MACKENZIE A. CAPLE

Department of Biology – Indiana University
Bloomington, IN
mcaple@iu.edu

EDUCATION

2018 - present	**Indiana University** Ph.D. candidate: Evolution, Ecology, and Behavior Advisor: Dr. Jennifer Lau Minor: Genetics
2009 – 2013	**University of Michigan** Bachelor of Science: Plant Biology Bachelor of Science: Chinese Studies

GRANTS & AWARDS

2022 - 2024	Genetics & Eco-Evolution of Multiscale Symbioses (GEMS) Institute Project Grant ($184,846)
2023	IUB Provost's Travel Award for Women in Science ($650)
2022	GEMS Institute Summer Seed Grant ($9,583)
2021	IU Research and Teaching Preserve Student Grant ($3,000)
2021	IU Floyd Memorial Fund in Plant Sciences Summer Fellowship ($1,617)
2020	IU Floyd Memorial Fund in Plant Sciences Summer Fellowship ($3,234)
2020	NSF Graduate Research Fellowship Program (Honorable Mention)
2019	IU Floyd Memorial Fund in Plant Sciences Summer Fellowship ($617)

PUBLICATIONS & PRESENTATIONS

Caple, M. and Lau, J. Cicada litterfall indirectly affects plant growth through multiple mechanisms. *Oral presentation:* Ecological Society of America Annual Meeting, 2023 Aug 6-11; Portland, OR.

Caple, M. and Lau, J. Experimentally disentangling multiple ecological effects of nitrogen enrichment. *Poster presented at:* Changing Microbiomes Symposium, Penn State University, 2022 May 31-Jun 3; Boalsburg, PA.

Caple, M. and Lau, J. Ecological drivers of rhizobium evolution: nitrogen, light, host density, and voracious herbivores. *Oral presentation:* weekly seminar for Genetics and Eco-Evolution of Multiscale Symbioses (GEMS), 2022 Mar 28; virtual.

Caple, M. Experimental evolution of microbial communities: exploring interactive effects of nitrogen fertilization, light, and legume density. *Oral presentation:* IU EEB EcoLunch, 2022 Jan 31; virtual.

Caple, M. and Lau, J. Host and nutrient availability interact to influence microbial communities' effects on plant fitness. *Oral presentation:* Ecological Society of America Annual Meeting, 2021 Aug 2-5; virtual.

Caple, M. Intraspecific variation in a legume-rhizobium mutualism across a natural nitrogen gradient. *Oral presentation:* weekly seminar for Genetics and Eco-Evolution of Multiscale Symbioses (GEMS), 2020 Nov 2; virtual.

Caple, M. and Lau, J. Does nitrogen influence intraspecific variation in a legume-rhizobia mutualism? *Poster presented at:* Ecological Society of America Annual Meeting, 2019 Aug 11-16; Louisville, KY.

Charbonneau, A; Tack, D; Lale, A; Goldston, J; **Caple, M;** Conner, E; Barazani, O; Ziffer-Berger, J; Dworkin, I; Conner, J. (2018) Weed evolution: Genetic differentiation among wild, weedy, and crop radish. *Evolutionary Applications*, 11(10):1964-1974. https://doi.org/10.1111/eva.12699

Caple, M. and Williams, B. (2017). The Houghton Geological Survey and the First University Collections, pp 23-30 in Kirsten Barndt and Carla Sinopoli (editors), *Object Lessons and the Formation of Knowledge: The University of Michigan Museums, Libraries & Collections, 1817–2017*. University of Michigan Press. Ann Arbor, Michigan.

SERVICE

2019 – present **EEB Organization Representing Graduate Students**
Founding member / secretary
- Advocate for graduate student concerns and facilitate communication between faculty and graduate students
- Compile resources and foster cross-lab communication to help graduate students understand departmental requirements and navigate the hidden curriculum
- Organize department social and professional events

2021 – 2023 **EcoLunch Committee**
Weekly graduate student-led forum for presenting and discussing research, career paths, and other topics of interest to ecologists

Reviewer for:
Ecology & Evolution (1)
Evolutionary Applications (1)
Journal of Applied Ecology (1)
Journal of Ecology (1)
Oecologia (1)
Plant Communications (1)
PLOS ONE (1)
Soil Biology & Biochemistry (1)

UNDERGRADUATE MENTORSHIP

2022 – present **K.K.,** Indiana University – Bloomington (NSF REU/NSF RAPID; IU Drs. Sidney and Becca Fleischer Research Scholarship)
M.M., Indiana University – Bloomington (GEMS Seed Funding)

