Erika Hersch-Green

Associate Professor
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Professional Preparation and Education

2009 – 2011	Postdoctoral Researcher, North Carolina State University, Department of Plant Biology, Raleigh, NC.
2007 – 2009	Postdoctoral Researcher, Northern Arizona University, Department of Biological Sciences, Flagstaff, AZ.
2007	Ph.D., Ecology and Evolutionary Biology, University of Oregon, Eugene, OR. (GPA 4.00/4.00); Dissertation: "Evidence for hybridization between three species of Indian paintbrush: Ecological implications and evolutionary scenarios." Advisors: Patrick Phillips and Bitty Roy
2001	M.S., Population Biology, University of California, Davis, CA. (GPA 4.00/4.00)
1996	B.S., Biological Conservation & Psychology, Certificate in Environmental Studies, University of Wisconsin, Madison, WI. (GPA 3.92/4.00)

Academic Appointments

2020 – present	Associate Professor, Michigan Technological University, Department of Biological Sciences, Houghton, MI.
2012 – 2020	Assistant Professor, Michigan Technological University, Department of Biological Sciences, Houghton, MI.

Current Research Focus

- **Environmental-driven community ecology and evolution:** I am interested in how climate and abiotic and biotic environmental variables shape species assembly and functional traits of terrestrial plant communities (including native and invasive species) and their associated biota – My research group currently has active projects in grassland, dune and urban-rural ecosystems.
- **Community genetics:** I am interested in how plant genome size variation (both inter and intraspecific variation), hybridization, and intraspecific variation influence transcriptomes, functional traits (e.g., physiology, chemistry, morphology), species interactions (with mutualists: arbuscular mycorrhizae fungi and pollinators; with antagonists: other plants, herbivores, pathogens), and multi-trophic biodiversity patterns.
- **Research–"Outreach" integration:** I am interested in integrating research with education, public outreach, land management decisions and policy actions.

Publications

* = Graduate student advisee; † = Undergraduate student advisee; First author is corresponding author unless otherwise noted with §.

Published Peer-Reviewed

Spohn M, Arnillas CA, Bakker JD et al. (**Hersch-Green EI**) 49 authors. 2026. Intense solar radiation constrains plant species richness in global grasslands. Proceedings of the National Academy of Sciences **123**:e2527128123. https://doi.org/10.1073/pnas.2527128123

Hass H*, Gonczi AL, Squires B, and **Hersch-Green EI**§. In press. Biodiversity investigation: Right outside your classroom door- math, technology, insects, and more! Science Teacher. https://doi.org/10.1080/00368555.2026.2650313 (coming)

MacDougall A, Vanzant B, Sulik J et al. (**Hersch-Green EI**) 146 authors. 2026. The global extent of the grassland biome and implications for the terrestrial sink. Nature Ecology & Evolution.10: 246-257 https://doi.org/10.1038/s41559-025-02955-6

Yahdjian L, Campana S, Tognetti P et al. (**Hersch-Green EI**) 49 authors. 2026. Insights on global rangeland ecosystem services shaped by grazing and fertilization. Frontiers in Ecology and the Environment.e70022 https://doi.org/10.1002/fee.70022

Carroll OA, MacDougall AS, Borer ET et al. (**Hersch-Green EI**) 43 authors. 2025. Frequent failure of nutrients to increase plant biomass supports the need for precision fertilization in agriculture. Scientific Reports 15: 14564. https://doi.org/10.1038/s41598-025-99071-z

Chen Q, Blowes SA, Harpole WS et al. (**Hersch-Green EI**) 47 authors. 2025. Local nutrient addition drives plant biodiversity losses but not biotic homogenization in global grasslands. Nature Communications 16: 4903. https://doi.org/10.1038/s41467-025-59166-7

Fay PA, Gherardi LA, Yahdjian L et al. (**Hersch-Green EI**) 51 authors. 2025. Interactions among nutrients govern the global grassland biomass – precipitation relationship. PNAS 122(15) e2410748122. https://www.pnas.org/doi/10.1073/pnas.2410748122

