

## POSTER #10

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### **Does Habitat Stability Promote the Loss of a Complex Life Cycle in a Stream-Associated Salamander?**

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Local and regional conditions influence species' distributions, and for amphibians, these tend to be associated with different life-history strategies. Most salamanders undergo metamorphosis, developing into terrestrial adults from aquatic larvae, but some lineages exhibit paedomorphosis, retaining larval traits and remaining aquatic throughout maturity. The theory of complex life cycles suggests that stable aquatic conditions and variable terrestrial conditions are conducive to the evolution of paedomorphosis, though most studies have considered only terrestrial or aquatic conditions, and focused on intra-population variation of pond-associated species. The Oklahoma Salamander (*Eurycea tynnerensis*) is found in small streams of the Ozark Plateau in the south-central United States and exhibits both paedomorphosis and metamorphosis among populations. We tested hypotheses that paedomorphosis is associated with more stable stream conditions and more variable climates, using stream temperature data from 23 sites and climate data from the Worldclim dataset. We found sites containing paedomorphs had significantly more stable stream temperatures and more variable climates than sites with metamorphic *E. tynnerensis*. This system is an example of how habitat variability influences the dynamics of complex life cycle evolution.