

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Analysis of Multiple Time Scales in Wetland Hydrology

Type of Project: Technical Assistance

Project Discipline: Natural

Funding Agency: USGS

Other Partners/Cooperators: Montana State University

Effective Dates: 8/12/2009 - 7/31/2012

Funding Amount: \$75,201 [FY10: \$37,718; FY09: \$37,483]

Investigators and Agency Representative:

Investigator: Mark Greenwood, Department of Mathematical Sciences, Wilson 2-214, Montana State University, Bozeman, MT 59717, Telephone: 406-994-1962; Fax: 406-994-1789; greenwood@math.montana.edu

Agency: Richard S. Sojda, US Geological Survey N. Rocky Mountain Science Ctr, 226 AJM Johnson Hall, Bozeman, MT 59717-3492; Phone: 406-994-1820; Fax: 406-994-6556; sojda@usgs.gov

Project Abstract:

The purpose of this project is to explore wetland data for patterns and relationships between locations and over time using time series analysis techniques:

- Data exploration and visualization, time series modeling to remove effects of slug tests
- Use generalized additive mixed models (GAMMs) to estimate short and long term behaviors for the hydraulic gradients at each location and to compare those results across locations
- Use the GAMMs and multivariate permutation techniques to assess the relationships between the time series results and other variables

Outcomes with completion dates: July 31, 2011

Keywords: wetland hydrology, USGS, Montana State University