

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Data Collection and Modeling to Support Restoration Design In the Lulu City Wetland, Colorado River and Lulu Creek Corridors, Rocky Mountain National Park, Colorado

Discipline: Natural
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 8/11/2008 - 8/31/2011
Funding Amount: \$75,116 (FY08: \$22,260; FY09: \$52,856)

Investigators and Agency Representative:

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Project Abstract:

Wetland and riparian restoration planning and implementation rely upon accurate data on water table depth, amount of sediment to be removed, the desired landscape configuration and vegetation to be produced. In 2005 we installed more than 50 ground water monitoring wells in the areas impacted by the 2003 Grand Ditch breach. These wells will be monitored weekly or biweekly during the summer of 2008, and the data used to perfect our understanding of surface water and ground water interactions, and water table depths in riparian and wetland areas throughout the study area.

Approximately 50,000 yd³ of sediment was eroded from the hillslope below the Grand Ditch breach and deposited in the study area. We excavated pits by hand and augered holes in the study area soils in 2003 and 2005 to approximate the thickness of fill in Lulu City wetland, Colorado River floodplain, and Lulu Creek. However, better data on sediment thickness, distribution, and approximate grain-/rock-size volumes are needed to plan future sediment removal activities. In many areas the sediment is very coarse textured, and hand excavation is not effective. In other areas the hydrologic regime is so altered, that deposited sediments are flooded and hand excavation produces holes that fill with water and sediment thickness cannot be accurately assessed.

I propose four tasks in this proposal: (1) selection of reference area study sites (in conjunction with RMNP staff and Sarah Rathburn at CSU), (2) install needed instruments into reference study sites (staff gauges and monitoring wells with data loggers) and measure water levels weekly or biweekly during the summer of 2009 in reference areas and the wells installed during 2005, and (3) monitor existing ground water levels in wells/staff gauges installed in the study areas in 2005, (4) modeling of surface water-ground water interactions and ground water levels for key species and communities. In addition, we have already proposed, and have sufficient budget to work with a mini-excavator or backhoe to analyze sediment thickness in the Lulu City wetland, along the Colorado River and Lulu Creek. These data will play a key role in restoration design planning.

Outcomes with Completion Dates: The interim report will be submitted to NPS (Draft due December 31, 2009, Final due January 31, 2010) presenting all data and analyses from 2009 work. The final report will be presented to RMNP (Draft due December 31, 2010, Final due January 31, 2011).

Keywords: wetland restoration, planning, Lulu City wetland, Colorado River, Rocky Mountain National Park, Colorado State University