ADAPTIVE PLASTICITY OF COLORATION IN RESPONSE TO ENVIRONMENTAL CHANGE

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When rapid environmental changes occur, different selective forces can create phenotypic trade-offs in which a trait can provide fitness benefits or costs under different environmental conditions. Amphibians are particularly vulnerable to environmental change, and previous research has revealed that some species will plastically respond to variation in temperature and ultra-violet radiation (UVR) by altering their coloration. Divergent selection on coloration may change with elevation and climate induced shifts in temperature because high temperatures are likely to result in lighter color morphs but as elevation increases, UVR exposure increases leading to the prediction that darker color morphs will be more common. I will evaluate the adaptive plasticity of coloration in *Ambystoma mavortium*, the tiger salamander, by testing the following hypotheses: 1) increased UVR levels will more strongly affect color plasticity than temperature; 2) older individuals will converge on similar coloration because color plasticity is more important to larval fitness; and 3) coloration effects an individual's fitness (mass and length). I will compare variation in coloration metrics of wild *A. mavortium* present at different developmental stages (hatchlings, larvae, and adults) along an elevational gradient in western Colorado. Individuals will be photographed, and coloration metrics (hue, brightness, and RGB) will be quantified using ImageJ to compare differences in coloration. The information I gather in this study can be used to further understand both phenotypic shifts organisms face under environmental changes and the consequences of those shifts, allowing scientists to better manage amphibians and providing a guide for the conservation of other species.