Welcome to the 8th Annual P.U.R.E. Symposium!

Fall Semester, Thursday Nov 21, 2013

LSF 102, 3:45 to 5:00 pm

4:00 – 4:15 pm: Student: Catelyn Anderson**; Faculty Mentor:** Travis Knowles

Title: Using light 'Islands' to test island biogeography theory with tropical moth species.

Abstract: This project was conducted in order to test a unique interpretation of island biogeography theory, using moths attracted to nighttime lights, at Wildsumaco Biological Station in Ecuador. Three different sized "islands" (one large, one medium, and one small) were defined and observations were made each night for six consecutive nights. The number of moth species at each "island" was counted, photographed, and recorded. It was found that the large island consistently had the greatest number of species, and the small island always had the smallest number of species. These findings support island biogeography theory.

4:15 – 4:30 pm: Student: Hunter Johnson**; Faculty Mentor:** Travis Knowles

Title: A camera trap comparison of mammal species diversity in primary and secondary forest at Wildsumaco Biological Station.

Abstract: Camera trapping is a great way to observe population densities, species richness, and behavioral patterns of animals in a given area. We conducted a study at Wildsumaco Biological Station, in the Eastern foothills of the Andes in Ecuador. With high species richness and several endemic species, this area boasts a plethora of biological research opportunities. The goal of our research was to test for differences in mammal abundance and diversity between primary and secondary forest, and between the F.A.C.E. Trail and the Coati Trail. We set up eleven motion cameras with infrared sensors on human trails. The cameras were set up in a way to maximize the possibility of a capture. I hypothesized that mammals would be more abundant in primary forest and on the F.A.C.E. trail. Our study found no significant differences in mammal abundance between primary and secondary forest, or between the F.A.C.E. trail and the coati trail. One noteworthy finding of the study was the success of trapping margays (*Leopardus wiedii*). We acquired a margay trap success that is considerably higher than that of any published study.

4:30 – 4:45 pm: Student: Shahbaz Mushtaq; **Faculty Mentor:** Dr. Paul Zweirs

Title: Phylogeography of the Pine Barrens Tree Frog.

Abstract: The Pine Barrens Tree Frog (*Hyla andersonii*) is a threatened species of frog. The distribution of this species is in three isolated populations in Florida, the Carolinas, and New Jersey, yet how these populations came to be is unknown. Two hypotheses can explain how these species were formed, either through fragmentation of a larger historical population, or through migration and colonization of new habitats. By collecting samples from frogs in their known habitats, and by using the Polymerase Chain Reaction to amplify their extracted DNA, we are attempting to reveal the origin of the frogs. In this investigation, I attempted to amplify specific gene regions of the extracted DNA by combining the DNA samples with a mixture containing primers specific to each gene region and using the Polymerase Chain Reaction. Subsequently, I used agarose gel electrophoresis to verify whether amplification was successful and made a first assessment whether the appropriate gene region was amplified. Afterwards, comparison of gene region sequences from multiple individuals will help explain how these populations of tree frogs originated.

The Department of Biology at FMU strongly encourages student participation in research activities. We offer many opportunities for undergraduates to assist in faculty research or develop their own independent research projects. Students can earn academic credit through Special Studies (BIOL 497) and Honors Independent Study.

If you are interested in learning more about P.U.R.E. or available research opportunities, please visit the PURE website at: http://people.fmarion.edu/tbarbeau/PURE_symposium.htm. You can also contact Dr. Barbeau (tbarbeau@fmarion.edu), the coordinator of P.U.R.E., to answer any questions you might have and get you started on a research project!