Nelson RA, Sullivan LL, **Hersch-Green, EI**. et al. 53 authors. 2025. Forb diversity globally is harmed by nutrient enrichment but can be rescued by large mammalian herbivory. Communications Biology **8**, 444. https://doi.org/10.1038/s42003-025-07882-7

Cheaib A, Waring, EF, McNellis R, et al. (**Hersch-Green EI**) 18 authors. 2025. Soil nitrogen supply exerts largest influence in leaf nitrogen in environments with the greatest leaf nitrogen demand. Ecology Letters 28(1): e70015. https://doi.org/10.1111/ele.70015

Hersch-Green EI, Fay PA, Hass HB*, Smith NG. 2025. Mechanistic insights into plant community responses to environmental variables: genome size, cellular nutrients, and metabolic tradeoffs. New Phytologist 245(5): 2336-2349. https://nph.onlinelibrary.wiley.com/doi/pdfdirect/10.1111/nph.20374

Morton J*….. , Leitch I§, Leitch A§, **Hersch-Green E**§. 2025. Genome size influences grassland plant community responses to nutrients across diverse climate and species assemblages of the Northern hemisphere. PLoS Biology. 22(12): e3002927 https://doi.org/10.1371/journal.pbio.3002927

Shatrau A† and **Hersch-Green E**§. 2024. Occurrence of Spotted Wing Drosophila *(Drosophila suzukii*) in wild berries in forested areas of Marquette and Keweenaw Counties, Upper Peninsula of Michigan. The Great Lakes Entomologist 52 (2). DOI: https://doi.org/10.22543/0090-0222.2434

MacDougall AS. et al. (**Hersch-Green EI**). 86 authors. 2024. Widening global variability in grassland biomass since the 1980s. Nat Ecol Evol (8) 2003 https://doi.org/10.1038/s41559-024-02538-x

Walczyk A* and **Hersch-Green E**. 2024. Investigating the effects of whole genome duplication on phenotypic plasticity: implications for the invasion success of Giant Goldenrod (*Solidago gigantea*). Oikos (5): e09990. DOI: https://doi.org/10.1111/oik.09990

Walczyk A* and **Hersch-Green E**§. 2023. Genome material costs and functional-tradeoffs in the autopolyploid *Solidago gigantea* (Giant Goldenrod) series. American Journal of Botany. https://doi.org/10.1002/ajb2.16218

Walczyk A* and **Hersch-Green E**. 2022. Do water and soil nutrient scarcities differentially impact the performance of diploid and tetraploid *Solidago gigantea* (Giant Goldenrod, Asteraceae)? Plant Biology 24: 1031-1042.

Faizullah L§, Morton J*§, **Hersch-Green E**, Walczyk A*, Leitch A, and Leitch I. 2021. Exploring environmental selection on genome size in angiosperms. Trends in Plant Science 26: 1039-1049.

Bothwell H, Evans L, **Hersch-Green E**, Woolbright S, Allan G, Whitham T. 2021. Genetic data improves niche model discrimination and alters the direction and magnitude of climate change forecasts. Ecological Applications: 1039-1049.

Walczyk A*, and **Hersch-Green, E**. 2019. Impacts of soil nitrogen and phosphorus levels on cytotype performance of the circumboreal herb, *Chamerion angustifolium* (Onagraceae): implications for polyploid establishment. *American Journal of Botany* 106(7): 906-921.

Bales A*, and **Hersch-Green, E**§. 2019. Diploid disadvantage disappears under increased soil nitrogen availability in fireweed, *Chamerion angustifolium* (Onagraceae). *Ecology and Evolution* 9(3):1095-1109.

Bothwell H, Cushman S, Woolbright S, **Hersch-Green E**, Evans L, Allan G, Whitham T. 2017. Conserving threatened riparian ecosystems in the American West: Precipitation gradients and river networks drive genetic connectivity and diversity in a foundation riparian tree (*Populus angustifolia*). *Molecular Ecology* 26(19): 5114-5132.

Grady K, Wood T, Kolb T, **Hersch-Green E**, Shuster S, Gehring C, Hart S, Allan G, Whitham T. 2017. Local biotic adaptation of trees and shrubs to plant neighbors. *Oikos* 126(4): 583-593.

