

Sarah A. Batterman

Curriculum vitae

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Updated 24 September 2024

PROFESSIONAL APPOINTMENTS

2021 – present	Associate Scientist, Cary Institute of Ecosystem Studies, New York, U.S.A.
2020 – 2021	Assistant Scientist, Cary Institute of Ecosystem Studies, New York, U.S.A.
2018 – present	Associate Professor, School of Geography, University of Leeds, U.K.
2017 – present	Research Associate, Smithsonian Tropical Research Institute, Panama
2015 – 2021	Natural Environment Research Council Independent Research Fellow, School of Geography, University of Leeds, U.K.
2018 – 2020	Research Fellow, Cary Institute of Ecosystem Studies, New York, U.S.A.
2015 – 2017	University Academic Fellow in Tropical Ecology and Global Change, School of Geography, University of Leeds, U.K.
2014 – 2015	Carbon Mitigation Initiative Young Investigator, Department of Ecology and Evolutionary Biology and Princeton Environmental Institute, Princeton University
2013 – 2014	Postdoctoral Research Associate, Department of Ecology and Evolutionary Biology, Princeton University

EDUCATION

2013	Ph.D.	Department of Ecology and Evolutionary Biology, Princeton University
2009	M.A.	Department of Ecology and Evolutionary Biology, Princeton University
2006	B.A.	Biology, Grinnell College (with honors)
2004		Semester Abroad Program, Organization for Tropical Studies, Costa Rica

GRANTS, HONORS AND AWARDS

Cary Institute of Ecosystem Studies The Lang Assael Family Scientific Innovation Fund
Award for Filters of postfire tree regeneration; a carbon-cycle linchpin in the boreal biome 2023-2024, Co-PI, (\$80,000)

Cary Institute of Ecosystem Studies The Lang Assael Family Scientific Innovation Fund
Award for Symbiotic nitrogen fixation in a world of global change: Is the dominant temperate fixer Robinia pseudoacacia shifting function? 2020-2021, PI, (\$97,000)

Philip Leverhulme Prize in Geography, 2019-2022, (£100,000)

U.K. Natural Environment Research Council Standard Grant New Investigator: How did the evolution of plants, microbial symbionts and terrestrial nutrient cycles change Earth's long-term climate? PI: Benjamin Mills, Co-Is: Katie Field, Sarah Batterman, Simon Poulton, 2019-2022, (£773,042)

U.K. British Council grant, Amazon Resilience at the Forest Transition: AM-TRAN, Grant #275556724, 2017-2019, Co-I, (£54,118)

U.K. Natural Environment Research Council Directed grant, Brazilian Biomes, BIOMes of Brazil – Resilience, rEcology, and Diversity: BIO-ReD, NE/N012542/1, 2016-2019, Co-I. (~£400,000)

U.K. Natural Environment Research Council Independent Research Fellowship, NE/M019497/1, 2015-2020, PI, (£644,623)

Princeton Environmental Institute Carbon Mitigation Initiative Young Investigator Award, 2014-2015 (\$50,000)

Ecological Society of America's Biogeosciences Section Elizabeth Sulzman Outstanding Publication Award for Batterman, et al., *Nature* 2013, 2014 (\$250)
Princeton Environmental Institute Carbon Mitigation Initiative best paper award for Batterman, et al., *Nature* 2013, 2014 (\$5,000)
Organization for Tropical Studies student paper award honorable mention for Batterman, et al., *Nature* 2013, 2014
Dean's Fund for Scholarly Travel, travel grant, Princeton University, 2012
Princeton Energy and Climate Scholars, research grant, Princeton University, 2011
Smithsonian Tropical Research Institute Short Term Fellowship, Panama, 2011
INTERFACE Meeting Participation Award, Iceland, 2011
Sigma Xi Poster Exposition Poster Award, Princeton University, 2011
Princeton Research Symposium Poster Award, Princeton University, 2010
Smithsonian Tropical Research Institute Short Term Fellowship, Panama, 2010
National Science Foundation Graduate Research Fellowship, Honorable Mention, 2009
Graduate Student Fellowship, Princeton University, 2008-2013
Robert May Fellowship, Princeton University, 2007-2008
Summer Independent Research Grant, Grinnell College, 2005
Environmental Studies Internship Grant, Grinnell College, 2004
Trustee Honor Scholarship, Grinnell College, 2002-2006

