

Alexandra Huddell

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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

EXPERIENCE

Apr. 2022 - present Postdoctoral Fellow, *Environmental Science & Technology, University of Maryland*
May 2021 - Apr. 2022 Postdoctoral Fellow, *U.S. Environmental Protection Agency, Region 2*
Jan. 2016 - Aug. 2016 Research Assistant, *Dr. Gillian Galford's lab, University of Vermont*
May 2015 - Aug. 2015 Research Assistant, *Dr. Duncan Menge's lab, Columbia University*
May 2011 - Jan. 2014 Program Specialist, *Sudan & South Sudan Office, U.S. Agency for International Development*
Jan. 2014 - Nov. 2014 Cost Analyst, *West and Southern Africa, TechnoServe*

PUBLICATIONS

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

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

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> .
Dec. 2021	“ <i>A Dynamic, Open Science Tool Quantifying Point Source N loading to the Long Island Sound.</i> ” American Geophysical Union meeting, <i>virtual</i> .
Dec. 2020	“ <i>The fate of ¹⁵N fertilizer and nitrate leaching losses in perennial wheat (Thinopyrum intermedium) versus annual wheat (Triticum aestivum).</i> ” American Geophysical Union meeting, <i>virtual</i> .
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, <i>virtual</i> .
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 “*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.*” Black Rock Forest Research Symposium, Cornwall, NY.

TEACHING EXPERIENCE

Spring 2022 Instructor of Record, Food, Ecology, and Globalization, Columbia University, NY

Summer 2021, Co-lead instructor, Environmental Justice and Urban Ecology Summer Research
2022 Program
Led (2021) water quality research project with nine high school students (featured [here](#)); guest instructor and mentor to Ph.D. student leaders (2022)

Spring 2020 Teaching Assistant, Conservation Policy, Dr. Sara Kross, Columbia University, NY
Graded assignments and provided feedback on oral assignments and participation in class

Spring 2019 Teaching Assistant, Statistical Modeling, Dr. Evan Eskew, Columbia University, NY
Provided one-on-one instruction for students during lab section and graded assignments

Fall 2017 Teaching Assistant, Ecosystem Ecology and Global Change, Dr. Duncan Menge, Columbia University, NY
Developed curriculum for and led discussion sections; lectured on nitrogen losses from ecosystems; graded assignments

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*)
- Hired and mentored three interns at the USAID Sudan and South Sudan Program Office (*2013-2014*)

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 and Frontiers in Sustainable Food Systems
- 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
- Volunteer for “Girls Science Day,” Columbia University, 2016

SKILLS

- **Field skills:** Stable isotope techniques, soil greenhouse gas flux measurement, quantifying plant and soil carbon and nitrogen pools, nitrate leaching measurements, soil extraction for ammonium and nitrate concentrations
- **Laboratory skills:** wet chemistry with a discrete analyzer, ion chromatography, gas chromatography, and spectrophotometry
- **Programming skills:** R (advanced); R Shiny (intermediate); Bash (intermediate); Python (intermediate); Google Earth Engine (basic Javascript)
- **Language skills:** Advanced proficiency in Spanish and Portuguese