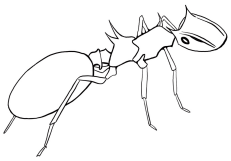

Megan Barkdull

PH.D CANDIDATE, NSF GRADUATE RESEARCH FELLOW

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Education

Ph.D Candidate, Department of Ecology and Evolutionary Biology — *Cornell University*

ADVISOR: DR. CORRIE MOREAU — *August 2019–expected May 2025*

Bachelor of Arts in Biology — *New College of Florida*

ADVISOR: DR. EMILY HEFFERNAN — *August 2014–May 2018*

- Honors Thesis: Population Genetics of the Threatened Florida Duskywing Skipper

Publications

Published:

- Williams, K.M., **Barkdull, M.**, Fahmy, M., Hekkala, E., Siddall, M.E., Kvist, S. Caught red handed: iDNA points to wild source for CITES-protected contraband leeches. Eur J Wildl Res 66, 80 (2020). https://doi.org/10.1007/s10344-020-01419-5
- Siddall, M. E., **Barkdull, M.**, Tessler, M., Brugler, M. R., Borda, E., & Hekkala, E. (2019). Ideating iDNA: Lessons and limitations from leeches in legacy collections. PloS one, 14(2), e0212226.

In review:

- **Barkdull, M.**, Miller, C. R., Pipkin, M. A., & Moreau, C. S. (2022). Natural history collections: What are they and why do we need them?. In review at Frontiers for Young Minds.

Scientific outreach:

- Guest blogged for the Paleontological Research Institute and Museum of the Earth. **Barkdull, M.** (2022). Insects under threat: the role of natural history collections in biodiversity conservation. https://bit.ly/3ph2lsm

Talks

Dagger (†) indicates presenter.

Oral presentations:

- **Barkdull, M.†**, Williams, K.M., Tessler, M., Siddall, M.E. (2019). What's in a leech? A diversity of potential for leech-derived iDNA. Cornell Department of Ecology and Evolutionary Biology Winter Symposium, Ithaca, NY.
- **Barkdull, M†.**, Tessler, M., and Siddall, M.E. (2017). What's in a leech? A haemadispid by any other name would reveal as much. AMNH REU Summer Symposium, Manhattan, NY.

Lightning talks:

- **Barkdull, M.†** and Moreau, C. (2020). Formicidae caste determination: single cell and functional genomic techniques. Social Insects in the Northeast Region meeting, Brooklyn, NY. **Postponed due to COVID19.

Posters:

- **Barkdull, M†**. and Moreau, C. (2022). Social traits modulate genome evolution in ants. Biology of Genomes meeting, Cold Spring Harbor Laboratory, NY.
- E.V Heffernan†, **M. Barkdull**, and A. Markee (2019). The role of gene flow in connecting populations of endangered skipper butterflies in the United States: using genetic data to inform management strategies. International Symposium on Molecular Insect Science, Barcelona, Spain.
- Markee, A.N†., Saarinen, E. V., **Barkdull, M.** (2019). Conservation genetics of the Florida duskywing skipper (Ephyriades brunnea): a multi-population assessment of a rare South Florida butterfly. Entomological Society of America meeting, St. Louis, MO.
- Ash, M†., **Barkdull, M†.**, Elmir, G.† (2017). Are endangered Dakota Skipper populations infected with Wolbachia? Imperiled Butterflies Working Group meeting, Miami, FL.

Invited public presentations:

- Gave a research talk for the event *Exploring Insect Evolution: A Panel on New Research* as part of the Museum of the Earth's Darwin Days events. Talk can be viewed at https://bit.ly/3s4jOGB

Grants, Fellowships & Awards

Grants (Total amount: $7,750)

- Graduate Student Research Fund, Cornell University ($4,000)
- Orenstein Fund, Cornell University ($750)

- Richard G. Harrison Fund, Cornell University ($3,000)

Fellowships (Total amount: $233,655)

- National Science Foundation Graduate Research Fellowship ($138,000)
- Cornell Fellowship ($33,241)
- National Merit Scholar ($62,414)

Awards

- Book Award for Best First-Year Symposium Presentation ($50)

Research Experiences

Post-baccalaureate Intern

Cornell University

Zamudio Lab

September 2018–August 2019

- Conducted conservation genetics research on a number of reptile and amphibian species.
- Responsible for assisting all lab members with wet lab work (DNA extractions, microsatellite sequencing, Sanger sequencing, MiSeq).
- Collaborated with Dr. Fábio de Sá to describe the genetic mating system of the Brazilian frog Cycloramphus boraceiensis (data in prep for publication).

Hawkmoth Sensory Behavior Volunteer

Cornell University

Raguso Lab

September 2018–December 2018

- Participated in weekly hawkmoth colony care tasks (feeding, plant care, pupae counts etc.).
- Ran experiments testing the role of floral humidity in hawkmoth feeding choice.

