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MISSISSIPPI ENTOMOLOGICAL MUSEUM



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Ph.D. Entomology, Mississippi State University

M. S. Agriculture and Life Science, Mississippi State University

B. S. Interdisciplinary Studies (Biology, Wildlife Science, and Forestry) Mississippi State University

I am broadly interested in the biodiversity of the southeastern United States especially that of natural grasslands in the region. I consider myself both a taxon scientist and ecologist as most of my research entails documenting and describing the biogeography, diversity, and ecology of the ant and grasshopper fauna of these habitats.

Ant Research

The southeastern United States is a hotspot for biological invasion, due to the large number of international shipping ports in the region. For example, the imported fire ants, *Solenopsis richteri* Forel and *Solenopsis invicta* Buren, and potentially several other exotic ants, entered the United States via the port of Mobile in the early part of the 20th century. The [ant research](#) at the MEM is headed up by [Joe MacGown](#). Together, he and I have traveled throughout the southeastern United States sampling ants to gain a better understanding of the fauna of the region. This project is designed to document the distribution of native and exotic species of ants, so that future range changes may be detected and to detect the presence of any new introductions. Additionally, I have conducted studies investigating habitat parameters that are correlated with ant community composition and the effects of prairie restoration techniques on ant communities.

Grasshopper Research

One would think the fauna of the southeastern United States would be relatively well documented, especially for organisms of relatively large size such as grasshoppers. However, such is not the case. For the last 12 years I have been working toward producing a faunal treatment of the grasshoppers of the southeastern United States. In that time I have made significant collections over most of the region, documenting species distribution, and in the process have discovered close to 30 undescribed species, all of which belong to the subfamily Melanoplinae.

The Melanoplinae is the largest subfamily of grasshoppers in the Southeast and contains numerous short-winged species that are incapable of flight. Recently my research has focused on taxonomic revisions of several species groups in this the genus *Melanoplus* and I am finding that the Coastal Plain and Interior Highlands, both classical areas of endemism, are rich in cryptic species in this genus. In the future, I plan on working on the biogeography of the southeastern *Melanoplus* in an attempt to explain what vicariant events may have led to speciation in the region.

Grassland Research

Grassland habitats in the southeastern United States are rich in rare and endemic species and significantly contribute to the biodiversity of the region. These grasslands are also some of the most imperiled habitats in the region, making the study of their biota and ecosystem function of the utmost importance. I have published papers documenting the ant and grasshopper fauna of grassland systems Alabama, Georgia, Mississippi, Tennessee, and Texas. Since 2000, Dr. John Barone and I have put forth a large collaborative effort to study the biota and ecology of Black Belt Prairies in Mississippi and Alabama. Currently we, along with several others, are utilizing DNA

barcoding to understand the diets of grasshoppers in these grasslands. In 2012, I helped organize the Southeastern Prairie Symposium, which sought to bring together researchers working in both natural and working grasslands in the Southeast. John Barone and myself are currently editing a book based on research presented at the symposium.

Peer Reviewed Publications (Chronological)

Published Abstracts

Non Peer Reviewed Publications

Reports

Presentations

Professional Memberships

Awards or Offices



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