PUBLICATIONS

Batterman, S. A. and Wurzburger, N. Biological nitrogen fixation. *Chapter in press in the Smithsonian Tropical Research Institute's 100th Anniversary Volume of Research at Barro Colorado Island, Panama.*

Wong, M. Y., Wurzburger, N., Hall, J. S., Wright, S. J., Tang, W. G., Hedin, L. O., Saltonstall, K., van Breugel, M., **Batterman, S. A.** (2024). Trees adjust nutrient acquisition strategies across tropical forest secondary succession. *New Phytologist*.

Wong, M. Y., Wurzburger, N., Hall, J. S., Wright, S. J., Tang, W. G., Hedin, L. O., Saltonstall, K., van Breugel, M., **Batterman, S. A.**, Data and code associated with: Wong, MY, et al. (2024). Trees adjust nutrient acquisition strategies across tropical forest secondary succession. *New Phytologist*. doi: [10.25390/caryinstitute.24088689](https://doi.org/10.25390/caryinstitute.24088689)

Gurung, K., Field, K., **Batterman, S. A.**, Poulton, S. and Mills, B. 2024. Geographic range of plants drives long-term climate change. *Nature Communications*. 15(1), Article 1805.

Biro, A., Wong, M., Zhou, Y., **Batterman, S.**, Staver, A. C. 2024. Nitrogen and phosphorus availability alters tree-grass competition intensity in savannas. *Journal of Ecology*, 112(5), 1026-1038.

Cusack, D., Christoffersen, B. Smith-Martin, C., Andersen, K., Cordeiro, A., Fleischer, K., Wright, S J., Guerrero-Ramirez, N., Lugli, L., McCulloch, L., Sanchez, M., **Batterman, S.**, Dallstream, C., Fortunel, C., Toro, L., Fuchslueger, L., Wong, M., Yaffar, D., Fisher, J., Arnaud, M. Dietterich, L., Addo-Danso, S., Valverde-Barrantes, O. J., Weemstra, M., Ng, J., Norby, R. 2024. Toward a coordinated understanding of hydro-biogeochemical root

functions in tropical forests for application in vegetation models. *New Phytologist*. 242(2), 351–371.

Dobson, A., Hutchinson, M. C. and **Batterman, S. A.** 2023. Plant communities and food webs. *Frontiers in Ecology and Evolution*, 11. Article 1253084.

Barker, W., Comita, L. S., Wright, S. J., Phillips, O. L., Sedio, B. E. and **Batterman, S. A.** 2022. Widespread herbivory cost in tropical nitrogen-fixing tree species. *Nature*, 612: 483–487.

Cleveland, C.C., and 15 other co-authors including **Batterman, S. A.** 2022. Exploring the Role of Cryptic Nitrogen Fixers in Terrestrial Ecosystems: A Frontier in Nitrogen Cycling Research. *Ecosystems*, 25: 1653–1669.

Zhou, Y., Biro, A., Wong, M., **Batterman, S. A.**, Staver, A. C. 2022. Fire decreases soil enzyme activities and reorganizes microbially-mediated nutrient cycles: A meta-analysis. *Ecology*, e3807.

Gurung, K., Field, K. J., **Batterman, S. A.**, Goddérus, Y., Donnadieu, Y., Porada, P., Taylor, L. L. and Mills, B. J. W. 2022. Climate windows of opportunity for plant expansion during the Phanerozoic. *Nature Communications*, 13:4530.

Cusack, D. and 36 other authors including **Batterman, S. A.** 2021. Tradeoffs and synergies in tropical forest root traits for nutrient and water acquisition. *Frontiers in Forests and Global Change*, 161.

