

Amber Fredenburg

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Academic History

The Ohio State University, Columbus, Ohio

B.Sc. Zoology (May 2018), GPA: 3.31

Lakehead University, Thunder Bay, Ontario

M.Sc. Forestry (September 2020), GPA: 94

Thesis: Diversity, phenology, and host associations of wild bees (Hymenoptera: Anthophila) in Thunder Bay, Ontario

The Ohio State University, Columbus, Ohio

Ph.D. Evolution, Ecology, and Organismal Biology (August 2021-Present), GPA 4.0

Dissertation: Digging deeper: Unearthing the resource requirements of ground-nesting bees

Graduate Minor in Policy, GPA 4.0

Professional Experience

Evolution, Ecology, and Organismal Biology Department, Ohio State University, Columbus, Ohio

Research Associate: Ohio Bee Survey and Specialist Bee Project (Jan 2022-Aug 2022; Jan 2023-Aug 2023; Jan 2024-Aug 2024, Jan 2025-Present)

Evolution, Ecology, and Organismal Biology Department, Ohio State University, Columbus, Ohio

Teaching Associate: Ecology (Aug 2022-Dec 2022)

Teaching Associate: Organismal Diversity (Aug 2023-Dec 2023; Aug 2024-Dec-2024)

Center for Life Sciences Education, Ohio State University, Columbus Ohio

Teaching Associate: Biological Sciences: Form, Function, Diversity, and Ecology (Aug 2021-Dec 2021)

Department of Natural Resources Management, Lakehead University, Thunder Bay, Ontario

Graduate Teaching Associate: Forest Entomology (Jan 2020-May 2020)

Graduate Teaching Associate: Population Ecology (Sept 2019-December 2019)

Evolution, Ecology, and Organismal Biology Department, Ohio State University, Columbus, Ohio

Research Assistant: Pumpkin Pollinator Project (November 2017 - May 2018) *Research*

Assistant: Survey of Ohio's Bumble Bees (May 2018 - Sept 2018)

Publications

Fredenburg, A. N., J. Gibbs, and D. C. Henne. 2021. *A survey of wild bees (Hymenoptera: Anthophila) and their floral associations in Thunder Bay, Ontario*. Journal of the Kansas Entomological Society. 93(3): 211-229.

Fredenburg, A. and K. Goodell. 2025. *Soil sanctuaries: Experimental manipulations enhance ground-nesting bee habitat*. (in review)

Fredenburg, A. and K. Goodell. 2025. *The Role of Nesting Resources on Specialist Bee Populations and the Bee Community* (in prep)

Goodell, K., Spring, M., Fredenburg, A., and Semler, M. *The bees of Ohio: using statewide survey data to strategize future monitoring* (in prep)

Presentations and Posters

- *Bee responses to resources depend on ecological scale
- *Exploring the Link Between Soil Characteristics and the Bee Community Across Ohio, by Amber Fredenburg with Karen Goodell, Poster, Natural Resource Research and Management Symposium, Cleveland, Ohio, 2024

- ***Enhancing the nesting habitat for ground-nesting bees**, by Amber Fredenburg with Karen Goodell, **Invited Symposium Speaker**, Entomological Society of America, Phoenix, Arizona 2024
- **The Ohio Bee Survey: species checklist and planning future monitoring**. Karen Goodell. MaLisa Spring, Amber Fredenburg, Matthew Semler, Andrea Fettes Fogarty. Invited Oral Presentation, Natural Resource Research and Management Symposium, Cleveland, Ohio, 2024
- **Optimizing wild bee surveys for conservation management: a comparison of survey methods**. Karen Goodell, Amber Fredenburg, Matthew Semler, MaLisa Spring. Entomological Society of America, Phoenix, Arizona 2024
- ***Documenting specialist bee diversity and factors that influence their distributions in Ohio**, by Amber Fredenburg, MaLisa Spring, and Karen Goodell, Ohio Natural History Conference, Cincinnati, Ohio, 2023
- **Native and non-native thistle (*Cirsium* spp.) support many generalists, but fewer specialist bees**, by Noma Semler with MaLisa Spring, Amber Fredenburg, and Karen Goodell, Ohio Invasive Plant Research Conference, Columbus, Ohio, 2023
- ***The role of nesting resources on bee abundance at host plant patches**, by Amber Fredenburg with MaLisa Spring and Karen Goodell, Entomological Society of America (P-IE Pollinator Ecology 2nd place), National Harbor, Maryland, 2023
- **Lessons from the Ohio Bee Survey: Analysis of pan traps and suggestions for improving specimen richness while limiting specimen numbers**, by Karen Goodell with MaLisa Spring and Amber Fredenburg, Entomological Society of America, National Harbor, Maryland, 2023
- **Role of midwestern USA forests in supporting bee populations**, by Karen Goodell with MaLisa Spring, Cheyenne Helton and Amber Fredenburg, Entomological Society of America, 2022
- ***Native bee composition and diversity at three sites in Thunder Bay, Ontario**, Lakehead University Graduate Studies Thesis Presentations, Thunder Bay, Ontario, Canada, 2020
- ***Biodiversity of native bees at three sites in Thunder Bay, Ontario**, Graduate Studies Research Conference Poster Competition (Winner), Thunder Bay, Ontario, Canada, 2020

