INDIVIDUAL, POPULATION AND LANDSCAPE-SCALE EFFECTS OF TIMBER HARVEST ON THE RED-LEGGED SALAMANDER (*PLETHODON SHERMANI*)

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ABSTRACT

Habitat loss and alteration are widely recognized as major threats to global biodiversity and the vulnerability of species to these disturbance processes can be highly dependent upon the behavioral responses of individuals to modified landscapes. In response to a changing environment, individuals may either attempt to adapt to changing conditions or disperse to new habitat. At the local scale, the emigration of individuals or changes in activity patterns could lead to reduced counts of animals in ecological studies. At broader spatial scales, organismal movement may enable population rescue or reestablishment after disturbance and maintain spatially-structured populations.

My dissertation research combined behavioral, population and landscape-scale studies to identify the effects of timber harvest on a lungless woodland salamander (*Plethodon shermani*). The primary objectives of my research were 1) to describe the short- and long-term effects of timber harvest on salamander abundance and 2) to determine the behavioral or demographic processes dictating the abundance and distribution of salamanders at both local and landscape scales. Collectively, these studies identify key behavioral and demographic processes responsible for observed changes in salamander populations and suggest specific strategies for conservation and management.