Niedzwiecki Lab

Questions in our lab deal with how Ecological Factors affect the behavior and Life History of Organisms, and then ultimately lead to divergence between populations into species. Projects fall into two main categories: 1) experiments in behavioral ecology 2) into molecular phylogeography and population genetics. Some students have worked on other aspects of behavior or ecology, which have basically fit into the scope of the laboratory.

Study Systems

The Streamside Salamander
Ambystoma barbouri is a Salamander found only in Central Tennessee, Kentucky, and southern Ohio and Indiana. Unlike all other American ambystomatids, A. barbouri breeds in streams rather than vernal ponds. This allows us to examine how the unique challenges of stream life have affected the behavior and life history of this salamander. One new environmental challenge has been the presence of fish predators, and much of our work has focused on that aspect. We are also developing molecular phylogenetic and population ecology projects with a variety of ambystomatid salamanders, including A. barbouri and A. maculatum, the spotted salamander.

Physid Snails
Like the streamside salamander, the small freshwater snails in our streams face predators, and like the Streamside salamander, they detect these predators chemically (They smell them in the water!). We have been working on various aspects of this predator-prey system over the past few summers. Because snails are small and have shorter generation times, we plan that in the future, snails will open opportunities to study other aspects of behavior ecology, including mating systems.

Other Systems
I have had students work with zebrafish, cichlids, local bird populations, and stream communities. If students can generate interesting testable hypotheses of an ecological nature they are welcome to work in our lab.

Publications


**Presentations and Abstracts at Meetings**


Binkley, C. and J. Niedzwiecki. Persistence of a Predator Cue in the environment. Poster at TAS annual Meeting 2010, Oral presentation at TAS regional Meeting and Belmont Undergraduate Research Symposium, Spring 2011

Fehrmann, A.C., and J. Niedzwiecki. The effects of compound chemical cues on the anti-predatory behavior in Physid (sp.) snails Poster at TAS annual Meeting 2010, Oral presentation at TAS regional Meeting and Belmont Undergraduate Research Symposium, Spring 2011


Bentley, S. and J. Niedzwiecki- Behavioral response of *Ambystoma barbouri* to cues from distantly related fish, Poster at SEPEEG 2009, Oral presentation at TAS Regional Meeting and Belmont Undergraduate Research Symposium, Spring 2010. (First Place at TAS Collegiate Meeting-Ecology)

Cowan, K. and J. Niedzwiecki - The effect of acute exposure of ethanol on Zebrafish learning, Poster at SEPEEG 2010, Oral presentation at TAS Regional Meeting and Belmont Undergraduate Research Symposium, Spring 2011. (Third Place at TAS Collegiate Meeting- Biology II)


Henson, A. and J. Niedzwiecki. Resolving Conflicts in Ambystomatid Salamander Phylogeny with Nuclear DNA. Poster at SEPEEG 2008. Oral presentation at TAS regional Meeting and Belmont Undergraduate Research Symposium, Spring 2009. 3rd Place award, Evolutionary Biology at TAS


Niedzwiecki, J. Geographic influences on migration in Darwin’s Finches. Research talk at 2008 *Center for Ecology, Evolution and Behavior Spring Symposium*, Lexington, KY.

Niedzwiecki, J. Migration Patterns revealed through genetic Marker’s in Darwin’s Finches. Invited Seminar at Austin Peay State University, Clarksville, TN. March 2008.


Bold- Denotes student author.