Undergraduates Mentored

Ohio State University

Abby Subler, *Specialist Bee Project* (2024-present)

Rex Harvey-Thurston, *Ground-Nesting Plot Project* and *Specialist Bee Project* (2023-present)

Noma Semler, *Specialist Bee Nesting Project* (2022-2023)

Vanessa Chilcoat, *Diversity and Distribution of Asilidae of Ohio* (2022)

Lakehead University

Alena Albertson-Kok, *Diversity of Saproxyllic Beetles in Thunder Bay, ON* (2019-2020)

Outreach

- **Science Olympiad Entomology B**, (October 2024-April 2025), wrote the Entomology exam with a team of co-authors from Ohio State University for middle school and high school students participating in Science Olympiad 2025.
- **Franklin County Pollinator Pathways**, Franklin Soil and Water Conservation, Columbus, Ohio (6/6/2024), invited as a guest bee expert for a gathering of representatives, conservation groups, advocacy groups, and other organizations to discuss how to create more and less fragmented native pollinator habitat in Franklin County.
- **FLOW Webinar: Creating habitat for our native ground-nesting bees**, Friends of the Lower Olentangy Watershed, Columbus, Ohio (5/20/2024), leading a webinar for members and anyone interested in creating ground-nesting bee habitat.
- **FLOW Science Board Meeting**, Friends of the Lower Olentangy Watershed, Columbus, Ohio (1/8/2024), discuss research results with the science committee of FLOW and discuss ways to improve pollinator gardens for nesting bees.

- **Native Bees and Where They Nest**, Beecoming Home, The Bee Collective, Columbus, Ohio (9/9/2023), engage the public with information about native bee nesting at a collaborative art and science event.
- **Science Day at Parkmoor Elementary School**, Scientific Thinkers, Ohio State University (12/8/2022), lead volunteer instructor for a strawberry DNA removal experiment in 3rd grade classrooms.
- **Bees, I Love Them, and You Should Too**, presentation to engage K-12 students in the importance of bee conservation, Driscoll Elementary, Centerville City Schools, Centerville, Ohio, (4/15/2020), Fredrick Douglas Elementary, Cincinnati City Schools, Cincinnati, Ohio (5/4/2023)

Professional Service

Journal of Insect Conservation – Reviewer (2025, 1 manuscript)

Journal of Applied Ecology – Reviewer (2024, 2 manuscripts)

Journal of Restoration Ecology – Reviewer (2022-2023, 2 manuscripts)

Ecology and Evolution – Reviewer (2022, 1 manuscript)

Grants Received

2021 ENGIE-Axiom Research Incentive Recruitment Scholarship Award. \$5,000.

2023 Garden Club of America Pollinator Fellowship. \$4,000.

References

Karen Goodell, Ph.D.,

Professor, Ohio State University, Evolution, Ecology, and Organismal Biology

Contact: Goodell.18@osu.edu

Steve Hovick, Ph.D.

Professor, Ohio State University, Evolution, Ecology, and Organismal Biology

Contact: Hovick.2@osu.edu

Frances Sivakoff, Ph.D.

Professor, Ohio State University, Evolution, Ecology, and Organismal Biology

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