

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Wetland Ecological Integrity Monitoring in Glacier National Park

Discipline: Natural
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 9/1/2010 - 12/31/2015
Funding Amount: \$115,327 [FY14: \$9,095; FY12: \$62,013; FY10: \$44,219]

Investigators and Agency Representative:

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Project Abstract: Wetlands were selected as one of the 12 high priority ROMN Vital Signs (VS). Wetlands are important components of nearly all ROMN watersheds and provide many valuable ecological and socioeconomic functions. For example, relative to their area, wetlands support a disproportionate amount of the biodiversity in each ROMN park, and wetland vegetation is an excellent indicator of ground water levels and dynamics in ROMN parks (Niering 1988, Wurster et al. 2003). However, wetlands are vulnerable to stressors functioning at both the site and landscape scale. Many ROMN wetlands are likely in a degraded condition (e.g. species assemblages and dynamics are not within a normal range of variability due to hydrologic modifications such as changes in ground water levels or stream diversions, fill, overgrazing by native ungulates, historical grazing by domestic livestock, atmospheric deposition, and invasion by exotic taxa). Finally, we lack reference conditions for the assessment of wetland condition in ROMN parks. Methodologies for criteria establishment exist (EPA 2002a,b, Jones 2004, Wilcox et al. 2002), but it is not clear if they are applicable to ROMN systems.

Colorado State University will develop Wetland Ecological Integrity (WEI) methods tailored to Glacier NP (GLAC). This will include, in consultation with ROMN and GLAC staffs and other ecologists, identification of important wetland types and sentinel monitoring sites, likely along elevation gradients and in each of the three major drainages in the park. It also includes, in coordination with ROMN and GLAC staff, installing wetland monitoring sites and gathering a full suite of wetland ecological integrity monitoring data including hydrology, water chemistry, soils and plants.

Outcomes with Completion Dates:

- Report on Glacier NP wetlands including discussion of important types or classes as well as a report/summary of sentinel site monitoring data
- Monitoring data (field sheets, electronic records in ROMN wetland database, photos etc.) from sentinel sites in GLAC
- A presentation and executive summary of the project for park and network management and professional staffs near the end of the project period

Keywords: wetlands, stressors, Wetland Ecological Integrity (WEI) methods, Rocky Mountain I&M Network, Glacier National Park, Colorado State University