

EDUCATION

University of Michigan | Ann Arbor, MI (2019–present)
Doctorate candidate in Ecology and Evolutionary Biology

University of Wisconsin–Madison | Madison, WI (2017–2019) **GPA**
MS in Agroecology 3.94

Swarthmore College | Swarthmore, PA (2012–2016) **GPA**
BA in Biology, minors in Latino & Latin American Studies and Spanish 3.87

AWARDS AND FELLOWSHIPS

MTRAC Starter Grant Award | \$40,000 (April 2022)
Award from the Michigan Translational Research and Commercialization (MTRAC) Innovation Hub for AgBio to explore the licensing of a novel fungal product

2022–2023 EEB Research Award | \$2,067 (April 2022)
Award from the University of Michigan Department of Ecology and Evolutionary Biology conduct transcriptomics and gene knockout studies to elucidate gyromitrin-producing genes

MSA Travel Award | \$750 (April 2022)
Mycological Society of America (MSA) award to attend the 2022 MSA conference in Gainesville, Florida, and present my research on the distribution of gyromitrin in *Discinaceae*

MSA Rippon Award | \$500 (April 2022)
Mycological Society of America (MSA) award for the investigation of mycotoxin production (gyromitrin in *Discinaceae*)

Harold and Vivian Shapiro/John Malik/Jean Forrest Award | \$2,500 (December 2021)
Award from the University of Michigan Rackham Graduate School with the intent of helping to pay interest charges accruing on educational loans while in graduate school

2021–2022 EEB Research Award | \$1,273 (May 2021)
Award from the University of Michigan Department of Ecology and Evolutionary Biology to fund gyromitrin assays

Dr. Nancy Williams Walls Award for Field Research | \$1,112 (April 2020)
Award from the University of Michigan Department of Ecology and Evolutionary Biology to collect *Gyromitra* specimens from around the state of Michigan

Leo M. Leva Memorial Prize | \$800 (May 2016)
Award from the Swarthmore College Department of Biology faculty to senior students for undergraduate work that showed exceptional promise for future societal impact

GRANTS

Rackham Pre-candidate Graduate Student Research Grant (March 2021)
Received \$1500 from the University of Michigan Rackham graduate school for PhD research

Rackham International Travel Grant (February 2020)

Received \$990 to attend the 36th Annual Great Lakes Mycological Meetings in London, Ontario

North American Mycoflora Project Sequencing Grant (May 2018)

Received funding to sequence the DNA of 60 fungal specimens as part of the “University of Wisconsin Arboretum Mycoflora” North American Mycoflora Project

Agroecology Program Professional Development Grant (April 2018)

Received \$300 to attend the 2018 AFHVS/ASFS conference in Madison, WI

Center for Integrated Agricultural Systems Grant (April 2018)

Received \$2,500 to conduct research on the topic of continuous living cover, specifically the community composition of arbuscular mycorrhizal fungi associating with switchgrass

University of Wisconsin Arboretum Mycoflora Grant (January 2018)

Received \$500 from the University of Wisconsin Arboretum to buy equipment and supplies for the “University of Wisconsin Arboretum Mycoflora” North American Mycoflora Project

TEACHING EXPERIENCE

Fungal Biology Graduate Student Instructor (EEB 468) | University of Michigan (Fall 2020)

- Developed hybrid course model with in-person and remote lab activities
- Utilized iNaturalist to organize, share, and educate students on observations and collections of macrofungi

Microbiology Graduate Student Instructor (BIO 207) | University of Michigan (Fall 2019, Winter 2020)

- Each term, taught two three-hour lab sections on principles and techniques of microbiology to approximately 20 undergraduate students per section
- Independently developed curriculum pertaining to introductory and supplementary background information as well as weekly lab assignments

RESEARCH EXPERIENCE

James Lab: Mycology | University of Michigan (September 2019–Present)

- Aiming to discover the genetic basis and evolutionary history of the deadly mycotoxin gyromitrin in false morel mushrooms (family *Discinaceae*)

