

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Recreation Impacts on Soil Structure and Function
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Montana State University
Effective Dates: June 1, 2004 – April 30, 2006
Funding Amount: \$14,865
<p>Investigators and Agency Representative: NPS KEY OFFICIAL: Regina Rochefort, National Park Service, North Cascades National Park Service Complex, 2105 State Route 20, Sedro-Woolley, WA 98284, (360) 856-5700 x 254, regina_rochefort@nps.gov.</p> <p>PRINCIPAL INVESTIGATOR: Catherine Zabinski, Assistant Professor, Land Resources and Environmental Sciences, Montana State University, 334 Leon Johnson Hall, Bozeman, MT 59717, 406-994-4227, cathyz@montana.edu</p>
<p>Project Abstract: Mountainous regions are some of the most heavily utilized recreation areas, and this use has resulted in major ecological changes, including vegetation loss, soil compaction, and loss of habitat for soil biota. The goal of this project is to compare soil structure and function across disturbed, restored and undisturbed sites in subalpine systems in Mt. Rainier and North Cascade National Parks. Specifically, we will measure the density of arbuscular mycorrhizal fungal propagules, soil microbial community structure and function via substrate-induced respiration and enzyme activity, decomposition rates of standard substrates, and soil chemical and physical properties.</p> <p>This research directly addresses two of the network's main themes – ecological restoration and preservation of biological diversity – and can be applied to two other themes – monitoring ecosystem health and minimizing human activities that damage ecosystem health. Because soils are complex systems, there is not a single parameter to summarize soil health. Our approach is to measure multiple parameters across a range of sites, with an ultimate goal of determining which measures could be used as an index of change, and hence a monitoring tool. A better understanding of soil impacts will inform restoration efforts, to both improve our diagnostic abilities to prescribe soil amendments and as a measure of restoration success.</p>
<p>Outcomes with completion dates: List of Products:</p> <ol style="list-style-type: none"> 1. Annual report, submitted by 5/20/05, summarizing the results of our Summer 04 Data collection 2. Final report, submitted by 12/30/05, which will include all data, including that collecting during Summer 05. 3. Presentations at North Cascades National Park, Mt. Rainier NP, and Klondike Gold Rush Historic NP
<p>Keywords: soil structure, soil function, recreation, habitat loss, Montana State University, North Cascades National Park, Mount Rainier National Park, mycorrhizal fungus</p>
<p><u>For Administrative use only:</u> Date Annual Report Received: Date Final Report Received: Publications, etc. on file:</p>