Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: An assessment of informal trails and visitor created sites in Rocky Mountain National Park

Discipline: Interdisciplinary
Type of Project: Technical Assistance/Research
Funding Agency: National Park Service
Other Partners/Cooperators: Utah State University
Student Participation: Yes
Effective Dates: 7/1/2016 – 5/31/2016
Funding Amount: $36,031.00

Investigators and Agency Representative:
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Project Abstract: On September 12, 2013 historic flooding resulted in widespread damage across the eastside of Rocky Mountain National Park (ROMO). A number of landslides were documented within the park's boundaries including one on Twin Sisters Mountain that destroyed five switchbacks along its trail system. After the area was reopened to public use, visitors began to find their own routes to bypass damaged areas of trail and consequently a system of informal trails developed. Currently the park is in a planning process that is considering how to best address the damaged trail system on Twin Sisters and the changes in visitor use patterns that are creating new resource impacts. Informal trails are an increasing issue in ROMO resulting from a variety of situations and use that result in their formation. This project will build on existing research conducted by the PI and associates in ROMO and examine the formation of informal trails as a result of the aforementioned landslide and in select riparian corridors where increases in visitor demand is raising impact concerns

Several lines of recreation ecology research also support the idea that off-trail impacts are important empirically. First, recreation use-impact theory (Hammitt and Cole, 1998; Monz et al., 2013) suggests that initial disturbance by visitors in previously undisturbed areas results in a rapid formation of impact to groundcover vegetation. Once impacts are formed and apparent, these visitor-created trails and sites can attract subsequent use both by increasing the permanence of these impacts and the spatial extent and magnitude. The formation of networks of informal trails has also been shown to be of concern with landscape-level ecological processes, with increases in habitat fragmentation and associated impacts occurring as informal trail networks increase (Leung et al., 2011; Wimpey and Marion 2011). Last, visitors appear to have thresholds of tolerance for the occurrence and proliferation of visitor created trails, beyond which these impacts become unacceptable to their experience in a park setting. This groundbreaking work on visitor perceptions of informal trails was conducted in ROMO and numerous locations where the 2 density of these impacts exceeded acceptable levels were found in the Bear Lake study area (D'Antonio et al., 2013)

The above points demonstrate the importance of understanding and managing informal trails and associated impacts. Management of informal trails is a challenge for several reasons, but it is especially difficult since little is currently known about influential factors that may result in informal trails forming in one location and not in others. It is likely that there are use-related, behavioral, ecological, and landscape factors that affect the frequency, density and distribution of informal trails. But little research has been conducted to explore these relationships.

A range of action alternatives are being considered to address informal trail proliferation on Twin Sisters that resulted from the historic flood of 2013 and subsequent landslides. Management action alternatives range from no management actions and allowing informal trails to develop to a large construction project to reroute the trail. This project proposes to document current conditions of informal trail proliferation on Twin Sisters to understand the factors that contribute to informal trail proliferation and to inform the decision process.

Keywords: Informal trails, visitor impacts, recreation ecology, Rocky Mountain National Park, Utah State University