

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Environmental History of the Kawuneeche Valley and the Headwaters of the Colorado River, Rocky Mountain National Park

Discipline: Interdisciplinary
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: May 1, 2009 - December 31, 2011
Funding Amount: \$49,994

Investigators and Agency Representative:

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Project Abstract: The Kawuneeche Valley hosts the headwaters of the Colorado River. This spectacular high mountain valley features 13,000 foot snow-covered peaks, wandering bull moose, and ponds filled with melodic frogs. The landscape is punctuated with fishermen hoping for the big catch, rustic log cabins, and happy hikers looking for wildflowers. The valley has witnessed dramatic changes over time including the building of the Grand Ditch (an irrigation ditch that moves water to the eastern slope of Colorado), a surge in the number of tourists, and beetle-killed forests of red-needled trees. Recently, biologists have noticed a severe decline in the health and extent of willows and changes to the valley's hydrological regimes. The health and history of the valley has been identified as one of the three top resource priorities for the park as there are concerns that the valley may be at an ecological tipping point due to past (e.g., de-watering) and current changes (e.g., increase in elk and moose browsing).

We envision this environmental history project as a comprehensive report documenting landscape changes over time, and especially how humans have influenced and then been influenced by the landscape. It will cover the broadest period possible (prehistoric and historic conditions) and include all lands in the Colorado River headwaters drainage from the Continental Divide to Middle Park. A similar study for Sand Creek National Historic Site comes to mind as an analog. We are interested in taking a new and comprehensive look at this area that integrates cultural and natural resources.

The following areas will be addressed by this environmental history:

- Prehistory and Native American use of the land
- Hydrology: irrigation, water rights, the Grand Ditch, and the Colorado River headwaters
- Human settlement: homesteading, mining, ranching, and dude ranching
- Disturbance history: fire, beetles, climate change, nitrogen pollution (deposition)
- Wildlife: beaver, fisheries management/stocking, moose reintroduction efforts, elk browsing
- Tourism
- Park administration and road/facilities construction

Understanding the context of these changes—essentially a history of the ecological processes from the high elevation divides down to the valley floor—over time will contribute to the establishment of reference conditions and assist park managers as they attempt to restore and preserve this valley's natural and cultural resources. By understanding the historic context of these changes, managers can make better

decisions about how to manage them in the future. In addition, the park plans to use this history as the core of a book-length publication highlighting the valley.

Outcomes with Completion Dates:

1. Investigator's Annual Reports, due March 15 each year.
2. Monthly progress reports emailed to key official, due last day of each month for the duration of the contract.
3. Draft report including a complete bibliography, photographs, and maps submitted for review and comment to the park and outside reviewers as identified by the NPS key official, due August 15, 2010.
4. Two oral interviews of persons knowledgeable about the valley's resources taped and transcribed for repository in the park archives, due August 15, 2010.
5. Final report (200-250 pages, double spaced manuscript) incorporating appropriate review comments. Once approved by the key official, the PI will provide to the park four color printed and bound copies and two cds (including PDF of manuscript and raw tiff photos and maps) of the final report, due February 15, 2011. PI will also provide an electronic version of the final approved report to the RM-CESU.
6. At least one presentation to the public and one presentation to park staff on the findings, due summer 2010.
7. One-page summary of the project, produced by the park, with the assistance and technical review by the investigators, due August 31, 2011.
8. Chapter manuscript to be published in a book on the history of the Kawuneeche Valley, due August 31, 2011.

Keywords: environmental history, Kawuneeche Valley and the Headwaters of the Colorado River, Rocky Mountain National Park, Colorado State University