Fischer D, Wimp G, **Hersch-Green E**, Bangert R, LeRoy C, Schweitzer J, Bailey J, Dirks C, Hart S, and Whitham T. 2017. Tree genetics strongly affect forest productivity, but intraspecific diversity-productivity relationships do not. *Functional Ecology* 31(2): 520-529.

Hersch-Green E, Allan G, and Whitham T. 2014. Genetic analysis of admixture and patterns of introgression in foundation cottonwood tree (Salicaceae) in southwestern Colorado, USA. *Tree Genetics and Genomes* 10(3): 527-539.

Bangert R, Ferrier S, Evans L, Kennedy K, Grady K, **Hersch-Green E**, Allan G, and Whitham T. 2013. The proportion of three foundation plant species and their genotypes influence an arthropod community: restoration implications for the endangered southwestern willow flycatcher. *Restoration Ecology* 21(4): 447-456.

Hersch-Green E. 2012. Polyploidy in Indian paintbrush (*Castilleja*; Orobanchaceae) species shapes but does not prevent gene flow across species boundaries. *American Journal of Botany* 99(10): 1680-1690.

Hersch-Green E, Myburg H, and Johnson M. 2012. Adaptive molecular evolution of a defence gene in sexual but not functionally asexual evening primroses. *Journal of Evolutionary Biology* 25(8): 1576-1586.

Ferrier S, Bangert R, **Hersch-Green E**, Bailey J, Whitham T, and Allan G. 2012. Unique arthropod communities on different host-plant genotypes results in greater arthropod diversity. *Arthropod Plant Interactions* 6(2): 187-195

Hersch-Green E, Turley N, and Johnson M. 2011. Community genetics: what have we accomplished and where should we be headed? *Phil. Trans. R. Soc. B.* 366(1569): 1453-1460.

Hersch-Green E and Cronn R. 2009. Tangled trios, or something entirely different? Characterizing a hybrid zone in *Castilleja* (Orobanchaceae). *American Journal of Botany* 96(8): 1519-1531.

Hersch E and Roy B. 2007. Context-dependant pollinator behavior: an explanation for patterns of hybridization among three species of Indian paintbrush. *Evolution* 61(1): 111-124. Cover Photo.

Hersch E. 2006. Foliar damage to parental plants interacts to influence mating success of *Ipomoea purpurea*. *Ecology* 87(8): 2026-2036.

Hersch E and Phillips P. 2004. Power and potential bias in field studies of natural selection. *Evolution* 58(3): 479-485.

In Review or In Prep

Hersch-Green EI, Külheim C, and Walczyk A*. In review. Transcriptome modification: A nutrient conserving strategy within autopolyploid *Solidago gigantea*. Plant Biology.

Hersch-Green EI, Hass H*, Borer E, and Brudvig L. In review. Nutrients interact with plant genome size to influence invertebrate herbivory and pathogen damage. Ecology.

Blackwell AJ* and **Hersch-Green EI**[§]. In prep. Plant genome size and nutrient enrichment influences arbuscular mycorrhizal fungi root colonization patterns. Frontiers in Plant Science.

Videos

Brisson M[†], Fisher M[†], Humecke J[†], Lagreid L[†],Smith E & **Hersch-Green E**[§]. Video module 2024: “Classroom Engagement and Trip to Field Site”. https://vimeo.com/899349773?fl=pl&fe=cm

Brisson M[†], Humecke J[†],Smith E, Leonarduzzi D & **Hersch-Green E**[§].Video module: “Hersch-Green NSF Overview Video”. https://vimeo.com/899350810?fl=pl&fe=cm

Brisson M[†], Fisher M[†], Humecke J[†], Lagreid L[†],Smith E & **Hersch-Green E**[§].. Video module: “Highschool Internship in Plant Sciences”. https://vimeo.com/899349856?fl=pl&fe=cm

Humecke J[†], Brisson M[†], Smith E & **Hersch-Green E**[§]**.** Video module: “Leaf Disc Assay”. https://vimeo.com/899352653?fl=pl&fe=cm

Humecke J[†], Brisson M[†], Smith E & **Hersch-Green E**[§]**.** Video module: “LI-COR Potable Photosynthesis Machine”. 2022. https://vimeo.com/899351472?fl=pl&fe=cm

Brisson M[†], Smith E & **Hersch-Green E**[§]. Video module: 2022. “Stomatal Casts”. https://vimeo.com/899353131?fl=pl&fe=cm

Grants and Funding

Since joining Michigan Tech University, I have received roughly $1.9 billion (1.6 billion as a PI and 300K as a Co-PI) in external funds and $23.5K (20.5 Kas a PI and 3K as a Co-PI) internal funds.

