

# Brooke E. Propson

<https://bpropson.wixsite.com/brookepropson>

ORCID: 0000-0001-8426-8300

1525 Observatory Dr. Madison, WI 53706

[bpropson2@wisc.edu](mailto:bpropson2@wisc.edu) | (248) 425-5614

## Education

- 
- 2021-present Ph.D., University of Wisconsin-Madison: Soil Science (*estimated May 10<sup>th</sup>, 2026*)  
Advisor: Zac Freedman – Committee: Alfred Hartemink, Erika Marín-Spiotta, Thea Whitman  
*Dissertation title: Climate change impacts on forest biogeochemistry: linking microbial structure and function to ecosystem-level carbon and nitrogen fluxes.*
- 2015-2019 B.S., University of Michigan: Ecology and Evolutionary Biology

## Appointments

- 
- 2021-present National Science Foundation Graduate Research Fellow (NSF-GRF).  
2021-2023 Graduate Research Assistant. University of Wisconsin-Madison.  
2021 Analytical Chemist. University of Michigan Biological Station.  
2019-2021 Research Assistant. Nadelhoffer Lab. University of Michigan Biological Station.  
2018 NSF-REU Fellow. University of Massachusetts-Boston.  
2017 Undergraduate Researcher. University of Michigan.

## Grants and Fellowships (Total = \$169,000)

---

2026	\$1,500	Lee Sommers Graduate Education Fund Travel Grant
2024	\$1,000	William A. Rothermel Soil Science Fund Travel Grant
2023	\$1,000	Lee Sommers Graduate Education Fund Travel Grant
2023-2024	\$3,500	O.N. Allen Soil and Environmental Microbiology Small Grant
2022	\$1,000	Charles and Alice Ream Soil & Water Protection Travel Grant
2021-2026	\$155,000	NSF Graduate Research Fellowship (NSF-GRF)
2019	\$1,000	ASLO Multicultural Program Travel Grant
2018	\$5,000	NSF-REU Fellowship, University of Massachusetts, Boston

## Peer-Reviewed Publications

### Published & in press

3. Nave, L.E., Gough, C.M., Clay, C., Santos, F., Atkins, J.W., Benjamins-Carey, S., Bohrer, G., Castillo, B., Fahey, R.T., Hardiman, B.S., Hofmeister, K.L., Ivanov, V.Y., Kalejs, J., Matheny, A.M., Menna, A.C., Nadelhoffer, K.J., **Propson, B.E.**, Schubel, A., Tallant, J. (2025). Carbon cycling across ecosystem succession in a north temperate forest: Controls and management implications. *Ecological Applications*. 35(1): e70001  
<https://doi.org/10.1002/eap.70001>
2. **Propson, B.E.**, Zak, D.R., Classen, A.T., Burton, A.J., Freedman, Z.B. (2024). Gains in soil carbon storage under anthropogenic nitrogen deposition are rapidly lost following its cessation. *Ecology*. 105(11): e4444  
<https://doi.org/10.1002/ecy.4444>

1. Clay, C., Nave, L.E., Nadelhoffer, K.J., Vogel, C., **Propson, B.E.**, Den Uyl, J., Hickey, L.J., Barry, A., Gough, C.M. (2022). Fire after clear-cut harvesting minimally affects the recovery of ecosystem carbon pools and fluxes in a Great Lakes forest. Forest Ecology and Management 519:120301.

<https://doi.org/10.1016/j.foreco.2022.120301>

#### In review/revision

1. **Propson, B.E.**, Argiroff, W.A., Cagle, G.A., Upchurch, R.A., Zak, D.R., Grandy, A.S., Freedman, Z.B. Anthropogenic nitrogen deposition restructures decomposing microbial communities, altering SOM molecular composition, but not molecular complexity or diversity. In revision for *npj Soil Ecology*.