Jackson Lab: Grassland Ecology & Biofuel Cropping Sustainability | Great Lakes Bioenergy Research Center at UW–Madison, WI (June 2017–August 2019)

- Evaluated the effects of nitrogen amendment on the community composition of arbuscular mycorrhizal fungi associating with switchgrass using PacBio metabarcoding

Pfister Lab: Fungal Taxonomy | Harvard University, MA

National Park Service | Boston Harbor Islands, Boston, MA (January–May 2017)

- Collected sporocarps from the Boston Harbor Islands for a fungal biodiversity inventory; identified collections using genetic barcoding, discovered new species and species newly reported for North America, and published peer-reviewed manuscript

Pierce Lab: Insect Phylogeny & Physiology | Harvard University, MA (July–October 2016)

- Extracted DNA from the phytotelmata (fluid) of pitcher plants to characterize interspecific differences in arthropod communities
- Exposed acacia plants (*Vachellia drepanolobium*) to the volatiles of symbiotic and parasitic ants and quantified phenotypic responses of plant

Vallen Lab: Cell Biology | Swarthmore College, PA (September–December 2014; June–September 2015)

- Developed electroporation as a technique to genetically transform the coral bleaching model organism *Aiptasia pallida*, the brown anemone
- Conducted chemotaxis assays for the attraction of larval anemones to sugars to understand how larval cnidarians detect and uptake algal symbionts

Disney Lab: Seagrass Ecology and Conservation; Williams Lab: Population Genetics | MDI Biological Laboratories, Bar Harbor, ME (June–August 2014)

- Measured the tensile strength of seagrass under various growth regimens to determine the role of dissolved silica in plant health and disease prevention
- Analyzed population genetics of invasive European green crab (*Carcinus maenas*) to determine history of introduction

PUBLICATIONS

Dirks, A. C., Mohamed, O. G., Schultz, P., Miller, A. N., Tripathi, A., & James, T. Y. (2022). Not all bad: Gyromitrin has a limited distribution in the false morels as determined by a new ultra high-performance liquid chromatography method. *Mycologia*, in press.

Diederich, P., Sulisty, B. P., Haelewaters, D., **Dirks, A. C.**, & Lawrey, J. D. (2022). Class *Agaricomycetes*, Order *Atheliales*. In P. Diederich, A. M. Millanes, M. Wedin, & J. D. Lawrey (Eds.), *Flora of Lichenicolous Fungi, Volume 1: Basidiomycota* (pp. 41–46).

Miller, A. N., **Dirks, A. C.**, Filippova, N., Popov, E. & Methven, S. (2022). Studies in *Gyromitra* II: Cryptic speciation in the *Gyromitra gigas* species complex; rediscovery of *G. ussuriensis* and *G. americanigigas* sp. nov. *Mycological Progress*, 21(81):1–13.

Dirks, A. C., Russell, S. D. (2020). DNA barcoding of macrofungi from the 2018 Smith Foray: New fungal records for Wisconsin and the United States of America. *The Great Lakes Botanist*, 59(3-4), 191–201.

Dirks, A. C., Jackson, R. D. (2020). Community structure of arbuscular mycorrhizal fungi in soils of switchgrass harvested for bioenergy. *Applied and Environmental Microbiology*, 86(19), 1–16. <https://doi.org/10.1128/AEM.00880-20>

Song, J., Liang, J.-F., Mehrabi-Koushki, M., Krisai-Greilhuber, I., Ali, B., Kumar Bhatt, V., ... **Dirks, A. C.**, ... Haelewaters, D. (2019). Fungal Systematics and Evolution: FUSE 5. *Sydowia*, 71, 141–245. <https://doi.org/10.12905/0380.sydowia71-2019-0141>

Haelewaters, D., **Dirks, A. C.**, Kappler, L. A., Mitchell, J. K., Quijada, L., Vandegrift, R., Buyck, B., Pfister, D. H. (2018). A preliminary checklist of fungi at the Boston Harbor Islands. *Northeastern Naturalist*, 25(9), 45–76.