Principal Investigator

- 2026-2028. Michigan Sea Grant, Title: "Assessing resilience of ecosystem-
- engineering plants for Great Lakes sand dune restoration and stabilization." Co-PI: S. Emery.
  Total Project Value: **$330,007 ($220/110K external/cost-share)**
- 2020-2026. National Science Foundation Division of Environmental Biology, Title: "CAREER: Can material costs contribute to the structuring of biodiversity patterns from genomes and transcriptomes to multispecies communities?"
  Total Project Value: **$1,192,740**
- 2019 – 2020. Huron Mountain Wildlife Fund, Title: An exploratory analysis of the invasive spotted-winged drosophila and *Exobasidium* fungal pests of wild berry and soft-fruit species in the Huron Mountains.
  Total Project Value: **$2,600**
- 2017-2020. Michigan Technological University, Research Excellence Fund Seed Grant, Title: Understanding feedbacks between ecosystems and the genetics of a dominant plant (*Solidago gigantea*, Asteraceae). Co-PI: A. Burton.
  Total Project Value: **$15,000**
- 2018 – 2019. Huron Mountain Wildlife Fund, Title: "Genetic, phenotypic and community diversity associated with a hemiparasitic annual plant, *M. lineare* - an initial survey."
  Total Project Value: **$1,900**
- 2012-2013. Michigan Technological University Ecosystem Science Center award for the International Exchange.
  Total Project Value: **$5500**
- 2004 – 2007. National Science Foundation Division of Environmental Biology, Doctoral Dissertation Improvement Grant. Co-PI: B. Roy.
  Total Project Value: **$13,800**
- 2000-2001. University of California, Davis, Center for Population Biology Research Grant.
  Total Project Value: **$1000.**
- 2000-2001. University of California, Bodega Bay Marine Laboratory, Research Grant,
  Total Project Value: **$750**.

Co-Principal Investigator

- 2015-2017. Michigan Department of Natural Resources, Invasive Species Program
  Title: "Innovative and multifaceted control of invasive Eurasian and hybrid watermilfoil using integrative pest management practices".
  PI: C. Huckins, Co-PIs: A. Marcarelli, E. Hersch-Green and C. Brooks,
  Total Project Value: **$332,000**
- 2015- 2016. Michigan Technological University Jackson Center for Teaching and Learning. Title: "Integrative Statistics in Social and Biological Sciences through Blended Learning". PI: S. Amato-Henderson
  Total Project Value: **$3000**

Collaborations and Networks

- Involved in NutNet: Nutrient Network: A Global Research Cooperative: (2019-Present)
    - Established a participating site
    - Contribute to data collection and submission and project and manuscript developments
    - Attended two virtual (2-day) and one (5-day) in-person workshops
    - Co-led two manuscripts and four projects entailing additional data collection.

- Involved in DRAGNet: Disturbance and Recovery Across Global Grassland Network:(2019-Present)
    - Established a participating site
    - Contribute to data collection and submission and project and manuscript developments
    - Attended two virtual (2-day) and three (5-day) in-person workshops
    - Co-led two projects entailing additional data collection.