Wurzburger, N., **Batterman, S. A.** Nitrogen-fixing symbioses. chapter in A starting guide to root ecology: towards standardization of root classification, sampling, processing and trait measurements. 2021. *New Phytologist*. 232 (3), 973–1122.

Freschet G.T., Pagès L., Iversen C.M., Comas L.H., Rewald B., Roumet C., Klimešová J., Zadworny M., Poorter H., Postma J.A., Adams T.S., Bagniewska-Zadworna A., Bengough A.G., Blancaflor E.B., Brunner I., Cornelissen J.H.C., Garnier E., Gessler A., Hobbie S.E., Meier I.C., Mommer L., Picon-Cochard C., Rose L., Ryser P., Scherer-Lorenzen M., Soudzilovskaia N.A., Stokes A., Sun T., Valverde-Barrantes O.J., Weemstra M., Weigelt A., Wurzburger N., York L.M., **Batterman S. A.**, Gomes de Moraes M., Janeček Š., Lambers H., Salmon V., Tharayil N., McCormack M.L. 2021. A starting guide to root ecology: strengthening ecological concepts and standardizing root classification, sampling, processing and trait measurements. *New Phytologist*. 232 (3), 973–1122.

Epihov, D. Z., Saltonstall, K., **Batterman, S. A.**, Hedin, L. O., Hall, J. S., van Breugel, M., Leake, J. R., Beerling, D. J. Legume–microbiome interactions unlock mineral nutrients in regrowing tropical forests. 2021. *Proceedings of the National Academy of Sciences*, 118 (11):e2022241118.

Kalamandeen, M., Gloor, E., Johnson, I., Agard, S., Katow, M., Vanbrooke, A., Ashley, D., **Batterman, S. A.**, Ziv, G., Collins-Holder, K., Phillips, O. L., Brondizio, E. S., Vieira, I.,

Galbraith, D. 2020. Limited biomass recovery from gold mining in Amazonian forests. *Journal of Applied Ecology* 57(9):1730-1740.

Sullivan, M.J.P., ~100 other authors including **Batterman, S. A.**, Phillips, O. L. 2020. Biome-wide variation in tropical forest carbon stocks and dynamics shows long-term resilience to increasing high temperatures. *Science* 368(6493):869-874.

Levy-Varon, J. H., **Batterman, S. A.**, Medvigh, D. et al. 2019. Tropical carbon sink accelerated by symbiotic dinitrogen fixation. *Nature Communications* 10(1):1-8.

Stanton, D. E., **Batterman, S. A.**, Von Fischer J., and Hedin, L. O. 2019. Rapid nitrogen fixation by canopy microbiome in tropical forest determined by both phosphorus and molybdenum. *Ecology* 100(9):e02795.

O'Sullivan, M., Spracklen, D. V., **Batterman, S. A.**, Arnold, S. A., Gloor, M., Buermann, W. 2019. Have synergies between nitrogen deposition and atmospheric CO₂ driven the recent enhancement of the terrestrial carbon sink? *Global Biogeochemical Cycles*. 33(2):163-180.

Wang, Y., Ziv, G., Adami, M., Mitchard, E., **Batterman, S. A.**, Buermann, W., Marimon, B. S., Marimon Junior, B.H. , Matias Reise, S. M., Rodrigues, D., David Galbraith, D. 2019. Mapping tropical disturbed forests using multi-decadal 30 m optical satellite imagery. *Remote Sensing of Environment*. 221:474-488. doi:10.1016/j.rse.2018.11.028

Batterman, S. A., Hall, J. S., Turner, B., Hedin, L. O., LaHaela Walter, J. K., Sheldon, P. and van Breugel, M. 2018. Phosphatase activity and nitrogen fixation reflect species differences, not nutrient trading or nutrient balance, across tropical rainforest trees. *Ecology Letters*. 21: 1486-1495. doi:10.1111/ele.13129

Batterman, S. A. 2018. Fixing tropical forests. *Nature Ecology and Evolution*. 2: 1059–1060. doi:10.1038/s41559-018-0583-6

