Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Occupancy survey and habitat model for beaver in Rocky Mountain National Park

Discipline: Natural
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 7/1/2009 - 9/30/2010
Funding Amount: $21,991

Investigators and Agency Representative:
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Project Abstract: As a result of their dam building, canal construction, and foraging activities beaver can have profound effects on ecosystems. Their alteration of the hydrological processes in ecosystems, and the many subsequent effects resulting from these alterations, has been well documented (Naiman et al. 1988, Baker and Hill 2003, Westbrook et al. 2006). In a nutshell, beaver-induced changes to the structure and function of the aquatic environment have many beneficial effects on plant and animal diversity (Baker and Hill 2003, Stevens et al. 2007).

In Rocky Mountain National Park (RMNP), beaver have been declining since the 1940s (Baker 2003). Packard (1947) estimated that the population of beaver in RMNP in 1940 was comprised of more than 1800 individuals in approximately 200 colonies. Today, few colonies are present in RMNP. Though initial declines in the abundance of beaver appears to have been caused by trapping programs, the evidence suggests that more recent declines may have been caused by declines in the abundance and spatial distribution of willow (*Salix* species; Baker 2003).

Recognition of the importance of beaver to ecosystem function and plant and animal diversity has led to increased interest in restoring beaver to portions of their historic distribution where they are currently absent or have low densities. In 2008, a map of potentially suitable beaver habitat in RMNP was created. This map should be useful for identifying areas of potential reintroduction of beaver. However, data with which to assess the validity of this map are sparse. In addition, historic collection of survey data has been based on *ad hoc* sampling plans, which makes inference to the entire park problematic. Therefore, we propose that new surveys be completed in the fall of 2009 to address these issues. These new data will be used to:

i) Quantify the current status of beaver in RMNP
ii) Validate and refine the previous model of potentially suitable beaver habitat in RMNP

Outcomes with Completion Dates: March 31, 2010

Keywords: Beaver, habitat, historic distribution, Rocky Mountain National Park, Colorado State University