

I am a weed evolutionary ecologist studying how agricultural weeds colonize and adapt to their environments through plasticity and evolution. I aim to aid both our basic understanding of how plants colonize novel environments and our applied understanding of how to sustainably manage these problematic species impeding global food production.

Education

- PhD in Plant Biology/Ecology, Evolution, & Behavior**, Michigan State University (Hickory Corners, MI) July 2020 – May 2026
- Advisor: Dr. Jeffrey Conner; Committee: Drs. Emily Josephs, Lars Brudvig, and David Lowry
 - Dissertation: “Adaptation of weedy plants to diverse pollinators, multiple crop planting seasons, and organic fields”
- BA and MA in Biology**, Wesleyan University (Middletown, CT) Sep. 2015 – May 2020
- Advisor: Dr. Sonia Sultan; Thesis: “Transgenerational effects of competition: Context-dependent effects of distinct parental competition treatments in *P. persicaria*”

Academic Appointments

- Postdoctoral Research Fellow**, Baucom Lab, University of Michigan Ecology & Evolutionary Biology Aug. 2026 – present

Peer-Reviewed Publications

high school/undergraduate mentees *equal contribution

1. **Waterman, R., Catlett, B., Bhatt, I., Edmonds, G., Conner, J.K.** (2026). Seed vernalization and gibberellic acid interact to affect life cycle type in facultative winter annual Canadian horseweed (*Erigeron canadensis*). *Weed Science*, 74 (1), e52. doi: 10.1017/wsc.2026.10131
2. **Waterman, R., Song, S., Bhandari, N., Conner, J.K.** (2025) Testing adaptive hypotheses for an evolutionarily conserved trait through slow-motion videos of pollinators. *Royal Society Open Science*, 12 (9), 251127. doi: 10.1098/rsos.251127
3. Palande, S., et al. (Foundations in Computational and Plant Sciences Course). (2025). Expression-based machine learning models for predicting plant tissue identity. *Applications in Plant Sciences*, 13(1), e11621. doi: 10.1002/aps3.11621
4. Smith, O.M., Davis, K.L., **Waterman, R.**, et al. (2024). (EEB Collaborative Research Group). Journals must expand access to peer review data. *Trends in Ecology & Evolution*, 39(4), 311-314. doi: 10.1016/j.tree.2024.02.003
5. Smith, O.M., Davis, K.L., Pizza, R.B.*, **Waterman, R.***, et al. (EEB Collaborative Research Group) (2023). Peer review bias perpetuates barriers for historically excluded groups. *Nature Ecology & Evolution*, 7(4), 512-523. doi: 10.1038/s41559-023-01999-w.
6. **Waterman, R., Sahli, H., Koelling, V. A., Karoly, K., & Conner, J. K.** (2023). Strong evidence for positive and negative correlational selection revealed by recreating ancestral variation. *Evolution*, 77(1), 264-275. doi: 10.1093/evolut/qpac001
7. **Waterman, R., & Sultan, S. E.** (2021). Transgenerational effects of parent plant competition on offspring development in contrasting conditions. *Ecology*, 102(12), e03531. doi: 10.1002/ecy.3531
8. Baker, B. H., Sultan, S. E., Lopez-Ichikawa, M., & **Waterman, R.** (2019). Transgenerational effects of parental light environment on progeny competitive performance and lifetime fitness. *Philosophical Transactions of the Royal Society B*, 374(1768), 20180182. doi:10.1098/rstb.2018.0182
9. **Waterman, R., Lewis, J., & Waterman, K. C.** (2017). Accelerated stability modeling for peptides: A case study with bacitracin. *AAPS PharmSciTech*, 18(5), 1692-1698. doi:10.1208/s12249-016-0635-7

Submitted:

1. **Waterman, R., Catlett, B., Bhatt, I., Edmonds, G., Conner, J.K.** Seed vernalization and gibberellic acid interact to affect life cycle type in facultative winter annual Canadian horseweed (*Erigeron canadensis*). bioRxiv doi:10.1101/2025.10.06.680458

