

Contact: hdeese@arizona.edu

Education

PhD, Ecology and Evolutionary Biology, University of Arizona (*Starting 08/23*)

-Advisor: Sabrina McNew

M.S., Biology, Georgia Southern University (*08/22-present*)

- Anticipated Graduation: 07/23
- 4.0 GPA

Thesis

- Assessing the genetic structure of *Amblyomma maculatum* in the United States through microsatellite markers and single nucleotide polymorphisms (Advisor: Lorenza Beati)

B.S., Biology, Hillsdale College (*Graduated 5/9/20*)

- 3.886 GPA, Summa cum laude

Thesis and Presentations

- Comparison of seven Michigan wetlands' soil bacterial diversity using terminal restriction fragment length polymorphism (Advisor: Jeffrey Van Zant)
 - Delivered poster presentation at the 2020 Hillsdale College Undergraduate Research Symposium, Hillsdale, MI (2/29/20).
 - Abstract accepted for oral presentation at the 2020 Sigma Zeta National Convention, Concordia College, Moorhead, MN (3/19-21/20). [Note: This meeting was canceled due to public health concerns related to COVID-19.]

Major Achievements

- \$3000 research grant awarded for thesis proposal through the Hillsdale College LAUREATES program
- 2020 Hillsdale College Outstanding Pre-professional Student
- 2019 Hillsdale College Outstanding Junior Biology Major

Relevant Experience

Research Assistant, Georgia Southern University (*05/22-present*)

- Collection of *Amblyomma maculatum* via drag cloth
- Genomic DNA extraction; discovery of SNP loci through ddRAD sequencing and optimization of microsatellite markers (in progress)
- Identification and curation of tick specimens; data entry as part of NSF's NEON

Teaching Assistant, Georgia Southern University (*08/21-05/22*)

- Prepared and delivered lectures, created tests, and graded student work for Concepts of Biology Lab, a biology class for non-majors; directed and monitored student lab activities

High School Biology Teacher, Mystic Valley Regional Charter School (*08/20-06/21*)

- Prepared course materials, delivered in-person and pre-recorded lectures, and graded student work for International Baccalaureate HL Biology and 9th grade Biology classes

- Actively communicated with parents regarding student performance
- Enforced school rules and policies, including safety guidelines for COVID-19

Research Assistant, Hillsdale College (06-08/20)

- Oversaw the collection of sweep net and black light trap samples for insects
- Identified insect families collected in sweep net samples
- Sorted black light trap samples by morphospecies

Undergraduate Laboratory Assistant, Hillsdale College (01/17-05/20)

- Researched, designed, and conducted study of bacterial communities in vernal ponds using T-RFLP (used as thesis)
- Successfully optimized PCR and barcoded unknown *Salix* samples
- Provided orientation and instruction to newer lab members

Undergraduate Teaching Assistant, Hillsdale College (08/18-05/20)

- Graded student tests and lab reports for Organic Chemistry I and II
- Monitored the lab to ensure safety and instructed students on lab procedures
- Operated Bruker 400Hz NMR spectrometer for identification of student unknowns

Biology Tutor, Hillsdale College (08/18-05/20)

- Tutored students for the following classes: Microbiology, Genetics, Biostatistics, General Ecology, Evolution and Biodiversity, and Molecular Genetics and Cell Function

Undergraduate Research Assistant, Hillsdale College (05-08/18)

- Conducted independent field research: traversed Indiana for one week, scouted and determined sampling location and collected insects with black light traps
- Performed avian point counts daily for six weeks alongside tick drags at each count location
- Assisted with capture-mark-recapture sampling of bluegill and snapping turtles

Skills

- DNA extraction using Qiagen extraction kits for animal tissue, plant tissue, and soil
- Polymerase chain reaction (PCR); thermocycler programming for PCR setup; PCR purification; Restriction enzyme digest of PCR product; agarose gel electrophoresis
- DNA quantification with NanoDrop One and Qubit Fluorometer
- Analysis and comparison of gene and amino acid sequences via GenBank BLAST
- Basic microbiological skills: bacterial culture, microscope slide, and media preparation
- Visual and auditory bird identification; 20 years of birding experience
- Tick and insect collection using drag cloth, sweep net, and black light traps
- Insect and tick curation and identification
- Animal surveys, especially for birds; point counts
- Wildlife and macro photography, imaging of tick specimens for publication
- Proficient with Excel and JMP for statistical analysis

Extracurricular Activities

Debate Team, Hillsdale College (08/16-05/20)

- Assistant Team Manager (08/18-05/20)
- Champion of the 2020 Gorlock Gala in NPDA debate
- 3-time national quarterfinalist (twice in Lincoln-Douglas debate, once in NPDA debate)

Sigma Zeta National Science and Mathematics Honorary, Hillsdale College

- Treasurer (04/19-05/20)

Pi Kappa Delta Honor Society, Hillsdale College

- Treasurer (05/18-05/20)

Relevant Coursework

Hillsdale College

- BIO-201: Evolution and Biodiversity
- BIO-250: General Ecology
- BIO-309: Genetics
- BIO-340: Biostatistics
- BIO-350: Conservation
- BIO-360: Microbiology
- BIO-370: Entomology
- MTH-120: Calculus I
- MTH-220: Calculus II
- CHM-415: Analytical Chemistry
- CHM-452: Biochemistry

Georgia Southern University

- BIOL-5248-G: Immunology
- BIOL-5333-G: Emerging Diseases
- BIOL-5341-G: Parasitology
- BIOL-5530-G: Wildlife Management
- BIOL-7133: Molecular Biology
- BIOL-7530: Biometry