- Involved in BUGNet: Bug-Network: (2022-Present)
    - Contribute to data collection and submission

Mentorship and Training at Michigan Technological University (MTU)

Graduate student and Postdoctoral researchers in which I served as their primary advisor–*co-advisor* and non-MTU Institutions are specified.*

PhD Students:

- Anne Matusiak (Summer 2026 – Present) – PhD student in Biological Sciences at MTU
- Peter Briggs (2025 – Present) – PhD student in Biological Sciences at MTU
- Peace Dosdall (2024 – 2024)– Masters of Forestry Graduate Student MTU
- Rahul Dhargalkar (2021 – 2022) – Researcher Assistant at Cambrian Bioworks, Bangalore
- Joe Morton* (2020 – 2023) –
- Angela Walczyk (2018-2022) – Assistant Professor Montana State University

MS Students:

- Abbigail Blackwell (2023 – 2025) – PhD student in Ecology and Evolutionary Biology at the University of Texas El Paso
- Hailee Hass (2021 – 2023) – PhD student in Biology Education at the University og Alabama
- Angela Walczyk (2016 – 2018) – Assistant Professor Montana State University
- Taylor Zellak (2016 – 2018) – Postdoctoral Research Associate in the Department of Agronomy and Plant Genetics at the University of Minnesota
- Lucy Hatfield (2014 – 2018) –
- Alex Bales (2013 – 2015) – Process Engineer at Green Thumbs Industry, MA

Postdoctoral Research Associates:

- George Wheeler (2024-2025)

Graduate students in which I served as a committee member

Eileen Reeves	2020 – 2025	PhD	Forest Molecular Genetics and Biotechnology
Alex Sullivan	2012 – 2013	MS	Forest Molecular Genetics and Biotechnology
Katheryn Hietala	2012 – 2013	MS	Applied Ecology
Cassandra Ott	2012 – 2013	MS	Forest Science

Undergraduate mentoring at MTU – To date I have mentored ~60 undergraduate students in research and/or teaching activities.

- 39 research technicians.
- 3 students receiving Summer Undergraduate Research Fellowships.
- 5 students supported under NSF REU's (students visited from Albion College, College of Atlantic, Kalamazoo College, University of Colorado-Boulder, University of Michigan).
- 7 students doing independent projects.
- 2 undergraduate teaching assistants.

Presentations (* indicates graduate student co-author, † indicates undergraduate student co-author; note that first author listed was presenting author)

Invited presentations since joining Michigan Technological University

2025 **Hersch-Green E**. Transcriptome modification as an autopolyploid nutrient conserving strategy. Poster Presentation. Gordon Conference. July 2025. Lucca Italy.

2024 **Hersch-Green E.** Biodiversity patterning and the influence if plant genome size. Plant Biology Seminar Series. Michigan State University. East Lansing, MI, USA

2022 **Hersch-Green E**. Biodiversity patterning – The role of plant genome size variation. Biology Seminar Series. North Michigan University. Marquette MI, USA

2022 **Hersch-Green E**. Do genome size material costs exist and influence plant trait-tradeoffs and/or community dynamics? Spring Seminar Series. Kellogg Biological Station, Michigan State University – virtual.

2019 **Hersch-Green E**. Dynamic intersections between cultures, fire, and biodiversity in wild berry ecosystems. USFS Northern Research Station, Rhinelander, WI.

2017 Zallek T*, **Hersch-Green E**, Huckins C, Marcarelli A, and Brooks C*. Herbicide susceptibility, hybrid zones, genetic diversity, and selection in invasive Eurasian watermilfoil (*Myriophyllum spicatum*). President's Alumni Reunion Poster Session. Michigan Technological University, Houghton, MI.

2016 **Hersch-Green EI**. The roles of hybridization, polyploidy, and global environmental changes in the evolution and diversity of flowering plants. Organismal Biology Seminar Series Colorado College, Colorado Springs, CO.

2016 Bothwell HM, Cushman SA, Woolbright SA, **Hersch-Green EI**, Evans LM, Allan GJ, and Whitham T. Landscape resistance models identify genetic connectivity corridors for a foundation riparian tree (*Populus angustifolia*). World Conference on Natural Resource Modeling, Flagstaff AZ.

2013 **Hersch-Green EI.** Genetic diversity and the evolution and ecology of flowering plants. Department Seminar, Netherlands Institute of Ecology (NIOO-KNAW). Wageningen, Netherlands.
2012 **Hersch-Green EI.** Sexual reproduction and the evolution of plant defenses against natural enemies. Department of Biological Sciences Seminar, University of Minnesota, Duluth, MN.
2012 **Hersch-Green EI.** Sexual reproduction and the evolution of plant defenses against natural enemies. Department of Biological Sciences Seminar, Michigan Technological University, Houghton, MI.

