

Biological Sciences eNotes

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Jen Moss is the recipient of a new NSF CAREER award for a project titled “Investigating the ecological drivers and consequences of reproductive mode in thermal plasticity in plethodontid salamanders.” The goal of the project is to advance knowledge of the ecological conditions in which differences in thermal plasticity are most likely to arise and when they will be important for population adaptation. This work will identify the ecological factors underlying trait-specific thermal plasticity by characterizing and comparing variation in thermal acclimation capacity and thermoregulatory behavior across natural elevational gradients. Empirically derived estimates, together with machine learning algorithms, will then be used to construct and analyze mathematical models exploring how variation in individual energetics and population recruitment emerge from realistic patterns of trait-specific plasticity.



Finally, empirical patterns and model predictions will be validated in marked, wild populations of salamanders using biotechnology-enabled remote monitoring, which will generate large, publicly-available datasets spanning multiple dimensions of ecological data. Undergraduates will be engaged in this project throughout its duration. In addition, Dr. Moss plans to work with local community partners to expand her lab’s existing outreach initiatives aimed at strengthening childhood

connections to nature through hands-on, scientist-led activities, interactive museum exhibits, and take-home activities to encourage outdoor play.