Lai, H. R., Hall, J. S., **Batterman, S. A.**, Turner, B. L., van Breugel, M. 2018. Nitrogen fixer abundance has no effect on the biomass recovery during tropical secondary forest succession. *Journal of Ecology*. doi:10.1111/1365-2745.12979

Mills, B.*, **Batterman, S. A.***, Field, K.* 2018. Nutrient acquisition by symbiotic fungi governs Palaeozoic climate transition. *Philosophical Transactions B*. 373. *All authors contributed equally. doi:10.1098/rstb.2016.0503

Menge, D. N. L., **Batterman, S. A.**, Hedin, L. O., Liao, W., Pacala, S., Taylor, B. 2017. Why are nitrogen-fixing trees rare at higher compared to lower latitudes? *Ecology*. 98:3127-3140. doi:10.1002/ecy.2034

Epihov, D., **Batterman, S. A.**, Hedin, L. O., Leake, J. R., Smith, L. M., Beerling, D. J. 2017. N₂-fixing tropical legume evolution: a contributor to enhanced weathering through the Cenozoic? *Proceedings of the Royal Society B* 284(1860) doi:10.1098/rspb.2017.0370

Menge, D. N. L., **Batterman, S. A.**, Liao, W., Taylor, B. N., Lichstein, J. W. and Ángeles-Pérez, G. 2017. Nitrogen-fixing tree abundance in higher-latitude North America is not constrained by diversity. *Ecology Letters*. doi:10.1111/ele.12778

Sheffer, E., **Batterman, S. A.**, Levin, S. A., Hedin, L. O. 2015. Biome-scale nitrogen fixation strategies selected by climatic constraints on nitrogen cycle. *Nature Plants* 1:15182. doi:10.1038/nplants.2015.182

Batterman, S. A., Hedin, L. O., van Breugel, M., Ransijn, J., Craven, D. J., and Hall, J. S. 2013. Key role of symbiotic dinitrogen fixation in tropical forest secondary succession. *Nature* 502:224–227. DOI: 10.1038/nature12525

—Covered by *Christian Science Monitor*, *ClimateWire*, *Yale 360*, *Mongabay.com* and *Natural History* magazine

Batterman, S. A., Wurzburger, N., and Hedin, L. O. 2013. Nitrogen and phosphorus interact to control tropical symbiotic N₂ fixation: A test in *Inga punctata*. *Journal of Ecology* 101:1400–1408. DOI: 10.1111/1365-2745.12138

Batterman, S. A. 2013. Symbiotic N₂ fixation in tropical forests: Scaling from individuals to ecosystems. Ph.D. Thesis. Princeton University. 109 pages.

Batterman, S. A., and Larsen, K. S. 2011. Integrating empirical studies and global models to improve climate change predictions. *Eos*: 92(4):353.

PRESENTATIONS

Batterman, S. A., 2024. Herbivory constrains symbiotic nitrogen-fixing trees via density-dependent effects. Barro Colorado Island Centennial Science Symposium.

Batterman, S. A., 2022. The tropical forest carbon sink: Revisiting tropical nutrient limitation. Ecological Society of America Annual Meeting, talk, Montreal, Canada.

Batterman, S. A., Hall, J. S., Hedin, L. O., and Van Breugel, M. 2018. Nitrogen fixer abundance does not predict ecosystem fixation or forest carbon recovery during tropical rainforest secondary succession. Ecological Society of America Annual Meeting, talk, New Orleans, LA.

Batterman, S. A., Hall, J. S., Turner, B., Hedin, L. O., and van Breugel, M. 2016. Taxonomy explains phosphatase and fixation activity of tropical rainforest trees. British Ecological Society Annual Meeting, Liverpool, U.K.

Costa, S., **Batterman, S. A.**, Hall, J. S., Van Breugel, M., and Hedin, L. O. 2015. Nitrogen fixers in tropical forests face a major cost to herbivory. Ecological Society of America Annual Meeting, talk, Baltimore, MD.