Badger, M., **Dirks, A. C.**, Farrell, A., Charabati, J., Morrill, K., Disney, J., Williams, L. M. (2015). Population genetics and abundance of the invasive European green crab (*Carcinus*

maenas) and its role in eelgrass (*Zostera marina*) loss around Mount Desert Island. *MDIBL Bulletin*, 54, 19–20.

PRESENTATIONS

Midwest American Mycological Information certification workshop, oral presentation, September 2022.

Lead mushroom identifier and mushroom table presentation. Michigan Mushroom Hunters Club annual Fungus Fest, oral presentation, September 2022.

“Not all bad: Gyromitrin has a limited distribution in the false morels as determined by a new analytical method.” Michigan Mushroom Hunters Club annual Fungus Fest, oral presentation, September 2022.

“The gyromitrin mycotoxin has a discontinuous and more limited distribution in the lorchel family (*Discinaceae*, *Pezizales*) than previously thought.” Mycological Society of America 2022 conference, poster presentation, July 2022.

Lead mushroom identifier and mushroom table presentation. Michigan Mushroom Hunters Club annual Fungus Fest, oral presentation, September 2021.

“Introduction to lorchels (*Gyromitra* spp.).” Madison Mycological Society online lecture series, oral presentation, July 2021.

“Species diversity and toxicology of false morels.” Midwest American Mycological Information certification workshop, oral presentation, June 2021.

“Genetics, origins, and evolution of the gyromitrin mycotoxin in false morels.” University of Michigan Department of Ecology and Evolutionary Biology prelims seminar, oral presentation, April 2021.

“Ecology of Crust Fungi.” Winter seminar series, unofficial consortium of northeastern mycology clubs, oral presentation, January 2021.

“Michigan Mycoflora Project: Citizen science for fungal research and conservation”. Michigan Mushroom Hunters Club Winter Meeting, Oral Presentation, February 2020.

“Morphology and molecular phylogeny reveal taxonomic problems in the *Athelia epiphylla* complex (*Atheliales*)”. Mycological Society of America 2019 conference, poster presentation, August 2019.

“Effects of nitrogen amendment on arbuscular mycorrhizal fungi in association with switchgrass”. UW-Madison Agroecology Master’s Program Public Thesis Talk, oral presentation, August 2019.

“Conserving fungi: Who cares?” Wisconsin Mycological Society Winter Meeting, oral presentation, March 2019.

"The ubiquitous unseen: Past and present exposition of the UW–Madison Arboretum mycoflora". UW Arboretum Annual Research Symposium, oral presentation, February 2019.

"Grazing Wisconsin's public lands: A win-win for farmers and grassland habitat?" Green Lands Blue Waters Conference, oral presentation, November 2017.

"Developing electroporation as a research tool in the sea anemone: *Aiptasia pallida*." Swarthmore College Student Research Poster Session, poster presentation, September 2015.

"Silicon and seagrass: A neglected nutrient essential for viable eelgrass." MDIBL REU Symposium, oral presentation, July 2014.

PROFESSIONAL SOCIETIES

MSA: Mycological Society of America (2018–Present)

SERVICE AND OUTREACH

Philadelphia Mycology Club (PMC) | Philadelphia, PA (September 2022–present)

- Lead club walks and assist in educational activities

Midwest American Mycological Information (MAMI) | MI (September 2021–present)

- Assist with and present at workshops to educate and certify Michigan mushroom hunters in the safe and legal collection and sale of wild-foraged mushrooms

Mycological Society of America (MSA) Student and Postdoc Section (SPS) Webmaster (September 2021–September 2022)

- Updated and maintained MSA SPS' website, msastudents.org
- Made monthly newsletter for distribution to the MSA community

Madison Mycological Society President | Madison, WI (January 2018–August 2019)

- Founded Madison's first amateur mycological society, acquired non-profit status, led Board of Directors consisting of seven volunteer community members, and grew mailing list audience to over 300 people
- Led forays every other week with a typical attendance of about 6–10 and up to two dozen people; organized monthly local mycologist lecture series