

Alexandra Huddell
Department of Plant and Soil Sciences
University of Delaware
Newark, DE 19716
email: ahuddell@udel.edu | phone: (302) 831-0326

EDUCATION

2016 - 2021 Ph.D., Ecology, Evolution, and Environmental Biology, Columbia University
2008 - 2011 B.A., Economics and B.A. in International Studies, American University

PROFESSIONAL EXPERIENCE

9/2023 - present Assistant Professor of Agroecology/Sustainable Crop Production Systems,
Department of Plant and Soil Sciences, University of Delaware
4/2022 – 8/2023 Postdoctoral Fellow, *Environmental Science & Technology, University of
Maryland*
5/2021 – 4/2022 Postdoctoral Fellow, *U.S. Environmental Protection Agency, Region 2*

PUBLICATIONS

10. Huddell, Alexandra M., et al. *Influence of Topography and Soil Data on Cover Crop Performance in the Choptank Watershed. (In prep).*

9. Huddell, Alexandra M.*, et al. Early-season biomass and weather enable robust cereal rye cover crop biomass predictions. (Submitted).

8. Huddell, Alexandra M.*, Resham Thapa, Steven B. Mirsky, Brian Needelman. U.S. cereal rye winter cover crop growth database. (*In review*).

7. Huddell, Alexandra M.*, Adam Fisher, James W. Ammerman, Mark Tedesco. A Dynamic, Open Science Tool Quantifying Point Source N loading to the Long Island Sound. (*In prep*).

6. Helms, Alexa, Alexandra M. Huddell [§], Wenying Liao, Anika P. Staccone, Brendan M. Buckley, William S. F. Schuster, and Duncan N. L. Menge. *Robinia pseudoacacia*, a nitrogen-fixing tree, facilitates the future growth of neighboring trees in Black Rock Forest. (*In review*).

5. Menge, Duncan N. L., Amelia A. Wolf, Thomas A. Bytnerowicz, Sian Kou-Giesbrecht, Palani R. Akana, Kathleen A. C. Pereira, Rachel Arkebauer, Alexandra M. Huddell [§], Jennifer L. Funk, and Steven S. Perakis. Field experiments reveal sustained nitrogen fixation despite excess soil nitrogen supply in six tree symbioses. *Ecological Monographs*. 2022. e1562. <https://doi.org/10.1002/ecm.1562>

4. Huddell, Alexandra M. *, Maria Ernfors, Timothy Crews, Giulia Vico, and Duncan Menge. Fate of ¹⁵N fertilizer and nitrate leaching losses in perennial and annual wheat—a field study. *Science of the Total Environment*. 857(2023): 159255. <https://doi.org/10.1016/j.scitotenv.2022.159255>

3. Huddell, Alexandra M. *, Christopher Neill, Cheryl A. Palm, Darlisson Nunes, and Duncan N. L. Menge. “Anion Exchange Capacity Explains Deep Soil Nitrate Accumulation in Brazilian Amazon

Croplands.” *Ecosystems*. 2022. <https://doi.org/10.1007/s10021-022-00747-8>. (Related blog post [here](#)).

2. Huddell, Alexandra M. *, Christopher Neill, Leonardo Maracahipes-Santos, and Duncan N. L. Menge. Nitric and nitrous oxide fluxes from intensifying crop agriculture in the seasonally dry tropical Amazon-Cerrado border region. *Agrosyst Geosci Environ*. 2021; 4:e20169. <https://doi.org/10.1002/agg2.20169>

1. Huddell, Alexandra M. *, Gillian L. Galford, Katherine L. Tully, Cynthia Crowley, Cheryl A. Palm, Christopher Neill, Jonathan E. Hickman, and Duncan N. L. Menge. “Meta-Analysis on the Potential for Increasing Nitrogen Losses from Intensifying Tropical Agriculture.” *Global Change Biology* 26, no. 3 (2020): 1668–80. <https://doi.org/10.1111/gcb.14951>. (Related popular article [here](#)).

***First author and leader of investigations, § Collaborator**

FELLOWSHIPS, GRANTS AND AWARDS

| | |
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| 2022 | Don Jay Melnick Award <i>Recognizes outstanding dissertation work and other departmental activities</i> |
| 2015 - 2021 | Columbia University Dean’s Fellow |
| 2016 - 2020 | NSF Graduate Research Fellowship \$138,000 |
| 2019 | Malone Family Land Preservation Foundation and the Land Institute \$20,973 |
| 2018, 2019 | NSF Graduate Research Opportunities Worldwide (total) \$10,000 |
| 2018 | Vetenskapsrådet Graduate Research Opportunities Worldwide \$17,000 |
| 2018 | USDA Northeast SARE Graduate Student Research Grant (declined) \$14,813 |
| 2017 | USAID Brazil Research and Innovation Fellowship for Agriculture \$6,500 |
| 2016 – 2018 | Earth Institute Travel Award (total) \$2,250 |
| 2016 | Columbia University Ecology and Evolutionary Biology Dissertation Grant \$3,000 |

