

II. Abstract

Although scientists are better understanding how climate change will impact regional temperature and precipitation regimes, they are just beginning to uncover how species will respond to such changes. Predicting species' responses to climate change is crucial, particularly for conservation and management, and it requires range-wide data on key ecological rates, such as survival (demography) or metabolism (physiology). I will use an existing network of research sites to study the metabolic rates of salamanders, a group of amphibians declining across the globe, to assess the physiological mechanisms underpinning salamander responses to climate change across their range. Past research has focused mainly on heat-stress, but moisture is essential to salamander function. Past research also suggests that variation among life-stages is important for adapting to future climate conditions. Therefore, I will investigate how different temperature and moisture conditions affect the metabolic rates of salamanders at three different life-stages: juveniles, adult males, and adult females. The outcomes of this research will help conservationists and wildlife managers better understand how wildlife will fare from climate change, and it will provide a missing link in how scientists predict the impacts of climate change on salamanders.