

## PATTERNS AND CONSEQUENCES OF COLUMBIA SPOTTED FROG SIZE AT METAMORPHOSIS IN HIGH ELEVATION ECOSYSTEMS

Rebecca M. McCaffery, Wildlife Biology Program, College of Forestry and Conservation,  
University of Montana, 32 Campus Drive. Missoula, MT 59812

Bryce A. Maxell, Montana Natural Heritage Program, P.O. Box 201800, 1515 East Sixth Avenue,  
Helena, MT 59620-1800

The importance of temporary ponds and wetlands on the landscape is a central point of debate in wetland conservation. Amphibian ecologists argue that small wetlands are often essential to the maintenance of amphibian populations. However, few studies have examined the importance of small, temporary ponds to amphibian populations in montane ecosystems. We conducted a mark-recapture study of a Columbia spotted frog (*Rana luteiventris*) population in the Bitterroot Mountains from 2001-2007, catching metamorph, juvenile, and adult frogs each year. Using pond-specific batch marks each year, we tracked production and survival of metamorphs emerging from ephemeral ponds and permanent ponds over time. Specifically, we wanted to know (1) if metamorphs emerging from ephemeral ponds and wetlands were smaller in size than those emerging from permanent water bodies, (2) whether metamorphs showed higher or lower rates of dispersal depending on their pond type of origin, and (3) whether size at metamorphosis correlated positively with apparent survival probabilities. Preliminary results indicate that metamorphs from ephemeral ponds are smaller in mass than metamorphs from permanent ponds, but that these differences are no longer as apparent at one year. Metamorphs from ephemeral ponds show higher rates of dispersal than those from permanent ponds. To date there is no correlation between size at metamorphosis and apparent survival to one year. Further analyses will determine whether long-term differences in survival are detected. These results will clarify the contribution of ephemeral wetlands to montane amphibian populations.