Contributed presentations since becoming Associate Professor

2025 Blackwell A* and **Hersch-Green E**. Arbuscular mycorrhizal fungi (AMF) and nutrient availability differentially influence cytotype responses in Chamerion angustifolium. American Society of Plant Biologist Midwest Section Annual Meeting. Oral Presentation, Lincoln, NB, USA
2025 Blackwell A* and **Hersch-Green E**. Arbuscular mycorrhizal fungi (AMF) and nutrient availability differentially influence cytotype responses in Chamerion angustifolium. American Society of Plant Biologist Midwest Section Annual Meeting. Poster Presentation, Lincoln, NB, USA
2025 Blackwell A* and **Hersch-Green E.** Arbuscular mycorrhizal fungi (AMF) and nutrient availability differentially influence cytotype responses in Chamerion angustifolium. Ecosystem. Poster Presentation. Ecosystem Science Graduate Research Symposium Michigan Tech University, Houghton, MI, USA
2024 **Hersch-Green E**. Functional traits contributing to plant community responses to nutrients. World Biodiversity Forum. Oral Presentation. Davos, Switzerland.
2023 **Hersch-Green E**. When is it based upon genome size *per se*? Oral Presentation. Botanical Society of America, Boise, ID, USA
2023 Walczyk A*, and **Hersch-Green E**. From transcriptomes to traits: investigating the role of resource allocation tradeoffs in the invasion success of tetraploid Solidago gigantea. Oral Presentation. Botanical Society of America, Boise, ID, USA
2023 Petosky, H*, and **Hersch-Green E**. Examining how plant genome size variation and nutrient additions structure insect herbivory and fungal damage patterns across an elevational gradient. Oral Presentation. Botanical Society of America, Boise, ID, USA
2022 Morton, JA*, Leitch AR, Leitch IJ, and **Hersch-Green EI**. Nutrients and climate shape plant community structure based upon genome size. Poster Presentation. Ecological Society of America, Montreal, CAN
2022 Petosky, H*, and **Hersch-Green E**. Understanding how the Genome Size of Plant Communities Structures Insect Herbivory and Fungal Pathogen Damage Patterns: A Proposed Research Project. Poster Presentation.Ecosystem Science Graduate Research Symposium. Michigan Tech University, Houghton, MI, USA
2022 Wieferich, B†, and **Hersch-Green E**. Does plant genome size influence seed germination patterns? Ecosystem Science Center Undergraduate Research Symposium. Michigan Tech University, Houghton, MI, USA
2022 Wieferich, B†, and **Hersch-Green E**. Does plant genome size influence seed germination patterns? Student Undergraduate Research Symposium. Michigan Tech University, Houghton, MI, USA
2021 Walczyk A* and **Hersch-Green EI**. Investigating phenotypic plasticity in biological invasions and implications for the invasive success of tetraploid *Solidago gigantea* (Giant Goldenrod, Asteraceae). Ecological Society of America (ESA) Annual Meeting. Oral Presentation. Award: Invasion Ecology Section (ESA) Simberloff Award for Outstanding Presentation.

2021 Walczyk A* and **Hersch-Green EI**. Investigating phenotypic plasticity within the cytotype complex of *Solidago gigantea* Aiton (Giant Goldenrod, Asteraceae). Botany Annual Meeting. Oral Presentation. Award: Best Talk Graduate Student for the Ecology Section.

2021 Morton, JA*, Leitch AR, Leitch IJ, and **Hersch-Green EI**. Nutrients shape plant community structure based upon genome size. Queen Mary's University of London Postgraduate Research Symposium, London, UK. Poster Presentation.

2021 Morton, JA*, Leitch AR, Leitch IJ, and **Hersch-Green EI**. Nutrients shape plant community structure based upon genome size. IRN Polyploidy and Diversity Meeting, University of Rennes, Rennes, France. Poster Presentation.

