

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Investigating Potential Environmental Factors Influencing Macroinvertebrate Metrics of Stream Health within Headwater Stream

Type of Project: Research

Project Discipline: Natural

Funding Agency: USGS

Other Partners/Cooperators: Montana State University

Effective Dates: 8/1/2011 - 7/31/2016

Funding Amount: \$19,938

Investigators and Agency Representative:

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Project Abstract:

Using a subset of data collected by the BLM National Aquatic Monitoring Center (NAMC) will investigate the following specific objectives motivated by the need of an assessment of the current data collection effort and emphasis on costly macroinvertebrate samples.

1. Can macroinvertebrate indices distinguish managed versus reference sites, using management label as a surrogate for landuse change?
 - o Determine which macroinvertebrate indices are responsive to generalized stress categorized as managed vs. reference?

2. Explore the potential causal factors that are known or hypothesized to change as a result of land-use change and their relationship to each other and O/E ratios. These factors include Reach-scale habitat variables (substrate, Temperature, Bank Angle, Pools, Wood, Conductivity, Gradient), watershed attributes (area of catchment, drainage density, forest type, flow, slope, valley confinement, elevation, latitude and longitude), Climatic Variables (Temperature and PPT), and Disturbance variables (road density, grazing, and fire).
 - o Develop a conceptual model of the possible interrelationships between all of the aforementioned variables based on expert opinion.
 - o Use Tetrad to determine an empirically driven structure using the same variable set.

Outcomes with completion dates: July 31, 2016

Keywords: Environmental Factors, Macroinvertebrate Metrics, stream health, headwater streams, USGS, Montana State University