Batterman, S. A., Hedin, L. O., Quesada, B., Sprent, J., Phillips, O., Menge, D. N. L., Lloyd, J. and 40 other co-authors from the RAINFOR network. 2015. Biogeochemistry and biodiversity interact to govern N₂ fixers (Fabaceae) across Amazon tropical forests. European Geophysical Union Annual Meeting, Vienna, Austria.

Batterman, S. A., Hedin, L. O., Quesada, B., Sprent, J., Phillips, O., Menge, D. N. L., Lloyd, J. and 40 other co-authors from the RAINFOR network. 2014. Neutral biodiversity despite strong ecological trait selection for N₂ fixers. Ecological Society of America Annual Meeting, talk, Sacramento, CA.

Batterman, S. A., Menge, D. N. L., and Hedin, L. O. 2013. Biogeochemical controls of symbiotic N₂ fixation across broad spatial scales. Ecological Society of America Annual Meeting, talk, Minneapolis, MN.

Batterman, S. A., Hedin, L. O., Hall, J. S., and Van Breugel, M. 2012. Biodiversity of nitrogen fixers facilitate tropical forest carbon recovery. Ecological Society of America Annual Meeting, talk, Portland, OR.

Batterman, S. A., Hall, J. S., Van Breugel, M., and Hedin, L. O. 2011. Soil nutrients, land use history and species composition interact to influence tropical N₂ fixation. American Geophysical Union Annual Meeting, poster, San Francisco, CA.

Batterman, S. A., Wurzburger, N., and Hedin, L. O. 2011. Soil nutrients interact with di-nitrogen fixation in a tropical tree. Ecological Society of America Annual Meeting, talk, Austin, TX.

Batterman, S. A., Menge, D. N. L., and Hedin, L. O. 2011. What determines the global distribution of N₂ fixers? Examining current hypotheses and ways forward. Sigma Xi Poster Exposition for Graduate and Postdoctoral Research, poster, Princeton University. *1st prize for best poster*.

Batterman, S. A., Wurzburger, N., and Hedin, L. O. 2011. Nitrogen, phosphorus, and the biogeochemical niche of di-nitrogen fixers in tropical rainforest. Princeton, Penn, Rutgers, Columbia Annual Retreat, talk, Princeton University.

Batterman, S. A., Wurzburger, N., and Hedin, L. O. 2010. Interactions of carbon, nitrogen and phosphorus influence plant nitrogen fixation strategy. Princeton Research Symposium Poster Session, poster, Princeton University. *2nd prize for best poster*.

Hedin, L. O.*, **Batterman, S. A.**, Wurzburger, W., Menge, D. N. L., Keel, S., and Staver, A. C. 2010. Why is nutrient co-limitation not more common in land ecosystems (or perhaps it is)? Ecological Society of America Annual Meeting, talk, Pittsburg, PA. *Presenter

Batterman, S. A., and Staver, A. C. 2008. Coral reef diversity on a water flow gradient. University of Sydney, Australia.

Campbell, D.*, Lowell, K., **Batterman, S. A.**, et al. 2006. Maya, Garifuna, Creole and Mestizo home gardens, pastures and fence lines as botanical refuges. International Congress of Americanists, talk, Seville, Spain. *Presenter

Batterman, S. A., and Eckert, V. 2006. Effects of fragmentation on roadside populations of an Iowa native plant. Student Research Symposium, talk, Grinnell College.

Batterman, S. A., and Eckert, V. 2006. Effects of fragmentation on roadside populations of an Iowa native plant. Howard Hughes Medical Institute Poster Session, poster, Grinnell College.

INVITED MEETINGS

Batterman, S. A. 2017. The biodiversity and function of nitrogen fixers in tropical forests. Ecological Society of America Annual Meeting, invited talk, Portland, OR.

Batterman, S. A. 2017. Capturing the function of nitrogen fixation in the tropical forest carbon sink. Association for Tropical Biology and Conservation Annual Meeting, invited talk, Merida, Mexico.