Selected Honors & Awards

- Bessey Award for Outstanding Graduate Research, MSU (\$650) April 2026
- KBS Summer Mentoring & R Workshop Fellowship, MSU (5 awards, \$10,855 total) May 2021, 2022, 2023, 2024, 2025
- KBS Summer Graduate Student Fellowship, MSU (3 awards, \$6,339 total) May 2021, 2022, 2025
- Paul Taylor Endowment Award, MSU (4 awards, \$4,685 total) April 2022, 2023, 2024, 2025
- USDA NIFA Pre-doctoral Fellowship (3 years, \$175,405 total) June 2023 – June 2026
- Society for the Study of Evolution Lewontin Early Award (\$2,500) May 2022

• EEB Professional Horizons Grant, MSU (\$500)	March 2022
• KBS Science Education & Outreach Fellowship, MSU (2 awards, \$42,000 total)	Jan. 2022 – June 2023
• College of Natural Science Early Start Fellowship, MSU (\$6,000)	May, 2020
• University Distinguished Fellowship, MSU (estimated \$94,000 total)	Feb., 2020

\$356K total obtained to support research & professional development (\$177K internal + \$179K external)

Selected Poster & Oral Presentations

- **R. Waterman** and JK Conner. Evolution conference, Cleveland, OH, June 2026: "Adaptation of weedy plants to organic agriculture". Talk.
- **R. Waterman**, B. Catlett, I. Bhatt, G. Edmonds, J.K. Conner. North Central Weed Science Society Annual Meeting, Grand Rapids, MI, Dec. 2025: "Environmental and genetic factors shaping seasonal life cycle type in horseweed (*Erigeron canadensis*)". Talk.
- **R. Waterman**. Evolution conference, Athens, GA, June 2025: "Horsing around with horseweed: evolution and plasticity in an agricultural weed". Talk.
- **R. Waterman**, B. Catlett, I. Bhatt, G. Edmonds, J.K. Conner. MSU Ecology, Evolution, and Behavior Symposium, May 2025: "Effects of growth hormone and stratification conditions on Canadian horseweed (*Conyza canadensis*) life cycle". Poster. Awarded *Best Poster*.
- **R. Waterman**. Evolution conference, Montreal, CA, July 2024: "Evolution and plasticity in a native agricultural weed". Talk.
- **R. Waterman**. Society for the Study of Evolution GREG Seminar, March, 2024: "Investigations of adaptation to agriculture in horseweed". Virtual talk.
- **R. Waterman**, S. Song, N. Bhandari, and JK Conner. Evolution conference, Albuquerque, NM, June 2023 and MSU Ecology, Evolution, & Behavior Symposium, East Lansing, MI, May 2023: "Testing adaptive hypotheses for tetradynamy through slow-motion videos of pollinators". Talk.
- **R. Waterman**, H. Sahli, V. Koelling, K. Karoly, and JK Conner. Evolution conference, Cleveland, OH, June 2022: "Strong evidence for positive and negative correlational selection revealed by recreating ancestral variation". Poster.
- **R. Waterman**, H. Sahli, V. Koelling, K. Karoly, and JK Conner. MSU Ecology, Evolution, and Behavior Symposium, May 2021: "Measuring selection on anther position using male and female fitness and expanded phenotypic variation". Virtual poster. Awarded *Runner-up Best Poster*.

