

FYRE First Year Research Experience

Dave Berg in Zoology is looking for First Year students to become part his research projects through the new FYRE program.

To apply e-mail Martha Weber at weberme@muohio.edu

DAVID J. BERG bergdj@muohio.edu

PROFESSOR, ZOOLOGY



513-529-3174 Oxford
513-785-3246 Hamilton

Interested in FYRE- STEM or Research Shadowing Opportunities in Zoology?

Identification of invertebrates from spring habitats in the Chihuahuan Desert

Techniques to be learned: Use of high quality dissecting microscopes and taxonomic keys; identification of a variety of invertebrates found in freshwater habitats; quantification and analysis of invertebrate communities.

Relevant information: The Chihuahuan Desert of west Texas and eastern New Mexico contains invertebrate species found nowhere else in the world. Many of these species have yet to be described and ultimately, many of them will be placed on the Endangered Species List. This project seeks to identify and enumerate these organisms from the remaining spring habitats in this region. This project could develop into an independent research opportunity for a student.

Use of DNA barcoding to identify cryptic species of desert invertebrates

Techniques to be learned: DNA extraction, DNA amplification via polymerase chain reaction (PCR), DNA sequencing

Relevant information: This project uses sequencing of mitochondrial DNA to identify species that appear to be identical. Many of these species are endangered or threatened. This project could develop into an independent research opportunity for a student.

Development of microsatellite DNA for population genetics of endangered species

Techniques to be learned: DNA extraction, DNA amplification via polymerase chain reaction (PCR), DNA fingerprinting using microsatellite sequences

Relevant information: This project looks at the extremely variable lengths of DNA to create DNA “fingerprints” that identify individuals. This will allow us to examine the population genetics of the freshwater mussel *Cumberlandia monodonta*, a species that is likely to be placed on the Endangered Species List.