

## Project Summary

### Rocky Mountains Cooperative Ecosystem Studies Unit

**Project Title:** Sublethal Effects of Wildfire and Logging on Amphibians: Synergistic Effects on Vigor, Stress, and Disease

**Type of Project:** Research  
**Project Discipline:** Natural  
**Funding Agency:** USGS  
**Other Partners/Cooperators:** University of Montana  
**Effective Dates:** 9/1/2009 - 8/31/2013  
**Funding Amount:** \$25,862

**Investigators and Agency Representative:**

**Investigator:** Winsor H. Lowe, Assistant Professor, Division of Biological Sciences, The University of Montana; Phone: 406-243-4375; winsor.lowe@umontana.edu

**Project Abstract:**

The Frequency and duration of large wildfires in forests of the western U.S, have already increased in many areas, and fire severity is expected to intensify under future climate conditions (Westerling et al. 2006). This surge in wildfire activity has been the stimulus for several new management policies, reflecting the concern it has generated at both state and national level (USDA-USDI w00, Stephens and Ruth 2005). Research on the effect of fire on amphibians in Western forests has occurred primarily in wilderness areas and other protected lands (Pilliod et al. 2004, Hossack et al. 2006, Hossack and Corn 2007). But the effects of wildfire on amphibians are likely magnified in managed landscapes, where populations may already be depressed by habitat changes from logging (Burry 2004; Hossack and Corn 2007). We propose to use measures of vigor (body size and condition, egg size), physiological stress, and the prevalence of *Batrachochytrium dendrobatidis* (Bd) - the pathogen that causes the disease chytridiocycosis - to quantify sublethal effects of wildfire and logging on the long-toed salamander (*Ambystoma macrodactylum*) and the Rocky Mountain tailed frog (*Ascaphus monanus*), the 2 species in our regions that are most likely to be negatively affected by these disturbance (Naughton et al. 2000, Hossack et al. 2006).

**Outcomes with completion dates:**

**Keywords:** Amphibian, wildfire, logging, USGS, University of Montana