2021 Shatrau, A†, and **Hersch-Green E**. Exploring the Presence of *Drosophila suzukii* (Spotted-Wing Drosophila) in Wild Berry Species of the Great-Lakes Region. Student Undergraduate Research Symposium. Michigan Tech University, Houghton, MI.

Teaching Experience at Michigan Technological University (MTU)

To date I have taught or co-taught* 34 undergraduate and/or graduate classes at MTU

Large Classes (> 40 students)

- *Analysis of Biological Data*[*], Spring 2014
- *Botany* (67 students, BL 2160), Spring 2017-2020, 2023-2026
- *Evolution*, Spring 2013-2021
- *General Biology I - Lecture and Lab*, Fall 2014-2021 & Summer 2021-2022

Small Classes (40 students or less)

- *Advanced Evolutionary Ecology*, Fall 2023 -2024
- *Observation and Data Collection*, Fall 2021, 2023-2025
- *Special Topics: Plant-Insect Interactions*, Spring 2012

Teaching and Mentoring Innovations at Michigan Technological University (MTU)

Video modules for teaching:

- Developed 3 videos to be incorporated into newly designed labs for Botany.

App Development:

- 2026 - Worked with a team of 7 students enrolled in MTU course CS4760/5760: User Interfaces and Human Computer Interactions to develop a user-friendly APP to identify an invasive fruit fly infestation in wild berry ecosystems.
- 2022 - Worked with a team of 8 students enrolled in MTU course CS4760/5760: User Interfaces and Human Computer Interactions and 2 scientists (T. Bal and A. Carter) to develop a user-friendly APP to identify wild berry locations and document how humans "use" wild berries.

Service

National and International Professional Service

Journal Editor Activities:

2026	Associate Editor for Frontiers in Ecology and Evolution
Yearly	Manuscript reviewer of an average of three manuscripts/year

Proposal Review Activities:

2024	Panel proposal reviewer for NSF DEB in-person
2022	Panel proposal reviewer for NSF DEB in-person
2020	Panel proposal reviewer for NSF DEB in-person
2016	Ad-hoc proposal reviewer for 1 proposal NSF DEB
2013	Ad-hoc proposal reviewer for 1 proposal NSF DEB
2013	NSF DDIG panel member, DEB Population and Community Ecology.

Professional Society Service

2023	Botanical Society of America: Organized colloquium and invited speakers. Ecological and Evolutionary Consequences of Genome Size Variation in Plants (Boise, ID, USA).
2023	Judge for Graduate Student Presentation Awards. Botanical Society of America, Boise, ID USA.
2012	Judge for Graduate Student Presentation Awards. Society for the Study of Evolution, Portland, OR USA.

Community Activities

2018	Judge for Western U.P. Science Fair – grades 4-8
2014	Judge for Western U.P. Science Fair – grades 4-8

Institutional Service at Michigan Technological University

Department of Biological Sciences Activities

- TPR committee: Chair (2024-2025), Member (2021-2023)
- Committee for a Department Chair for the Department of Biological of Sciences: Chair (2023-2024)
- Curriculum committee: Chair (2015-2018), Member (2025-present, 2018-2021)
- Charter committee: Member (2019-2023, 2012-2017)
- Graduate committee: Member (2012-2018)
- Greenhouse committee: Chair (2015-2018), Member (2012-2015, 2018-Present)
- Grievance committee: Member (2021-2023, 2017-2019, 2012-2016)
- Enrollment committee: Member (2020-2023)
- Biology Spring Seminar Series: Sole organizer (2013, 2016)
- Scholarship committee: Member (2012-2016)
- Proposal committee for an undergraduate BS degree in Ecology and Evolutionary Biology: Member (2014-2019)
- Proposal committee for an interdisciplinary PhD degree in Ecology and Evolutionary proposal committee: Member (2013 – 2018)
- Department of Biological Sciences Microbiologist Hiring Committee: Member (2014 –

2015)
- Faculty Marshall for Spring Commencement for the Department of Biological Sciences: (2013, 2017)