M.Y., Indiana University – Bloomington (NSF REU/NSF RAPID)

2023 *8-week program*
A.M., Indiana University – Bloomington (IU Undergraduate Research Summer Research Program)
D.H., Indiana University – Bloomington (IU Women in STEM)
D.S., Indiana University – Bloomington (IU Undergraduate Research Summer Research Program)
L.B., Indiana University – Bloomington (IU Louis Stokes Alliances for Minority Participation)
P.L., Indiana University – Bloomington (IU Undergraduate Research Summer Research Program)
S.C., Indiana University – Bloomington (IU Undergraduate Research Summer Research Program)

2022 *Fall semester*
E.S., Indiana University – Bloomington (IU Science, Technology, and Research Scholars)

2021 *8-week program*
A.M., Indiana University – Bloomington (IU Louis Stokes Alliances for Minority Participation)
C.N., Indiana University – Bloomington (IU Louis Stokes Alliances for Minority Participation)
E.D., Indiana University – Bloomington (IU Women in STEM)
G.B., Indiana University – Bloomington (IU Women in STEM)

TEACHING

2022 *Fall semester*
BIOL-L113: Biology Laboratory
Associate Instructor
Instructor of Record: Alyssa Anderson

2020 *Fall semester*
BIOL-X325: Field Ecology and Evolution Research Lab 2
Associate Instructor
Arts and Sciences Undergraduate Research Experience (ASURE)
Instructor of Record: Jennifer Lau

2020 *Spring semester*
BIOL-X150: Field Ecology and Evolution Research Lab 1
Associate Instructor
Arts and Sciences Undergraduate Research Experience (ASURE)
Instructor of Record: Jennifer Lau

2019 *Fall semester*
COLL-C104: Observations and Experiments in Science
Associate Instructor
Arts and Sciences Undergraduate Research Experience (ASURE)
Instructors of Record: Roger Hangarter & Jutta Schickore

2018 *Fall semester*
BIOL-L11: Foundations of Biology: Diversity, Evolution, and Ecology
Associate Instructor
Instructor of Record: Spencer Hall

PROFESSIONAL & RESEARCH EXPERIENCE

2018 – present **Ecological Society of America**
Student member

2014 – 2018 **University of Michigan Herbarium**
Full time *Project Coordinator, NSF Collections in Support of Biological Research Museums*
- Researched, planned, and executed digitization of tens of thousands of museum specimens across all museum units (herbarium, zoology, paleontology)
- Hired and oversaw imaging technicians
- Photographed specimens and managed data

Project website: http://nsf-biomuseums.eeb.lsa.umich.edu

2013 – 2014 **University of Michigan Herbarium**
36 hours/week *Electronic Imaging Technician*
- Imaged and databased herbarium specimens for the Macrofungi Collection Consortium and Lichen & Bryophyte digitization projects

2013 **Burnham Lab, University of Michigan**
Spring semester *EEB 300 Research*
- Wrote species description of *Galium aparine* for CLIMBERS (Censusing Lianas In Mesic Biomes of Eastern RegionS) website: http://climbers.lsa.umich.edu/?p=461
- Helped map the distribution of tropical lianas north of Manaus, Brazil
- Investigated air layering as a technique to propagate woody climbers

2012 **Ivanov Lab, University of Michigan Biological Station**
9-week program *REU Student: Biosphere/Atmosphere Interactions in a Changing Global Climate*
- Studied how populations of oak, maple, and aspen regulated their water status by measuring internal water pressure, soil moisture, relative humidity, stomatal conductance, and photosynthetic activity
- Analyzed and presented data

"Impacts of climate change on forests: physiological responses of *Acer rubrum*, *Quercus rubra*, and *Populus grandidentata* to variable air and soil moisture."
Unpublished. View: https://deepblue.lib.umich.edu/handle/2027.42/95898

2010 **Connor Lab, Kellogg Biological Station**
10-week program *REU Student & Research Assistant*
- Manipulated *Asclepias incarnata* flowers to study effect on pollination
- Analyzed photos of flowers and plants to quantify phenotypic variation
- Extracted DNA and performed PCR
- Hand-pollinated radish flowers for incrossing/outcrossing studies
- Counted pollen and anthers of preserved *Arabidopsis thaliana* flowers
- Cared for greenhouse plants