

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Detecting Amphibian Species Using Environmental DNA from Filtered Water Samples

Discipline: Natural
Type of Project: Research
Funding Agency: USGS
Other Partners/Cooperators: University of Idaho
Effective Dates: 8/1/2011 - 7/31/2013
Funding Amount: \$28,290 [FY12: \$7,500; FY11: \$20,790]

Investigators and Agency Representative:

USGS Contact: David Pilliod, USGS Snake River Field Station, 970 Lusk Street, Boise, ID 83706

Investigator: Lisette Waits, University of Idaho, PO Box 441136, Moscow, ID 83844; 208-885-7823; lwaits@uidaho.edu

Project Abstract: The goal of the proposed study is to examine the efficacy of using environmental DNA collected from filtered water samples as an inventory and monitoring tool for amphibians. Will focus on detecting species in flowing waters (streams) and estimating species densities using quantitative PCR of mtDNA. Will compare quantitative estimates of density from environmental DNA with observed densities from traditional field sampling methods (electro-fishing and kick-sampling). Will compare the cost effectiveness of environmental DNA sampling to the traditional field based methods by recording person hours and laboratory costs required to generate presence/not detected and density estimates for each species. Will examine the influence of distance upstream and residency time on detection of environmental DNA in field experiments.

Outcomes with completions dates: August 31, 2013

Keywords: amphibians, DNA, filtered water, monitoring, tools, USGS, University of Idaho