College and University Activities

- Faculty Search Advisor to the Provost for University Search Committees: Advised for 10 positions (2022-Present)
- Diversity Liaison for the Department of Biology: Member (2017-2021)
- Faculty Senate - Alternative for Department of Biological Sciences Representative: (2016-2017)
- Academic and Instruction Policy Committee, Senate sub-committee: Member (2015-2017)
- Graduate Faculty Council – the Department of Biological Sciences Representative: (2012-2015)
- Contributor of General Education Assessment (All time taught General Biology, Botany or Evolution).
- Mentor for Assistant Faculty Member (2021-2022)
- Freshman Orientation Summer Reading Discussion Facilitator (2016, 2018
- Host/reviewer for Leading Scholars Scholarship program (2012, 2018)
- Day Zero Student Orientation Host (2014, 2015, 2016, 2017, 2018

Research Center Activities

- Judge for Ecosystem Science Center Graduate Research Forum: (2012, 2013, 2015, 2019, 2022)
- Reviewer Panelist for Graduate Student Research Grants, Ecosystem Science Center: (2013, 2016)
- Judge for Life Science and Technology Institute Graduate Research Forum: (2016
- Reviewer for Summer Undergraduate Research Fellowships (2013, 2014, 2016, 2019)

Community Engagement

K-12 Outreach:

- Teaching Field Module Development and Implementation - Spring and Fall 2023 and 2024 (4 times) - Advertised, developed, managed, taught, and assessed a 3-day field experience module for regional middle and high-school biology classes; we brought student to my local research experimental plots to learn about and measure insect biodiversity. Worked with students (~ 80 in total), teacher, STEM assessment consultant and a graduate student. Module has been published in video format (in collaboration with Dr. Erin Smith and undergraduate students in the Department of Humanities) and in the journal Science Teacher.
- Teaching Lab Module Development and Implementation – Spring 2021 (1 time) - Advertised, developed, managed, taught, and assessed a 3-day plant sciences internship for regional high-school students. Five students were chosen and attended. Worked with students and a graduate student and module has been published in video format (in collaboration with Dr. Erin Smith and undergraduate students in the Department of Humanities).

- Mentored two high school students on research – Spring 2019 (1 time) – in the field and via distant advising.

Public speaking/interviews:

- 2021- Gave a recorded interview about a fossil found in Michigan that is one of the earliest signs of eukaryotic life for Japan's Public TV station NHK, A.E. Seeman Mineral Museum, Houghton MI
- 2020 – Interview with local new media on CAREER award.

Professional Development

Leadership

- The Faculty Leadership Exploration Development Program, Michigan Technological University, 2025-2026.
- Guiding Growth Mentoring Workshop, Michigan Technological University, 2024-2025.
- Design Your Academic Life Workshop, Michigan Technological University, 2024.
- Search Advisor Training, Michigan Technological University, 2022-2025.
- Attendee at ADVANCE workshops, MTU (2019)
- Safe Place Ally Training, MTU (2019)

Research

- AERC-NEON-SREL Workshop (2026) participant entitled "From Data to Decisions: Strategies for Translational Communication of Complex Data to Decision Makers", Aiken SC.

Education

- Completed course and obtained certificate on applying the QM Rubric, Quality Matters APQMR (2021)
- Completed course: Foundations of Online Teaching, MTU (2020)
- Participant in the Upper Peninsula Teaching and Learning Conference, MTU (2017)
- Completed course and obtained certificate from the National Academies Midwest Summer Institute Conference for Undergraduate Education - a weeklong workshop on "Scientific Teaching". University of Minnesota, Twin Cities MN. (2014)

Fellowships and Awards

- Darwin's Day Roadshow Recipient, National Evolutionary Synthesis Center (2015).
- National Science Foundation Pre-Doctoral Fellowship (2001).
- National Science Foundation Pre-Doctoral Fellowship, Honorable Mention (2000).
- Phi Beta Kappa, national academic honor society (1996).
- Phi Kappa Phi, national academic honor society (1996).
- Golden Key, national academic honor society (1995).

Professional Affiliations

Botanical Society of America, Ecological Society of America, Society for the Study of Evolution, Golden Key National Honors Society, Phi Beta Kappa National Honors Society, Phi Kappa Phi National Honors Society