SELECTED PRESENTATIONS

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| August 2023 | “Topography and soils influence on cover crop biomass.” Ecological Society of America Meeting, Portland, OR. |
| July 2023 | Needelman, B.A., A.M. Huddell , R. Thapa, J. Jennewein, and S.B. Mirsky. 2023. Integrating Topographic and Soil Survey Analyses into Predictions of Cover Crop Performance in Precision Sustainable Agriculture Models. Sustainable Precision Agriculture in the Era of IoT and Artificial Intelligence, US-Israel Binational Agricultural Research and Development Fund (BARD), Be’er Sheva, Israel. |
| May 2022 | “ <i>Bringing Open Science to the Long Island Sound Study</i> .” Joint Aquatic Sciences Meeting, virtual. |
| May 2022 | “ <i>Near elimination of N leaching by a perennial grain compared to annual wheat</i> .” Invited Seminar, Department of Biosystems and Technology, Swedish University of Agricultural Sciences, Alnarp, Sweden, <i>virtual</i> . |

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| Dec. 2021 | <i>“A Dynamic, Open Science Tool Quantifying Point Source N loading to the Long Island Sound.”</i> American Geophysical Union meeting, virtual. |
| Dec. 2020 | <i>“The fate of ¹⁵N fertilizer and nitrate leaching losses in perennial wheat (<i>Thinopyrum intermedium</i>) versus annual wheat (<i>Triticum aestivum</i>).”</i> American Geophysical Union meeting, virtual. |
| Aug. 2020 | <i>“Nitrate accumulation, nitrate sorption capacity, and anion exchange capacity in Oxisol soils across native forest to intensive cropping gradient in the southeast Amazon.”</i> Ecological Society of America meeting, virtual. |
| May 2019 | Field experiment tour. Is the Future of Agriculture Perennial? meeting, Lund, Sweden. |
| Aug. 2017 | <i>“Nitrogen losses from tropical agroecosystems.”</i> Ecological Society of America meeting, Portland, OR. |
| May 2017 | <i>“NO emissions from maize fields in Mato Grosso, Brazil.”</i> Intensification of the world’s largest agriculture frontier: reconciling agricultural production and environmental integrity in a changing climate meeting, Brasília, Brazil. |
| June 2015 | <i>“The N-fixing Tree Robinia pseudoacacia maintains higher physiological activity and chlorophyll content at the end of growing season compared to neighboring non-fixers in a northeastern deciduous forest.”</i> Black Rock Forest Research Symposium, Cornwall, NY. |

TEACHING EXPERIENCE

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| Spring 2022 | Instructor of Record, Food, Ecology, and Globalization, Columbia University, NY |
| Summer 2021, 2022 | Co-lead instructor, Environmental Justice and Urban Ecology Summer Research Program <i>Led (2021) water quality research project with nine high school students (featured here); guest instructor and mentor to Ph.D. student leaders (2022)</i> |

MENTORSHIP EXPERIENCE

- Mentored Ph.D. students who led water quality portion of the Environmental Justice and Urban Ecology Summer Research Program (Columbia University and Washington Heights Expeditionary Learning School) (*Spring and Summer 2022*)
- Mentored undergraduate, Sharothy Mahmud in research project on water quality and forest degradation (*Fall 2020*)
- Hired, trained, managed, and mentored two research assistants Louise Rehnström, Chris Forsythe (*2019-2020*)
- Mentored undergraduate student, Eleanor Pressman in research internship doing a literature review, funded by the Earth Institute at Columbia University, (*Spring 2017*)

SERVICE, OUTREACH, AND SCIENCE COMMUNICATION

- Co-founder of “Environmental Justice and Urban Ecology Summer Research Program” where we raised funds, planned, and managed a six-week research program alongside partners at the New York Restoration Project and the Washington Heights Expeditionary School in NYC. See the final presentations [here](#)
- Joint Aquatic Sciences Meeting in Grand Rapids, Michigan session co-organizer: “Open Science for Collaborative Management of Aquatic Ecosystems”
- Reviewer for Global Change Biology, Frontiers in Sustainable Food Systems, Soil Use and Management, and Geoderma
- Volunteer, Columbia University, Department of Ecology, Evolution, and Environmental Biology committee on scientific outreach to the community; 2020-2021
- Helped Carla Cantor with the article: “Growing Nitrogen Footprint Threatens Our Air, Water and Climate,” March 2020, Columbia News featured [here](#)
- Volunteer mentor to high school student on college readiness, iMentor, 2016-2019