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ECU STUDENTS WIN TOP PRIZES AT AMERICAN ARACHNOLOGICAL SOCIETY MEETING

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Greenville – Creeping, crawling, eight-legged arachnids were the subjects of conversation this July at the 32nd annual meeting of the American Arachnological Society, where two East Carolina University biology students received top awards in the student paper competition.

The meeting, which was held at the University of California, Berkeley, included more than 200 of the 500+ society members interested in spiders, scorpions, tarantulas, ticks, mites and other species of arachnids.

Amy K. Stockman and Ashley L. Bailey, biology students in the Thomas Harriot College of Arts and Sciences, each presented a scientific paper consisting of a 15-minute oral presentation on their research. Out of 40 student competitors from universities across the country, including UC Berkeley, San Diego State, University of Texas at Austin and George Washington University, Stockman and Bailey beat all of them and walked away with the top two prizes of the competition.

Stockman, a doctoral student, won first place for her paper, "An Integrative Method to Delimiting Cohesion Species: Finding the Population-Species Interface in Trapdoor Spiders with Extreme Genetic Divergence and Geographic Structuring," co-authored by ECU Biology Professor Dr. Jason E. Bond.

Bailey, a sophomore and GlaxoSmithKline Women in Science Scholar, won second place for her paper, "Evolution of Male Genitalia in the Trapdoor Spider Genus *Myrmekiaphila*," co-authored by Dr. Brent E. Hendrixson and Dr. Jason E. Bond.

According to Dr. Jason Bond, professor of biology, winning second place in the competition is a wonderful success for Bailey, who, as a sophomore, had to compete with many doctoral students.

It is common for many scientific, student competitions to have separate categories for the undergraduate and graduate students. However, the competition this July combined both undergraduate and graduate student scholars, making it more competitive.

As winners at this year's meeting of the American Arachnological Society, Bailey and Stockman will receive cash prizes and automatic membership in the society.

For more information about the American Arachnological Society, visit their web site at www.americanarachnology.org. For additional information about the trapdoor spider species, please contact Dr. Bond in the ECU Department of Biology at 252-328-6718 or bondja@ecu.edu.

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Paper Abstracts:

"Evolution of Male Genitalia in the Trapdoor Spider Genus *Myrmekiaphila*," by Ashley L. Bailey, Brent E. Hendrixson and Jason E. Bond.

Abstract: The euctenizine trapdoor spider genus Myrmekiaphila comprises 11 species and is widely distributed throughout the southeastern United States. This group is probably best known for their interesting burrow architecture – they are the only mygalomorph spiders in North America that conceal their subterranean side chambers with a secondary trapdoor. These spiders were recently revised and placed into three informal species groups based upon differences in male genitalia, but a phylogenetic hypothesis has never been performed to assess monophyly of these groups. We present the first phylogeny for Myrmekiaphila based on DNA sequence data obtained from three mitochondrial and nuclear gene loci (12S, 16S, and 28S). We use this phylogeny as the evolutionary framework to examine the monophyly of these species groups, to test hypothesized species boundaries, and to comment on the evolution of male genitalia. Our phylogeny demonstrates that species groups (and some species) are paraphyletic, and results from ancestral character state reconstruction analyses show that the distinct forms of genitalia – particularly the absence of a secondary prong – have evolved in parallel (i.e., they do not form clades). These data suggest that characters ordinarily given heavy weight for delineating taxa in Myrmekiaphila need to be reconsidered and interpreted in light of this new phylogenetic evidence.

"An Integrative Method to Delimiting Cohesion Species: Finding the Population-Species Interface in Trapdoor Spiders with Extreme Genetic Divergence and Geographic Structuring," by Amy K. Stockman and Jason E. Bond.

Abstract: Here we present an objective, repeatable approach to delineating species when populations are divergent and highly structured geographically using a number of trapdoor spider model systems. These systems are particularly difficult because under strict criteria of geographical concordance coupled with estimates of genetic divergence, an unrealistic number of population lineages qualify as species. Our phylogeographic approach, which is generally applicable but particularly relevant to highly structured systems, uses genealogical exclusivity to establish a topological framework to examine lineages for genetic and ecological exchangeability in an effort to delimit cohesion species. Both qualitative assessments of habitat and niche-based distribution modeling are employed to evaluate selective regime and ecological interchangeability among genetic lineages; adaptive divergence among populations is weighted more heavily than simple geographical concordance.

GlaxoSmithKline Women in Science Scholars Program:

To help young women explore the many ways to contribute to society through science, the GlaxoSmithKline Women in Science Scholars Program was created in 1993 to offer unique educational opportunities to North Carolina students. The program couples scholarships with a mentoring program in which professionals shepherd the scholars through the myriad of possible career paths, while explaining practical strategies for succeeding in the workplace. The North Carolina GlaxoSmithKline Foundation has funded more than $1.4 million in endowed scholarships at 29 North Carolina colleges and universities. (http://us.gsk.com/html/community/community-education-programs.html)