

Alexandra M. Huddell

New York, NY · (484) 614-0299

<https://huddellecology.com/> · alex.huddell@gmail.com

EDUCATION

Ph.D., Ecology, Evolution, and Environmental Biology, Columbia University, New York, NY, 2021
B.A., Economics and B.A. in International Studies, American University, Washington, DC, 2011

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow, Environmental Science & Technology, U. of Maryland	April 2022- present
ORISE Postdoc Fellow at U.S. Environmental Protection Agency, Region 2	May 2021- April 2022
Research Assistant, University of Vermont, Dr. Gillian Galford	Jan.- Aug. 2016
Research Assistant, Columbia University, Dr. Duncan Menge	May-Aug. 2015
TechnoServe, Cost Analyst, West and Southern Africa, Washington D.C.	Jan.-Nov. 2014
Economic Growth Program Specialist, Sudan and South Sudan Program Office, Bureau for Africa, U.S. Agency for International Development (USAID), Washington D.C.	May 2011 – Jan. 2014

FELLOWSHIPS, GRANTS AND AWARDS

Fellowships:

- National Science Foundation Graduate Research Fellowship 2016-2020 **\$138,000**
- Columbia University Dean's Fellow 2015-2021

Grants:

- Malone Family Land Preservation Foundation and the Land Institute 2019 **\$20,973**
- National Science Foundation Graduate Research Opportunities Worldwide 2019 **\$5,000**
- National Science Foundation Graduate Research Opportunities Worldwide 2018 **\$5,000**
- Vetenskapsrådet Graduate Research Opportunities Worldwide 2018 **\$17,000**
- USDA Northeast SARE Graduate Student Research Grant (*declined*) **\$14,813**
- USAID Brazil Research and Innovation Fellowship for Agriculture 2017 **\$6,500**
- Earth Institute Travel Award Fall 2016, 2017 and 2018 **\$2,250 total**
- Columbia University Ecology and Evolutionary Biology Dissertation Grant 2016 **\$3,000**

Awards:

- Don Jay Melnick Award 2022
 - Named in honor of one of the founders of the Columbia University Department of Ecology, Evolution, and Environmental Biology, the Melnick Award recognizes outstanding dissertation work and other departmental activities

PUBLICATIONS

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*).

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. (*Submitted*).

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*).

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. (*In prep*).

Liao, Wenying, Adefunke Sonaike, **Alexandra M. Huddell**, Matthew I. Palmer, Kevin L. Griffin. “Symbiotic nitrogen-fixing tree species *Robinia pseudoacacia* maintain similar photosynthesis but re-absorb less foliar nitrogen during leaf senescence in a temperate deciduous forest.” (*In prep*).

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](#)).

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>

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](#)).

SELECTED PRESENTATIONS

- “Bringing Open Science to the Long Island Sound Study.” *Joint Aquatic Sciences Meeting*, virtual, May 2022.
- Near elimination of N leaching by a perennial grain compared to annual wheat". *Invited Seminar*, ³Department of Biosystems and Technology, Swedish University of Agricultural Sciences, Alnarp, Sweden. May 2022.
- “A Dynamic, Open Science Tool Quantifying Point Source N loading to the Long Island Sound.” *American Geophysical Union meeting*, virtual, December 2021
- “The fate of ¹⁵N fertilizer and nitrate leaching losses in perennial wheat (*Thinopyrum intermedium*) versus annual wheat (*Triticum aestivum*).” *American Geophysical Union meeting*, virtual, December 2020
- "Nitrate accumulation, nitrate sorption capacity, and anion exchange capacity in Oxisol soils

across native forest to intensive cropping gradient in the southeast Amazon." *Ecological Society of America meeting*, virtual, August 2020

- Field experiment tour. *Is the Future of Agriculture Perennial?* meeting, Lund, Sweden, May 2019
- "Nitrogen losses from tropical agroecosystems." *Ecological Society of America meeting*, Portland, OR, August 2017
- "NO emissions from maize fields in Mato Grosso, Brazil." *Intensification of the world's largest agriculture frontier: reconciling agricultural production and environmental integrity in a changing climate meeting*, Brasília, Brazil, May 2017
- "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*, New York, NY, June 2015

TEACHING EXPERIENCE

- Food, Ecology, and Globalization, *Spring 2022*, Instructor of Record, Columbia University, NY
- Led water quality research project with nine high school students for 2021 Environmental Justice and Urban Ecology Summer Research Program
Featured here: <https://scienceandsociety.columbia.edu/news/exploring-environmental-justice-high-school-classroom>
- Conservation Policy, *Spring 2020*, Dr. Sara Kross, Columbia University, NY
Graded assignments and provided feedback on oral assignments and participation in class
- Statistical Modeling, *Spring 2019*, Dr. Evan Eskew, Columbia University, NY
Provided one-on-one instruction for students during lab section and graded assignments
- Ecosystem Ecology and Global Change, *Fall 2017*, Dr. Duncan Menge, Columbia University, NY
Developed curriculum for and led discussion sections; lectured on nitrogen losses from ecosystems, graded assignments

MENTORSHIP EXPERIENCE

- Mentored undergraduate, Sharothy Mahmud, Fall 2020, in research project on water quality and forest degradation
- Mentored undergraduate student, Eleanor Pressman, Spring 2017, in research internship doing a literature review, funded by the Earth Institute at Columbia University
- Hired and mentored three interns, 2013-2014, at the USAID Sudan and South Sudan Program Office

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:* <https://www.youtube.com/watch?v=QrT4AlpcmL4>
- Joint Aquatic Sciences Meeting in Grand Rapids, Michigan session co-organizer: “Open Science for Collaborative Management of Aquatic Ecosystems”
- Reviewer for *Global Change Biology*
- 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: <https://news.columbia.edu/news/nitrogen-pollution-industrial-agriculture-air-water-climate-change>
- Volunteer mentor to high school student on college readiness, iMentor, 2016-2019
- Volunteer for “Girls Science Day,” Columbia University, 2016

TECHNICAL COMPETENCIES

- **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; R Shiny, Git; Google Earth Engine, geospatial analysis
- **Language skills:** Advanced proficiency in Spanish and Portuguese

REFERENCES

Dr. Duncan N. L. Menge (Ph.D. adviser)
Department of Ecology, Evolution, and Environmental Biology, Columbia University
Phone: (212) 854-6889
Email: dm2972@columbia.edu

Dr. Christopher Neill (Ph.D. committee member)
Woodwell Climate Research Center
Phone: (508) 444-1559
Email: cneill@woodwellclimate.org

Dr. Timothy Crews (Ph.D. committee member)
The Land Institute
Phone: (785) 376-0596
Email: crews@landinstitute.org