

HUESTIS, DIANA L¹, DENNIS C. HANEY², TRAVIS J. RYAN³, AND PETER A. MEYLAN¹. ¹Natural Sciences, Eckerd College, ²Biology Dept., Furman University, and ³Biology Dept., Butler University—Environmental factors affecting plethodontid salamander abundance, distribution, and diversity in the Enoree and Saluda River Basins of upstate South Carolina.

Amphibian populations are declining worldwide; the reasons for these declines vary, and are often unknown. Many researchers believe that these declines may have direct human causes, and that amphibians could be used as bioindicators of humankind's impacts on the global environment. Plethodontid salamanders are known to be relatively abundant in small streams found in the upstate of South Carolina. This study attempts to correlate numerous environmental factors of streams in the Enoree and Saluda River Basins of South Carolina with the abundance and diversity of plethodontid salamanders inhabiting these streams. Larvae, metamorphs, and adults of several aquatic-breeding species were collected and included *Eurycea cirrigera*, *E. guttolineata*, *Desmognathus fuscus*, *D. ocoee*, *D. quadramaculatus*, and *Pseudotriton ruber*. *Eurycea cirrigera* comprised over 85% of the salamanders captured, while very few *Desmognathus quadramaculatus* and *E. guttolineata* were found. Of the environmental factors studied, stream water temperature, pH, conductivity, and stream order showed significant negative correlations with salamander abundance and diversity; gradient and dissolved oxygen showed significant positive correlations. However, the concentrations of dissolved ions and alkalinity showed no correlation. While anthropogenic pollution and alteration of stream environments may have negative impacts on salamander populations in other locations, it appears that salamander populations are controlled mainly by physical factors of the streams in the upstate of South Carolina.