

MARY-KATE F. WILLIAMS

Curriculum Vitae

OFFICE ADDRESS

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EDUCATION

- Present M.S. candidate, Entomology, University of Arkansas, Fayetteville, AR
Thesis: Molecular survey of the honey bee trypanosome parasites *Crithidia mellificae* and *Lotmaria passim*
Anticipated graduation date August 2018
Advisor: Allen Szalanski
- 2015 B.S. in Biology, minor in photography, *Magna Cum Laude*, Chancellor's Leadership Corps Scholar, University of Arkansas at Little Rock, Little Rock, AR

RESEARCH EXPERIENCE

- 2016 **Graduate assistantship, University of Arkansas**
Insect Genetics Laboratory, Department of Entomology
Extracted honey bee DNA from individual bee colonies using a salting-out protocol, examined the prevalence of two trypanosome parasites, performed multiplex-PCR, able to use molecular techniques to analyze the difference between the two trypanosome parasites
- 2015 **Undergraduate research, University of Arkansas at Little Rock**
Amino acid concentration in catnip nectar relates to fecundity in Cabbage White butterflies
Collection of scientific articles regarding amino acid concentrations in catnip nectar and how it influences fecundity rates of Cabbage White butterflies, prepared cages for a future experiment, and communicated with other students involved in the project
- 2014 **Intern, NSF Research Experience for Undergraduates, University of Georgia**
Spore Persistence in the Environment Drives Infection Dynamics of a Butterfly Pathogen
Analyzed a classic host-parasite system using Monarch butterflies and *Ophryocystis elektroscirrha* as a model, mated butterflies, reared larvae to adults, transferred parasite spores to a host plant, up-keep of host plants, created a population model in the program R
- 2013-14 **Independent study, University of Arkansas at Little Rock**
Identification, file creation, and collection organization and cataloging
Pinned butterflies to identify species of *Erynnius* and *Thorbyes*, created Microsoft Word files for moth species around the Buffalo River area, organized and cataloged a moth collection for the Entomology Museum on campus
- 2013 **Assistant to graduate student, University of Arkansas at Little Rock**
Baltimore Checkerspot Project for graduate student's Master thesis
Caught Baltimore Checkerspot butterflies for size measurements, observed oviposition behavior of female butterflies, analyzed female choosiness when laying egg clusters, evaluated herbivory on host plants in different Ozark Mountain locations

EMPLOYMENT

- 2016 **University of Arkansas Cooperative Extension Service**
Field assistant to Jackie Lee, Extension IPM Horticulture Specialist
Assembly of net sweep samples from Agriculture Extension sites, management of stink bug and pyramid traps, and blackberry collection to assess *Drosophila suzukii* occurrence
- 2015 **Biological science aid, USDA-ARS-Northern Plains Agricultural Research Lab**
Grasshopper management in grassland ecology, predator-prey relationships, and livestock interactions
Responsibilities comprised upkeep of large-scale field experiments including capture of grasshoppers, species identification, vegetation surveys, building cage structures, and regular site management
- 2012-16 **Museum of Discovery, part-time educator**
Animal technician, weekend and outreach educator, and summer camp instructor
Care for multiple animals by feeding, cleaning, and administering medication, educating visitors about animals in an up-close environment, oversaw projects to help children understand science and engineering, offered an education program about mice to Central Arkansas Library System locations

PUBLICATIONS

- Satterfield, D. A., Altizer, S., **Williams, M-K.**, and Hall, R.J. (2017) Environmental Persistence Influences Infection Dynamics for a Butterfly Pathogen. PLoS ONE 12(1): e0169982.doi:10.1371/journal.pone.0169982

AWARDS

- 2017 Second place Graduate Student Section for Bumpers College Honors Student Board Research Poster Competition – University of Arkansas
- 2017 First place Master's Student Poster Session II, Entomological Society of America Southeastern Branch Meeting
- 2015 Thomas Hogue Memorial Award for Outstanding Research, UALR Department of Biology
- 2014 First place Oral Presentation in Biology, Arkansas IDeA Networks of Biomedical Research Excellence Conference

CONFERENCE AND MEETING PARTICIPATION

- 2017 Bumpers College Honors Student Board Research Poster Competition – University of Arkansas, Fayetteville, AR (poster)
Molecular survey of the honey bee Trypanosome parasites *Crithidia mellificae* and *Lotmaria passim*
- 2017 Southeastern Branch Meeting – Entomological Society of America, Memphis TN (poster)
Molecular survey of the honey bee Trypanosome parasites *Crithidia mellificae* and *Lotmaria passim*
- 2016 Arkansas Entomological Society Meeting, Fayetteville, AR (poster)
Molecular survey of the honey bee Trypanosome parasites *Crithidia mellificae* and *Lotmaria passim*
- 2015 UALR Student Poster Competition, Little Rock, AR (poster)
Environmental Persistence Influences Infection Dynamics for a Butterfly Pathogen
- 2015 Emerging Researcher National Conference, Washington, D.C. (poster)
Environmental Persistence Influences Infection Dynamics for a Butterfly Pathogen

- 2014 Arkansas IDeA Networks of Biomedical Research Excellence Conference, Fayetteville, AR
(oral presentation)
Environmental Persistence Influences Infection Dynamics for a Butterfly Pathogen

PROFESSIONAL MEMBERSHIP

- 2017-present Entomological Society of America
2016-present Arkansas Entomological Society
2014 Phi Kappa Phi Honor Society, top 7.5% of junior class standing, UALR

EXTRACURRICULAR UNIVERSITY SERVICE

- 2017-present Hive Manager, Isely-Baerg Entomology Club, U of A
2016-present Isely-Baerg Entomology Club, U of A
2014-15 College of Arts, Letters, and Sciences Ambassador, UALR
2012-13 Chancellor's Leadership Corps Ambassador, UALR

COMMUNITY OUTREACH AND OTHER ACTIVITIES

- 2017 Entomology Club information table, Summer Farmer's Market, Fayetteville, AR
2017 Wilderness Camp @ Northwest Arkansas Children's Shelter, teach children how to collect insects, Fayetteville, AR
2017 March for Science – Northwest Arkansas, ESA Participant, Fayetteville, AR
2017 Homeschool event, teach students how to collect and identify insects, Fayetteville, AR
2017 Northwestern Arkansas Science and Engineering Fair: Animal Science Judge, Fayetteville, AR
2016 Arkansas Insect Festival volunteer, Fayetteville, AR
2016 Woolsey Wet Prairie Sanctuary BioBlitz, Fayetteville, AR
2016 Volunteer for the honey bee workshop, Hillary Rodham Clinton Library, Little Rock, AR

RELATED PROFESSIONAL SKILLS

Able to use a DSLR camera for field or laboratory documentation
Knowledge of R software and JMP software