Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Hydrologic and Sediment Transport Monitoring 2011 and 2012: Planning for Channel Restoration along Lulu Creek and Colorado River, Rocky Mountain National Park

Discipline: Natural
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 12/31/2010 – 6/30/2013
Funding Amount: $29,119

Investigators and Agency Representative:
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Project Abstract: Continued flow and sediment transport monitoring for two years, the 2011 and 2012 snow melt seasons, is proposed for the Upper Colorado River and tributaries in Rocky Mountain National Park. The monitoring will use existing equipment and infrastructure that was installed over the seven years following the 2003 breach in Grand Ditch. Currently, permanent staff gauges are installed at eight sites (Figure 1), four of which comprise sample cross sections where data on discharge and sediment transport have been collected since 2004. Four additional cross sections with staff gauges represent either reference sites or sites within the Rocky Mountain Network Inventory and Monitoring (I&M) program.

The addition of pressure transducers at each site in 2009 provides continuous stage and discharge measurements from late spring until early fall. In 2010, one reference reach (Upper Lulu Creek) was decommissioned to develop a downstream sentinel site in collaboration with the monitoring efforts of the I&M program and the Water Resources Division of the National Park Service. An upstream sentinel site was also established in 2010 at the Little Yellowstone sampling cross section, and makes use of existing instrumentation. The sentinel sites, where detailed information on water, air, climate, and overall ecosystem integrity will be quantified, upstream and downstream from the Lulu City wetland will be maintained according to existing I&M protocols, and will also monitor restoration and post-restoration activities as needed. Data from the sentinel sites will be shared with all involved parties, and will extend the utility of the monitoring efforts beyond the restoration efforts. It is foreseeable that the sentinel site data will be instrumental in establishing information on the long-term ecosystem health of the Upper Colorado River impacted by the 2003 breach.

Outcomes with Completion Dates: Field work, sample processing and analysis, and data compilation will be completed by September 30, 2011 and 2012. Data and results of the 2011 and 2012 field seasons will be presented in a draft report to Rocky Mountain National Park by November 30, 2011 and 2012, with a final report submitted by December 30, 2011 and 2012.

Keywords: Rocky Mountain National Park, Colorado State University, Grand Ditch, hydrology, restoration, sediment transport