WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2004MT27B

Title: Amphibian habitat distribution and the population structure of Columbia spotted frogs, Rana luteiventris, in western Montana watersheds

Project Type: Research

Focus Categories: Wetlands, Ecology, Conservation

Keywords: beaver wetlands, Columbia spotted frog, population ecology, conservation genetics, landscape ecology

Start Date: 03/01/2004

End Date: 02/28/2005

Federal Funds: $13,690

Non-Federal Matching Funds: $27,386

Congressional District: At large

Principal Investigator:
Lisa Eby

Abstract

Wetlands are known for their valuable role in providing flood and erosion control, enhancing water quality and providing wildlife and fish habitat. Given the rate of loss and degradation of wetlands, it is important for us to understand the role that these systems play in the functioning of biotic communities. Given the large magnitude of wetland loss across Montana and the importance of wetland ecosystems to biota, it is not surprising that 60% of the threatened and endangered species in the state rely on wetlands to meet all or part of their seasonal needs (Montana Natural Resource Conservation 2001). Amphibian populations are one such species that are dependent upon small lentic habitat such as wetlands. One-third of all amphibian species in Montana are listed as species of special concern by the Montana National Heritage Foundation and Montana Department of Fish, Wildlife, and Parks. It is likely that changes in the availability of lentic habitat at the landscape and watershed scales are important to Montana's amphibian species. Historic loss of habitat has been demonstrated to have impacts on amphibian populations and communities in other systems. We will examine a large database of watersheds in western Montana to examine the quantity and distribution of amphibian habitat across western Montana. In addition, we will examine the genetic structure of amphibian

populations within several watersheds to determine whether amphibians are functioning as panmictic populations, metapopulations, or isolated populations. An understanding of both the quantity and distribution of critical amphibian habitat as well as the functioning of these populations at the watershed and landscape scales are needed for the development of conservation and management plans.