# NPS

**PROJECT SUMMARY**

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| **Colorado Plateau Cooperative Ecosystem Studies Unit****Cooperative Agreement Modification** |
| FUNDING AGENCY: **National Park Service** |
| MODIFICATION NO.: **[CESU info only]** | COOPERATIVE AGREEMENT NO.: **1200-99-009** | FUNDING AMOUNT: $ 20,000.00 |
| INVESTIGATORS Contact Information: David Cooper-CSU (303) 499-6441, dcooper@rm.incc.net; Bruce Baker-USGS (970-226-9414); Cherie Westbrook-CSU (970-627-8841 or 970-420-2197-cell) |
| PROJECT TITLE:Relative importance of beaver and high flows in maintaining wetland hydrology in the Kawuneeche Valley, Rocky Mountain National Park |
| EFFECTIVE DATES**:** July 31, 2003 – December 31, 2004 |
| PROJECT ABSTRACT: Riparian ecosystems in the Kawuneeche Valley (KV) on the western side of Rocky Mountain National Park, Colorado are in a state of decline. This is evident from the decadent willow stands, lack of willow establishment, and the presence of dry grasslands rather than wetlands on much of the valley floor. This situation may have been triggered by diversion of water out of the valley via the Grand Ditch over the last century and the coincident decline in beaver populations. A key requirement for managing and protecting the KV is to determine the relative importance of beaver and the Grand Ditch on wetland hydrology.The exchange of water between the river and floodplain is important to the maintenance of riparian ecosystems. Overbank flooding, once initiated, follows the spatial distribution of preferential flow pathways (areas of low relief). These floodwaters are very important to the health of riparian wetlands as they recharge soil water and groundwater. Because the Grand Ditch reduces the peak flows in the Colorado River, the likelihood of overbank flooding is reduced, affecting the storage of water in riparian wetlands. While empirical data concerning the influence of beaver dams compared to high-magnitude floods on floodplain water levels are lacking, it is possible to conceptualize some of the possible effects. The presence of an in-channel beaver dam increases the probability of flooding associated with a given flow discharge. So it is likely that floodplain water levels, particularly those close to the dam, are greater than would otherwise be the case in the absence of a beaver dam.This study will compare the effects of beaver and natural river flows on wetland hydrology in the KV under 2 extreme cases: (1) the 2002 drought year with functional beaver dams and a functional Grand Ditch diversion, and (2) the 2003 flood year in the absence of functional beaver dams and the Grand Ditch diversion (due to a break in the ditch). |
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| ***List of Key Words:*** declining beavers, beaver, Kawuneeche Valley, hydrology, Grand Ditch |
| ***Agency Manager/Technical Representative from National Park - Include contact information @ Specific Park****:*Terry Terrell, Research Administrator, Rocky Mountain National Park, 1000 U.S. Highway 36, Estes Park, CO 80517Ph: (970)596-1282 Email terry\_terrell@nps.gov |
| *Annual Report Received:**Final Report Received:**Publications on File:* |
| *This Modification is subject to all the provisions included in the Cooperative Agreement,* ***dated 6/22/99.*** |

*Attach any supporting material as necessary.*