<https://doi.org/10.1101/2025.10.21.683748>

#### In preparation

1. **Propson, B.E.**, Zak, D.R., Stevenson, A.R., Klier, K.M., Cagle, G.A., and Freedman, Z.B. Metatranscriptomic mechanisms mediating soil carbon storage in response to declining levels of anthropogenic nitrogen deposition. In preparation for *Soil Biology and Biochemistry*.

#### Awards and Honors

- 2025 Jaya Iyer Award for best graduate student seminar

Awarded for: *The biogeochemistry of carbon at the University of Michigan Biological Station: A story of forest carbon through time.*

#### Oral Presentations

5. **Propson, B.E.** (2025). *The biogeochemistry of carbon at the University of Michigan Biological Station: A story of forest carbon through time.* Doctoral Departmental Seminar. UW-Madison Department of Soil and Environmental Sciences.
4. **Propson, B.E.**, Zak, D.R., Classen, A.T., Burton, A.J., and Freedman, Z.B. (2024). *Gains in soil carbon storage under anthropogenic nitrogen deposition are rapidly lost following its cessation.* Soil Ecology Society Biennial Meeting.
3. **Propson, B.E.** (2023). *Climate change impacts on forest biogeochemistry: linking microbial structure and function to ecosystem-level carbon and nitrogen fluxes.* Doctoral Prospectus Seminar. UW-Madison Department of Soil Science.
2. **Propson, B.E.** (2023). *Assessing ecosystem-level response to recovery from historically high rates of anthropogenic nitrogen deposition.* UW-Madison Center for Ecology and the Environment Research Symposium.
1. **Propson, B.E.**, Cagle, G.A., Zak, D.R., Upchurch, R.A., Freedman, Z.B. (2022). *Assessing the effect of nitrogen deposition and climatic variation on soil organic matter (SOM) chemistry in northern hardwood forests.* Soil Science Society of America Meeting.

#### Poster Presentations

7. **Propson, B.E.**, Klier, K.M., Stevenson, A.R., Classen, A.T., Burton, A.J., Zak, D.R., and Freedman, Z.B. (2025). *Legacy effects of anthropogenic nitrogen on microbial*

- mechanisms mediating soil carbon storage*. American Geophysical Union Annual Meeting. [[Link to 2025 AGU iPoster.](#)]
6. **Propson, B.E.**, Argiroff, W.A., Cagle, G.A., Upchurch, R.A., Zak, D.R., Grandy, S.A., and Freedman, Z.B. (2024). *Exploring the effect of nitrogen deposition on the trajectory of organic matter decomposition and its relationship with saprotrophic microbes*. American Geophysical Union Annual Meeting. [[Link to 2024 AGU iPoster.](#)]
  5. **Propson, B.E.**, Argiroff, W.A., Cagle, G.A., Upchurch, R.A., Zak, D.R., Grandy, S.A., and Freedman, Z.B. (2023). *Assessing relationships between soil organic matter (SOM) chemistry and microbial diversity with implications for carbon storage in a changing climate*. American Geophysical Union Annual Meeting.
  4. Clay, C., Nave, L.E., Nadelhoffer, K.J., Den Uyl, J., **Propson, B.E.**, Gough, C.M. (2021). *Net ecosystem production is similar across disturbance types in a century old North American eastern temperate forest chronosequence*. American Geophysical Union Annual Meeting.
  3. Clay, C., Nave, L.E., Nadelhoffer, K.J., Den Uyl, J., **Propson, B.E.**, Gough, C.M. (2020). *Net ecosystem production across successional time in a North American eastern temperate forest chronosequence*. American Geophysical Union Annual Meeting.
  2. **Propson, B.E.**, Hofmeister, K.L., Nadelhoffer, K.J., Den Uyl, J., Nave, L.E. (2020). *The Adaptive Aspen Management Project (AAME)*. University of Massachusetts, Boston Earth Day Symposium.
  1. **Propson, B. E.**, Dimino, T., McCanty, S.T., and Christian, A.D. (2019). *Assessing biodiversity responses to a headwater stream restoration project*. Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting. 2019.