Teaching

Introduction to Data Analysis in R Summer Workshop , Kellogg Biological Station (Hickory Corners, MI), <i>Coordinator/Instructor for 1 session/year</i>	Summer 2024 & Summer 2025
Ecology Lab , Professor Louise Mead, Michigan State University (East Lansing, MI), <i>Teaching Assistant</i>	Sept. 2021 – Dec. 2021
Evolution in Human-Altered Environments , Professor Sonia Sultan, Wesleyan University (Middletown, CT), <i>Teaching Assistant</i>	Jan. 2020 – May 2020
Environmental Justice Student Forum , full-credit student-run course, Wesleyan University (Middletown, CT), <i>Coordinator/Instructor for 1 session</i>	Jan. 2017 – May 2017

Mentoring

Primary mentor for student researchers from the following categories:

- **2 U of M Undergraduate Research Opportunity Program students:** Averey Dahlberg (2026), Tyler Jurhs (2026)
- **5 NSF Research Experiences for Undergraduates:** Lindsey Urban (Denison, 2024), Morgan Durham (Agnes Scott College, 2024), Brooke Catlett (Southern IL University Carbondale, 2023), Shoshannah Blaszczak (Suffolk County Community College, 2022), and Sally Song (Wellesley College, 2022)
- **3 KBS Undergraduate Research Assistants:** Michael Kwalton (2025), Dominick Stoops (2023), and Nicholas Bhandari (2021)
- **1 undergraduate honors thesis student:** Eamon Bronson (Kalamazoo College, 2024)
- **4 Kalamazoo Area Math & Science Center high school students:** Ishwari Bhatt (2024), Georgia Edmonds (2024), Cole Cahill (2023), and Nathan Gleason (2023)

Service & Outreach

Peer review: *New Phytologist* (Sept. 2020 & Aug. 2025), *American Journal of Botany* (Dec. 2020), *Proceedings of the Royal Society B* (July 2021)

Committees: KBS Culture and Inclusion Committee (Sept. 2022 – Fall 2025, co-chair starting Jan. 2023), PLB Graduate Student Organization (Oct. 2022 – Aug. 2024, KBS liaison), KBS Honors & Awards Committee (Jan. 2021 – May 2022), MSU Department of Plant Biology faculty search committee (May 2021-Feb 2022), Wesleyan College of the Environment Committee (Sept. 2017 – May 2019), Wesleyan Diversity and Sustainability Working Group (Dec. 2017 – Oct. 2018)

Professional organizations: Society for the Study of Evolution (Dec. 2020 – present), Association for Women in Science (Sept. 2022 – present), American Association for the Advancement of Science (Sept. 2021 – Sept. 2022),

Publications:

1. **Waterman, R.** (2025). Beyond resistance, why is horseweed a headache for managers? *Michigan State Extension News*. <https://www.canr.msu.edu/news/beyond-resistance-why-is-horseweed-a-headache-for-managers>
2. Rutkoski, C., Scamehorn, T., **Waterman, R.**, Klotz, M., Zettlemoyer, M. (2023). Nature Journaling: Sharing Perspectives Between Art and Science. *Plant Science Bulletin*, 69(3), 219-220. Special Issue: "Art in the Botanical Sciences". <https://www.botany.org/psbarchive/issue/2023-v69-3.html>
3. **Waterman, R.** (2018). Selection Perception: Views on the Theory of Evolution Among Residents of Moshi, Tanzania. *School for International Training Independent Study Project (ISP) Collection*. https://digitalcollections.sit.edu/isp_collection/3077

K-12 Science Outreach

Jan. 2022 – Mar. 2025

- Engaged K-12 students with current science topics and science careers through classroom visits, career fairs, lesson plans, webinars, and field trips

EEB Collaborative Research Group, Member

Aug. 2021 – Apr. 2023

- Conducted scholarly research on bias against underrepresented groups in academia

DEI, Mentorship, & Community Engagement Training

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| • MSU Community Engagement Workshops (40 hrs) | Sept 2022-May 2022 |
| • KBS Career Pathways seminars on workplace climate, mentoring, and fieldwork safety (6 hrs) | Summer 2023 |
| • KBS mentoring and inclusive interviewing/hiring trainings (3 hrs) | Summer 2021 & 2022 |
| • KBS Cultural Intelligence Workshop (1.5 hrs) | Feb 23, 2022 |
| • MSU Dialogues on Race: 9-week intergroup dialogue experience (1.5 hrs/week) | Spring 2021 |