Mar 6th, 12:00 AM

17. Zoology

Southwestern Oklahoma State University

Phenotypic Plasticity in Freshwater Amphipods in the Genus Hyalella.

Connor Slattery

Abstract

This experiment was done to test the phenotypic plasticity of the freshwater amphipod in the genus Hyalella population of Roman Nose State Park at Watonga OK. Phenotypic plasticity is the ability for an individual to change its physical characteristics when presented with a new environment. This is an important evolutionary mechanism because it allows the individual organism to persist in a new environment within their lifetime. The Roman Nose freshwater spring system shows that the amphipods would likely experience movement between at least two very different environments, the pool of the spring and the adjacent run of flowing water that. To study this we collected individual of Hyalella from multiple spring's pools and runs as well as a sample of the invertebrate population of the springs to gain a better understanding of the differences in the environments. Measurements were collected to see if there are any physical differences between the spring populations. We then raised in the lab amphipods from each spring under standardized lab conditions to see if the amphipods show changes in their physical characteristics from each other and from the wild populations collected. If there are differences between the populations, there will be evidence for genetic differences.

Preliminary Investigation of the Ecology of Harris Mud Crab in Lake Texoma

David Bass, Jessica Neuzil, & Shelbie Weaver

Abstract

Harris mud crab (Rhithropanopeus harrisi) was first reported in Lake Texoma in 2008 and its distribution at that time was documented. Since that time, very little research regarding this population has been conducted. Purposes of the current investigation are 1) document current distribution, 2) estimate population size, 3) record sex and individual measurements, 4) determine reproductive periods, and 5) note microhabitat preferences and any other pertinent ecological information. Six sampling stations have been established on the Oklahoma side of Lake Texoma in a transect from the OU Biological Station to near the Denison Dam. Each site was sampled in August, October, and December 2019 (and will be sampled every other month through 2020). Crabs were found in plots ranging from 0.0 crabs/m2 at Lake Texoma State Park to 27.5 crabs/m2 at Lark Sandy Beach. No crabs were found in the December collection. Of the crabs returned to the laboratory, 26 were females, 31 were males and the remaining four were too immature to determine. Measurements including carapace width, carapace length, chela width, chela length, and dominant claw were recorded. Results from an independent study indicated 94% selected rock as a microhabitat over plants and sediments, confirming what was observed in the field. As this Lake Texoma mud crab project continues, it will be interesting to discover if these preliminary results establish a trend.

Rat Lung Worm, Angiostrongylus cantonensis, is its intermediate host native or invasive?

Amber Lemons

Abstract

Angiostrongylus cantonensis, commonly referred to as Rat Lung Worm, is an invasive zoonotic parasite that has been found in Common Brown Rats in south eastern Oklahoma in McCurtain County. The typical life cycle of this parasite includes a primary host of rats while the intermediate host is snails. Following research projects that have found aquatic snails to be an inadequate intermediate host for Angiostrongylus cantonensis, this project is aimed at determining if the intermediate host is still a non-native terrestrial snail, or whether the parasite has crossed the barrier into infecting native Oklahoman terrestrial snails. Given the proven potential of human infection by this parasite, in both Florida and Hawaii, this project can help determine the risk of contamination due to exposure to terrestrial snails and hopefully, slow the spread of these parasites across North America.

Evaluating the Effects of Habitat Restoration on Juvenile Recruitment in a Population of Sonoran Mud Turtles in Southwest New Mexico

Brooke Savoy & Sean Laverty

Abstract

Drought has impacted Southwestern New Mexico for nearly two decades, contributing to threats to biological diversity. In our study area, the Peloncillo Mountains, many artificial impoundments inhabited by Sonoran Mud Turtles, Kinosternon sonoriense, have fallen into disrepair. With the threat of continued drought, management is vital to maintain regional biological diversity. Restoration work was completed at two impoundments in the study area, Blackwater Hole and Buckhorn Tank in 2012 and 2015, respectively. We used long term mark-recapture data to analyze juvenile recruitment in the context of habitat failure and subsequent restoration and ask two questions: has recruitment increased in each study area, and are temporal changes in recruitment associated with aquatic habitat restoration? Data were analyzed from a 26 year ongoing mark-recapture study. Turtles were caught by hoop net in larger impoundments or by hand in shallow tanks and canyon pools, and were marked with a unique series of notches in the marginal scutes. The amount of captures in a given sampling occasion were analyzed for four different age groups (Hatchling, Juvenile, Female, and Male) before and after restoration at Blackwater Hole and Buckhorn Tank, and at a third site that did not undergo restoration, Javalina Tank. Preliminary capture data suggests that there has been an increase in juvenile recruitment in the past few years while male and female capture rates have remained relatively stable.