



# Megan Barkdull

PH.D CANDIDATE, NSF GRADUATE RESEARCH FELLOW

Department of Ecology and Evolutionary Biology, Cornell University

+1 407 492 6225 | mb2337@cornell.edu

mbarkdull.github.io | mbarkdull | meganbarkdull\_

## Education

### Ph.D Candidate, Department of Ecology and Evolutionary Biology

ADVISOR: DR. CORRIE MOREAU

Cornell University

August 2019–May 2025

### Bachelor of Arts in Biology

ADVISOR: DR. EMILY HEFFERNAN

New College of Florida

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.

## 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:

- 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.

## Grants, Fellowships & Awards

### Grants (Total amount: \$3,750)

- 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

ZAMUDIO LAB

- 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).

Cornell University

September 2018–August 2019

## Hawkmoth Sensory Behavior Volunteer

RAGUSO LAB

- 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.

Cornell University

September 2018–December 2018

## Birdsong Evolution, Research Assistant

DRS. ARAYA-SALAS AND ODOM

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

Cornell Lab of Ornithology

May 2018–May 2019

## Florida Duskywing Genetics Project, Research Assistant

HEFFERNAN LAB

- 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.

New College of Florida

August 2017–May 2018

## NSF Research Experiences for Undergraduates Intern

DEPARTMENT OF INVERTEBRATE ZOOLOGY

- 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.

American Museum of Natural History

May 2017–August 2017

## Dakota Skipper Wolbachia Status, Research Assistant

HEFFERNAN LAB

- 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.

New College of Florida

January 2017–May 2017

# Curatorial Skills & Experiences

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

CORNELL UNIVERSITY INSECT COLLECTION AND MUSEUM OF THE EARTH

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

January 2022–March 2022

## Collection Databasing, Graduate Worker

CORNELL UNIVERSITY INSECT COLLECTION

- 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.

August 2020–Present

# Teaching

## Introduction to Evolution and Diversity Teaching Assistant

BIOEE1780

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

Cornell University

January 2020–May 2020

## Comparative Physiology Teaching Assistant

BIOG1440

- 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.

Cornell University

August 2019–December 2020

## Foundations of Biology Teaching Assistant

BIOL2100

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

New College of Florida

August 2017–December 2017

## Cellular Biology Teaching Assistant

BIOL3500

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

New College of Florida

August 2016–December 2016

## Service

---

### Graduate Student Association Co-President

DEPT. OF ECOLOGY & EVOLUTIONARY BIOLOGY

- 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 University*

*July 2020–August 2022*

### EvoDay Planning Committee

\* POSTPONED TO SPRING 2022 DUE TO COVID19

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

*Cornell University*

*Spring 2020–NA*

### Department Seminar Series Committee

DEPT. OF ECOLOGY & EVOLUTIONARY BIOLOGY

- 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).

*Cornell University*

*August 2019–August 2020*

## Outreach

---

### Panelist for Exploring Insect Evolution: A Panel on New Research

DARWIN DAYS WEEK

- Gave an outreach talk on path to science and current research as part of the Museum of the Earth’s Darwin Days week of events
- Talk can be viewed at <https://bit.ly/3s4jOGB>

*Museum of the Earth*

*February 2022–NA*

### Cornell Diversity Preview Weekend

DEPT. OF ECOLOGY & EVOLUTIONARY BIOLOGY

- 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.
- Answered participant questions as a panelist for the workshop “Crafting a CV” for the 2021 DPW event.

*Cornell University*

*September 2020 and summer 2021–NA*

### Cornell Insectapalooza

DEPT. OF ENTOMOLOGY

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

*Cornell University*

*October 2019–NA*