Invited Participant, BP/Tufts Fletcher School/Harvard Kennedy School Symposium on Energy Policy, Cambridge, MA, 2014.

Invited Participant, BP/Tufts Fletcher School/Harvard Kennedy School Symposium on Energy, Security, and Climate Policy, Cambridge, MA, 2013.

Batterman, S. A., Wurzburger, N., Hall, J. S., van Breugel, M., and Hedin, L. O. 2011. What should global modelers know about symbiotic di-nitrogen fixation in tropical forests? Invited poster. Nutrient constraints on the net carbon balance CLIMMANI/INTERFACE Meeting, Iceland.

Invited Participant, Agouron Institute Nitrogen Conference, Scottsdale, AZ, 2009.

INVITED SEMINARS AND LECTURES

Batterman, S. A., 2022. Resolving nitrogen fixation in tropical forests. Bard College. (*invited seminar*)

Batterman, S. A. 2021. Symbiotic biological nitrogen fixation. Plant Ecology Course, Department of Ecology and Evolutionary Biology, Yale University. (*invited lecture*)

Batterman, S. A. and Ginsberg, J. 2021. Restoring resilient tropical forests. Cary Institute of Ecosystem Studies. (*invited seminar*)

Batterman, S. A. 2020. Symbiotic nitrogen fixation, biogeochemistry and biodiversity in a world of global change. Department of Ecology, Evolution and the Environment, Columbia University. (*invited seminar*)

Batterman, S. A. Symbiotic biological nitrogen fixation. Odum School of Ecology, University of Georgia. (*invited seminar* scheduled for October 2020 postponed due to COVID-19)

Batterman, S. A. 2019. Resolving symbiotic nitrogen fixation in tropical forests. Department of Ecology and Evolutionary Biology, Yale University. (*invited seminar*)

Batterman, S. A. 2019. Symbiotic nitrogen fixation and the tropical carbon sink. Biogeochemistry, Environmental Science, and Sustainability (BESS) group, Cornell University. (*student invited seminar*)

Batterman, S. A. 2019. Symbiotic nitrogen fixation and the tropical carbon sink. Department of Ecology and Evolutionary Biology, Brown University. (*invited seminar*)

Batterman, S. A. 2017. Biodiversity, biogeochemistry and the tropical carbon sink. Cary Institute of Ecosystem Studies, Millbrook, NY. (*invited seminar*)

Batterman, S. A. 2017. Symbiotic nitrogen fixation and the tropical carbon sink. Environmental Change Institute, University of Oxford, U.K. (*invited seminar*)

Batterman, S. A. 2015. Biodiversity and function of symbiotic N₂-fixing trees in tropical forests. Geosciences, University of Edinburgh, Edinburgh, Scotland. (*invited seminar*)

Batterman, S. A. 2015. Constraining tropical carbon and nitrogen cycles in tropical forests: The role of herbivory. School of Geography, University of Leeds, Leeds, U.K. (*invited seminar*)

Batterman, S. A. 2015. The role of N₂-fixing plants and biodiversity in the tropical carbon sink. School of Geography, University of Leeds, Leeds, U.K. (*invited seminar*)

Batterman, S. A. 2015. The role of N₂-fixing plants and biodiversity in the tropical carbon sink. University of California Berkeley Energy and Resources Group, Berkeley, CA. (*invited seminar*)

Batterman, S. A. 2014. N₂ fixation, biodiversity and tropical forests: Scaling from individuals to landscapes. ETH-Zurich Dept. of Environmental Sustainability Sciences, Zurich, Switzerland. (*invited seminar*)

Batterman, S. A. 2014. Biodiversity's role in terrestrial carbon and nutrient cycles: The case of symbiotic dinitrogen fixation. West Virginia University Dept. of Biology, Morgantown, WV. (*invited seminar*)

Batterman, S. A. 2014. Biodiversity's role in terrestrial carbon and nutrient cycles: The case of symbiotic dinitrogen fixation. Stanford University Dept. of Biology, Stanford, CA. (*invited seminar*)

Batterman, S. A. 2013. Symbiotic N₂ fixation in tropical forests: Scaling from individuals to ecosystems. Smithsonian Tropical Research Institute, Panama City, Panama. (*invited Tupper Seminar*)

Batterman, S. A. 2012. Fixation, biodiversity, tropical forests. Invited lecture for EEB417: Ecosystems and Global Change, Princeton University.

