboratory in the Geological Sciences Department at the University of Colorado at Boulder will carry out detailed measurements of soil carbon and nutrient status on paired grazed and ungrazed sites in Zion National park and Staircase Escalante National Monument. We will also carry out studies of the role of Pinyon-juniper expansion on soil carbon and nutrient status using a combination of dendrochronology and detailed soil carbon analysis to identify controls on organic matter cycling in these dryland ecosystems. The measurements will be carried out in close collaboration with the USGS Earth Surface Processes Team members at the USGS in Denver and will link to a NASA funded remote-sensing based project at the Carnegie Institute of Global Ecology and CU Boulder.

**Outcomes with completions dates:** December 31, 2007

The project will result in peer reviewed publications in 2006/2007 including analysis of tree age/soil carbon relationships and grazing impacts on soil carbon stocks.

**Keywords:** Soil carbon, grazing, pinyon-juniper, desert, soil, USGS, University of Colorado Boulder