Project Completion Report
Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)

Project Title: ***Comparative ecology and environmental history in the Tatra Mountains and the Rocky Mountains***

Project Code: RMCESU-174; P09AC00186

Type of Project: Research and Education

Funding Agency: National Park Service

Partner University: Colorado State University

NPS Agreement Technical Representative: Paul McLaughlin, Rocky Mountain National Park, Estes Park, CO, Paul_McLaughlin@nps.gov, 970-586-1282

Principal Investigator:
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Start Date of Project: 09/15/2009

End Date of Project: 12/31/2013

Funding Amount: $47,770

Project Summary: This project developed a cooperative research program between the NPS, Colorado State University, Wroclaw University (Poland) and the Slovak Academy of Sciences (Slovakia). It provided travel, materials, housing, and salary for two Slovak post-doctoral researchers to work jointly in Rocky Mt. National Park (ROMO) and Tatra National Park, Slovakia studying the past and present effects and recovery from domestic livestock grazing in the alpine zone. The project concluded that impacts in Rocky Mountain National Park are much more severe, and recovery much slower from the same level of grazing than in the Tatra Mountains. This is likely due to the much greater total precipitation received in all months in the Tatra Mountains, allowing plants to more easily establish and grow. Work by the Polish collaborators included three post-doctoral fellows, 6 undergraduate students, and 2 masters students. This project investigated processes of wetland formation and persistence comparing mainly fens in Rocky Mountain National Park with fens in Tatra National Park, Slovakia.

Number of students participating in this project: 5 undergraduates, 3 graduate students, 5 post-doctoral fellows, 2 masters degrees conferred.

Lessons Learned from this project: The Rocky Mountain alpine is much more sensitive to grazing related disturbances, and recovery is much slower, than similar alpine areas in the Tatra Mountains, Slovakia. Thus, NPS staff could use this information to help manage any large grazers in the alpine and understand that ROMO will not recover from disturbances in years to decades, and the effects may persist for centuries or longer. Wetlands in ROMO also are

primarily ground water driven, while in the Tatra Mountains, much more humid conditions allow the proliferation of peat mosses (Sphagnum spp.) and the peatlands can develop into small raised bogs with much more acid conditions and supporting a distinctive flora that is not present in the Rocky Mountains as far south as Colorado. Peat accumulation rates are also much slower in ROMO, again due to the longer dry periods each summer and the lack of peat mosses. Thus, ROMO fens, if disturbed, will have a longer recovery period due to the slow peat formation rates, and the lack of easily established and fast growing peat mosses.

Other RM-CESU agencies or research partners who participated in this project: University of Colorado Boulder, Bill Bowman had another comparative project in the Tatra Mountains.