

Public Abstract

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Title:Individual, population and landscape-scale effects of timber harvest on the red-legged salamander (*Plethodon shermani*)

Habitat loss and alteration are widely recognized as major threats to global biodiversity. In response to a changing environment, organisms might either try to adapt to changing conditions or move to a new area. In many cases, organisms which remain behind may experience population declines due to increased mortality in an unfavorable environment. Thus, differences in behavior, movement patterns and survival may all be results of human land use activities.

Salamanders are very useful for studying the effects of human land use on the environment because they are incredibly abundant in many areas and because they tend to be very sensitive to environmental disturbance. As a result, we can monitor salamanders to determine the health of a forest or stream. In North America, timber harvest (logging) is one of the most widespread human-caused disturbances. Although we typically observe fewer salamanders after timber harvest, it is difficult to know whether they have died, dispersed to other areas or have just become less active and are infrequently encountered. My dissertation research involves studies of salamander behavior, population dynamics and landscape-wide patterns of abundance in relation to timber harvest. I found evidence that salamanders likely do alter their behavior to survive in logged areas but that reduced survival and reproduction in these areas also lead to smaller salamander populations which may take greater than 100 years to recover.