Batterman, S. A. 2012. Tropical forests, conservation, climate change. Invited lecture for EEB346: Conservation Biology, Princeton University.

Batterman, S. A., Hall, J. S., Van Breugel, M., and Hedin, L. O. 2011. Patterns and constraints on symbiotic di-nitrogen fixation. Center for Tropical Forest Science invited seminar, Smithsonian Tropical Research Institute, Panama City, Panama. (*invited seminar*)

Batterman, S. A. 2010. Symbiotic di-nitrogen fixation in tropical forests. Invited lecture for EEB417: Ecosystems and Global Change, Princeton University.

Batterman, S. A., Hall, J. S., Van Breugel, M., and Hedin, L. O. 2010. Symbiotic nitrogen fixation: From plant strategy to ecosystem. Smithsonian Tropical Research Institute Bambi Lecture, Barro Colorado Island, Panama. (*invited Bambi Lecture*)

TEACHING EXPERIENCE

- 2019-2024 *Fundamentals of Ecosystem Ecology: Tropical Ecology & Nitrogen Cycling*, Cary Institute of Ecosystem Studies
- 2018-2019 GEO 3069: *Costa Rica Field Trip*, University of Leeds
- 2016-2019 GEO 2085: *Ecosystems: Process, Pattern and Change*, University of Leeds
- 2016-2017 GEO3965: *Tropical forests and sustainable development*, University of Leeds
- 2015 GEOG2095: *Skills for Physical Geographers*, University of Leeds, Assisted with field trip to Nidderdale Area of Natural Beauty
- 2012 EEB308: *Conservation Biology*, Princeton University, Assistant in Instruction
- 2011 EEB346: *Coral Reef Ecology*, Princeton University, Assistant in Instruction
- 2010 EEB417: *Ecosystems and Global Change*, Princeton University, Assistant in Instruction and co-coordinator
- 2007 EEB211: *Introduction to the Biology of Organisms*, Princeton University, Assistant in Instruction
- 2006 BIO252: *Organisms, Ecology and Evolution*, Grinnell College, Mentor and Assistant

SERVICE AND ACTIVITIES

- Co-Organizer: Yale Center for Natural Carbon Capture, Tropical forests and fertility, 2024
- Cary Institute committee member: grounds and trails committee (co-chair 2022-present); postdoc committee (co-chair; 2019-present); workplace safety committee (2019-present); scientist search committee (partial, 2019)
- Co-Director, Cary Institute of Ecosystem Studies Research Experience for Undergraduate Program, 2021
- Panelist, United Kingdom Natural Environment Research Council review panel for Independent Research Fellowship, 2021
- PhD internal examiner for Viva of Amy Bennett, University of Leeds, 2020
- Organizer, Session, Ecological Society of America annual meeting, 2019, 2021
- Management group member, Priestley International Centre for Climate, University of Leeds, 2016-2018
- Founder, Priestley Climate Scholars, University of Leeds, 2016-2019
- Member, Leeds Natural Environment Research Council Strategy Group, University of Leeds, 2016-2018
- Co-organizer, Session, European Geosciences Union annual meeting, 2015
- Co-teacher, Woody Plants, Princeton Prison Initiative and NJ-STEP at New Jersey East State Prison, 2013-2014.
- Co-organizer, EEB women in science, Princeton University, 2013-2015
- Science fair judge, Hopewell Elementary School, Hopewell, NJ, 2012-2014
- Panelist, *The path of a woman's life in science*, Women in Science Colloquium, 2013
- Coach, Girls on the Run, 2013
- Member, Princeton Energy and Climate Scholars, 2011-2013
- Faculty Fellow, Women's Cross Country and Track teams, Princeton University, 2012-2013