### Teaching Experience

---

2023	Guest Lecturer. SOIL SCI 323: <i>Soil Biology</i> , UW-Madison
2022	Teaching Assistant. SOIL SCI 132: <i>Earth's Water</i> , UW-Madison
2021	Teaching Assistant. EEB 348: <i>Forest Ecosystems</i> , UofM Biological Station
2020-2021	Teaching Assistant. EEB 381: <i>General Ecology</i> , UofM Biological Station

### Mentorship Experience

---

#### University of Wisconsin-Madison

2024	Eden Milan, B.S. student, Freedman Lab research assistant
2023	Ella DeRosier, B.S. student, BIO 152 independent research project
2022-2024	Emily Sautebin, B.S. student, Freedman Lab research assistant
2022-2023	Jeremy Fleck, B.S. student, Freedman Lab research assistant

*Current: Ph.D. student at University of Colorado, Denver: Immunology*

#### Extramural mentorship

2024-2025	Jae Robinson, B.S., EEB Mentor Match Program <i>Current: Ph.D. student at UC-Irvine: Ecology and Evolutionary Biology (Advisor: Dr. Steve Allison), 2025 National Science Foundation Graduate Research Fellow (NSF GRF)</i>
2023-2026	Annie Cress, B.S. student, University of Michigan Biological Station <i>Current: Ph.D. student at UT-Austin: Integrative Biology (Advisor: Dr. Amanda Koltz)</i>
2022-2025	Katie Ann Huy, A.S., B.S., EEB Mentor Match Program

*Current: Ph.D. student at Stanford University: Earth System Science (Advisor: Dr. Scott Fendorf),  
2025 National Science Foundation Graduate Research Fellow (NSF GRF)*

## Media Coverage

---

**Phys.org** press release, print coverage of Nave et al. 2025 Ecological Applications “Time is not the driving influence of forest carbon storage, study finds” (published 18 March 2025) [\[link\]](#)

**Badger Science Explained**, interviewed for and participated in video coverage of Propson et al. 2024 Ecology produced by UW-Madison office of science communication and posted by the UW-Madison official Instagram account (published 24 February 2025) [\[link\]](#)

**Ecological Society of America** press release, print coverage of Propson et al. 2024 Ecology “Battling air pollution may contribute to climate change” (published 7 November 2024) [\[link\]](#)

**Flying Intuition Podcast**, interview on life as a Ph.D. student (published 18 August 2023) [\[link\]](#)

## Society Memberships

---

Ecological Society of America (ESA)	American Geophysical Union (AGU)
Soil Ecology Society (SES)	

## Synergistic and Volunteer Activities

---

2025-present	Reviewer: <i>Biogeochemistry</i>
2024-present	UW-Madison Center for Ecology and the Environment graduate student rep.
2024	Reviewer. O.N. Allen Soil & Environmental Microbiology Small Grants Program
2022-2024	Soil Science Department Graduate Student Council (graduate student-faculty liaison; council founder)
2022-2023	Madison Area Technical College STEM seminar speaker (once/semester)
2021-2023	Wisconsin Science Festival: Science on the Square volunteer (annually in fall)
2021	NSF Graduate Research Fellowship panelist. UW-Madison NSF GRF workshop

## References

---

Dr. Zac Freedman

*Assistant Professor, O.N. Allen Professor of Soil Microbiology, University of Wisconsin-Madison*

Relation: Ph.D. advisor (2021-)

608-262-9018

zfreedman@wisc.edu

Dr. Aimée Classen

*Director, University of Michigan Biological Station*

*Professor, University of Michigan, Ann Arbor*

Relation: Supervisor (2020-2021), Collaborator (2021-)

734-763-4461

aclassen@umich.edu

Dr. Lucas Nave

*Research Associate Professor, Michigan Technological University*

Relation: Research assistant (2019-2021), Collaborator (2021-)

906-482-6303 x1319

lenave@mtu.edu

Dr. Erika Marín-Spiotta

*Professor, University of Wisconsin-Madison*

Relation: Ph.D. committee member (2021-)

608-262-1855

marinspiotta@wisc.edu