

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Seeps and Springs of Colorado National Monument: Ecology and Visitor Impact Assessment

Discipline: Natural
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Student Involvement: Yes, graduate students
Effective Dates: 8/1/2016 - 9/30/2017
Funding Amount: \$10,000

Investigators and Agency Representative:

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Project Abstract: Water in the arid West is a limited but vital resource for humans and wildlife. Springs and seeps occur where groundwater discharges to the ground surface making it available for animal and plant use. Relatively few natural surface water sources exist in Colorado National Monument where annual precipitation averages less than 10 inches per year and the lowest precipitation totals are during the hot summer months of June and July (www.usclimatedata.com). The ecological importance of springs and seeps as a water source increases in arid environments.

The effects of domestic livestock use of springs are well known to influence spring flow, vegetation, soil structure and habitat value. Human use impacts to springs however have been poorly studied. Historical development of springs (piping, impounding, channelizing) and over visitation are damaging activities that currently threaten spring and seep condition on some public lands.

Dozens of springs and seeps occur in Colorado National Monument, often along the upper reaches of its canyons. Springs and seeps are rare surface water features on the landscape where a diversity of plants grow and animals congregate. This attracts visitors to the exceptionally sensitive spring areas. This prompted a survey of plant and animal communities and hydrologic conditions over 40 features in the park. However, visitor use impacts were not a focus of this baseline ecological study. Compaction from foot travel, erosion and trampling of delicate wetland plants reduces the habitat value of an already limited natural resource. The extent to which this has occurred is currently unknown.

The project objectives include:

- Visit, inventory and analyze the ecological and physical attributes of springs and seeps.
- Characterize current and potential visitor use impacts,
- Develop an impact assessment approach for use with these springs
- Provide a prioritization of springs for potential protection and restoration.
- Provide a recommended monitoring seep/spring monitoring strategy based on the project findings

Keywords: seeps. Springs, ecology, visitor impacts, Colorado National Monument, Colorado State University