Participant, 27th New Phytologist Symposium: Stoichiometric flexibility in terrestrial ecosystems under global change, Biosphere II, AZ, 2011

Organizer, Graduate Student Princeton, Penn, Rutgers, Columbia Annual Retreat, 2008-2011

Graduate Student Departmental Representative, Princeton University, 2008-2010

Leader, Grinnell Women in Science, 2004-2006

POSTDOCTORAL RESEARCHERS ADVISED

Wenguang Tang. 2023.
Michelle Wong. 2019-2023.
Will Barker. 2021-2022.

PHD STUDENTS ADVISED

Wenguang Tang. Will nutrients limit the tropical carbon sink? 2018-2022. University of Leeds. Co-advisers: Oliver Phillips and Roel Brienen.
William Barker. The role of herbivory in governing tropical nitrogen fixation. University of Leeds. 2016-2020. Co-adviser: Oliver Phillips.
Khushboo Gurung. Role of mycorrhizal fungi in governing earth's long-term climate. University of Leeds. 2018-present. Co-adviser with Benjamin Mills and Katie Field (primary adviser).
Committee member of: Yunxia Yang (advisers: David Galbraith, Guy Ziv) and Amy Bennett (advisers: Simon Lewis, Oliver Phillips), University of Leeds, 2016-2018; Arielle Biro (adviser: Carla Staver), Yale University, 2017-2023; Palani Akana, (adviser: Duncan Menge), Columbia University, 2019-2022.

UNDERGRADUATE THESIS STUDENTS ADVISED

Research Experience for Undergraduates, Cary Institute of Ecosystem Studies: Ava Adler (2019), Marco Alvarez (2019), Carissa Moore (2020), John Nguyen (2020), Kimberly Hall (2021)

9 students in Geography. 2015-2018. University of Leeds.

Sinead Horsfall. Interactions of N₂ fixer abundance and land use history in forest recovery from disturbance. 2015-2016. University of Leeds. *Co-advised with David Galbraith

Connor Stonesifer. The Gordian nodule: Phosphorus uptake and nitrogen fixation in Panamanian tropical forests. 2015-2016. Princeton University. *Co-advised with Lars Hedin

Fiona West. Examining the herbivory cost of N₂ fixation across gradients in nutrients and tropical forest succession. 2015-2016. Princeton University. *Co-advised with David Medvigy

Emily Shuldiner. Herbivory controls on the tropical carbon sink. Princeton Environmental Institute Summer Intern. 2014-2015. Princeton University. *Co-advised with David Medvigy

Suchana Costa. Herbivory constraints on symbiotic N₂ fixers in young recovering tropical rainforests. Senior thesis student. 2013-2014. Princeton University. *Won the Princeton Environmental Institute Best Senior Thesis prize, the Princeton University Ecology & Evolutionary Biology Department Best Field Thesis prize and the prize for best poster.

Claire Zarakas. Herbivore effects on the tropical carbon sink: Combining theoretical models and field-based studies. Princeton Environmental Institute Summer Intern. 2013-2014. Princeton University.

Kaya Zelazny. Contribution of foliar N requirements to patterns in tropical nitrogen fixation. Senior thesis student. 2010-2011. Princeton University.

Samantha Adelberg. Coupled biogeochemistry: How do nitrogen-fixing trees affect the phosphorus cycle? Honors thesis student. 2010-2011. Brown University.

MANUSCRIPT AND GRANT REVIEWER

Nature Ecology & Evolution, PNAS, Ecology Letters, Biology and Fertility of Soils, Biotropica, Ecology, Ecosystems, Forest Ecology and Management, Functional Ecology,

Global Change Biology, Journal of Ecology, New Phytologist, Oecologia, Pedosphere, Plant and Soil, Plant Ecology, Plant Ecology and Diversity, PLOS ONE, Restoration Ecology, USDA presubmission, National Science Foundation

AFFILIATIONS

Ecological Society of America – Member of the Biogeosciences Section