Birdsong Evolution, Research Assistant

Cornell Lab of Ornithology

Drs. Araya-Salas and Odom

May 2018–May 2019

- Assisted in coding birdsong spectrograms for downstream data analysis.
- Created analysis protocol and generate graphics for future researchers on the project.

Florida Duskywing Genetics Project, Research Assistant

New College of Florida

Heffernan Lab

August 2017–May 2018

- Carried out a population genetics analysis of the threatened Florida Duskywing skipper butterfly to inform conservation policy.
- Performed next-generation sequencing in order to develop novel microsatellite markers
- Results in prep for publication.

NSF Research Experiences for Undergraduates Intern

American Museum of Natural History

Department of Invertebrate Zoology

May 2017–August 2017

- Used genetic techniques (Sanger sequencing etc.) to identify the hosts of terrestrial bloodfeeding leeches.
- Presented results at 2017 AMNH REU Symposium; manuscript published in PLoS One.
- Conducted fieldwork to collect invertebrate (leeches, crayfish) for related lab projects.

Dakota Skipper Wolbachia Status, Research Assistant

New College of Florida

Heffernan Lab

January 2017–May 2017

- Conducted DNA extractions and PCR amplifications of Wolbachia pathogen genes from the endangered Dakota Skipper butterfly to identify pathogen strains.
- Performed significant PCR troubleshooting of genes which repeatedly failed to amplify
- Prepared a poster on the findings of the project; presented at a meeting of at the Imperiled Butterfly Working Group.

Curatorial Skills & Experiences

Six-Legged Science: Unlocking the Secrets of the Insect World

Cornell University Insect Collection and Museum of the Earth

January 2022–March 2022

- Helped design components of public-facing museum exhibit, including pulling specimens, databasing, and design work

Social Media Co-manager

Cornell University Insect Collection

January 2022–Present

- Co-managed the CUIC's Instagram and Twitter pages, designing and posting content to engage the broader community with the work of the CUIC.
- Oversaw 237% Instagram follower increase since the beginning of 2022.

Collection Databasing, Graduate Worker

Cornell University Insect Collection

August 2020–Present

- Responsible for databasing specimens in the CUIC's Formicidae collection.
- Mentored undergraduate and graduate students databasing in the the collection.
- Designed training materials for other databasing workers.

Teaching

Introduction to Evolution and Diversity Teaching Assistant

Cornell University

BIOEE1780

January 2020–May 2020

- Taught three weekly discussion/lab sections.
- Assisted with course transition to an online format due to COVID-19.

Comparative Physiology Teaching Assistant

Cornell University

BIOG1440

August 2019–December 2020

- Taught three weekly discussion/lab sections, leading hands-on investigations of physiological concepts covered in lectures.
- Created extensive, novel course review materials; available on my GitHub.

Foundations of Biology Teaching Assistant

New College of Florida

BIOL2100

August 2017–December 2017

- Led review sessions prior to tests and quizzes.
- Met individually with students to address performance questions.

Cellular Biology Teaching Assistant

New College of Florida

BIOL3500

August 2016–December 2016

- Led content-delivery and problem-solving review sessions once per week.
- Assisted in exam grading and clerical tasks.

Service

Graduate Student Association Co-President

Cornell University

Dept. of Ecology & Evolutionary Biology

July 2020–August 2022

- Liase between graduate student body and faculty leadership to communicate and address graduate student concerns
- Participated in the formation of working groups focused on assessing and improving diversity, equity and inclusion in the department.

Cornell Diversity Preview Weekend volunteer

Cornell University

Dept. of Ecology & Evolutionary Biology

September 2020 and summer 2021–NA

- Volunteered for the workshops "Crafting a CV" and "Fellowships and Personal Statements" providing peer review to participants for the 2020 DPW event.
- Served as a peer mentor to a DPW participant during the Fall 2020 semester.
- Amswered participant questions as a panelist for the workshop "Crafting a CV" for the 2021 DPW event.

EvoDay Planning Committee

Cornell University

* Postponed to Spring 2022 due to COVID19

Spring 2020–NA

- Identify and invite speakers for a day-long symposium on the theme of "Evolution in Deep Time".

Department Seminar Series Committee

Cornell University

Dept. of Ecology & Evolutionary Biology

August 2019–August 2020

- This committee plans and coordinates the department's weekly seminar series
- Responsible for soliciting speaker nominations, constructing schedule of speakers, and assisting host labs with managing their speaker visits.
- While on this committee, I initiated a push to increase the diversity of our invited speakers, based on the best practices identified by Hagan et al. (2020).

Journal referee:

- Insectes Sociaux

Outreach

"Meet an Entomologist" volunteer

Museum of the Earth

Six-legged Science Exhibit

July 2022–NA

- Answered questions from visitors to the Musuem of the Earth's Six-legged Science exhibit.

Panelist for Exploring Insect Evolution: A Panel on New Research

Museum of the Earth

Darwin Days Week

February 2022–NA

Cornell Insectapalooza volunteer

Cornell University

Dept. of Entomology

October 2019–NA

- Manned a table on ant diversity and discussed all things ant with members of the public, including young children, teens and adults.