

FORMERLY
KATILYN CROSS

KATILYN BEIDLER

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Orcid ID: 0000-0002-9539-1782

EDUCATION

Indiana University, Bloomington, IN

Ph.D. in Evolution, Ecology and Behavior, 2016 – 2021,

Minor in Environmental Science

Advisor: Richard Phillips

Dissertation Title: Towards an Improved Understanding of How Roots and Mycorrhizal Fungi Influence Soil Organic Matter Dynamics in Temperate Forests

College of Charleston, Charleston, SC

M.S. in Environmental Studies, 2014-2016

Advisor: Seth Pritchard

Thesis Title: Effects of branching order on fine root traits and decomposition in a managed loblolly pine (*Pinus taeda*) plantation

College of Charleston, Charleston, SC

B.S. in Biology, 2008-2012

TEACHING EXPERIENCE

Assistant Professor of Biology, Berry College, 2025-Present

BIO 305A General Ecology

Guest Lecturer, University of Minnesota, 2023-2025

BIOL 3408W Ecology

BIOL 1805 Nature of Life at Cedar Creek

BIOL 1805 Biology Saves the World

PIPa 5203 Introduction to Fungal Biology

Associate Instructor, Biology Department, Indiana University, 2016-2021

BIOL-L 473 Ecology (FA 2020)

BIOL-L 113 Biology Laboratory and Discussion, for majors (FA 2017- 2019, SP 2019)

BIOL-L 100 Humans and the Biological World, for non-majors (FA 2016)

Laboratory Instructor, College of Charleston, 08/2014-12/2014

BIO 111- Introductory Biology for majors (FA 2014)

RESEARCH EXPERIENCE

Post-doctoral Research Associate, University of Minnesota, 2022-2025, PI: Peter Kennedy

Ecological interactions and ecosystem nutrient cycling associated with the decomposition of microbial necromass. Work done in collaboration with Jennifer Pett-Ridge at Lawrence Livermore National Laboratory

Research Assistant, Indiana University, 2017-2021, PI: Richard Phillips

Ecosystem and Climate Consequences of Forest Community Change (SP 2020, 2021)
Nutrient cycle impacts on forest ecosystem carbon cycling: Improved prediction of climate feedbacks from coupled C-nutrient dynamics from ecosystem to regional scales (SP 2017)

Field Assistant, Uppsala University, 09/09/15-09/21/15 &

Centre National de la Recherche Scientifique, 10/29/2015-11/12/15, PI: Matthew Rutter
Quantifying mutation parameters in a fitness landscape: Spontaneous mutation in *Arabidopsis thaliana* in its native range

Research Assistant, College of Charleston, 2015 – 2016 Co-PIs: Seth Pritchard & Allan Strand

Inducing and characterizing fine root senescence for *Pinus taeda*

Greenhouse Technician, College of Charleston, 08/2015 – 06/2016

Research Technician, College of Charleston, 2012-2014, PI: Seth Pritchard

Fine root dynamics in response to elevated CO₂ and Nitrogen at the Duke Long Term Free-Air-CO₂-Enrichment (FACE) Site.

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MENTORSHIP & OUTREACH

Field Guides Mentor, *University of Minnesota*, 2024
Kennedy Lab Research Mentor, *University of Minnesota*, 2022-2023
Mentees: Alexandra Bancos, Maddie Klafka & Olivia Yesker (Undergraduates)
Phillips Lab Research Mentor, *Indiana University*, 2017-2022
Mentees: Corben Andrews & Young Oh (Masters students), Karl Hagen, Emma Hand, Sehaan Tarique (Undergraduates) and Elizabeth Cooper (High-school student)
Instructor, *Saturday Science Quest for Kids*, Indiana University, 02/2020-03/2020 Grades 2-3: Plant Power: Let's GrOw!
Boys and Girls Club of America, Teen Program volunteer, *Bloomington, IN*, Summer 2022
WonderLab Museum of Science, Health and Technology Volunteer, *Bloomington, IN*, 2020
Jim Holland Summer Science Research Program Mentor, *Indiana University*, 2017

GRANTS, AWARDS & FELLOWSHIPS

Morton Arboretum Center for Tree Science Fellowship, "Tree species effects on soil nitrogen cycling: accounting for rhizosphere processes" in collaboration with Young Oh – 2022 (\$9,000)
Indiana University Sustainability Student Research Development Grant, "Carbon allocation dynamics in elevated vapor pressure deficit environments: how will regenerating forests respond to climate change?" in collaboration with Michael Benson – 2021 (\$10,000)
Oak Spring Garden Foundation Interdisciplinary Residency, Session IV -2021
William R. Ogg Fellowship, *Indiana University* – 2021 (\$10,000)
Albert Ruesink Outstanding Associate Instructor Teaching Award, *Indiana University* – 2021 (\$1,500)
George W. Brackenridge Award, *Indiana University* – 2020 (\$2,500)
Smithsonian ForestGEO Research Grant, "Towards a predictive understanding of linkages among fine root traits, nutrient cycling and soil organic matter dynamics" – 2019 (\$10,000)
Indiana University Research and Teaching Property Grant, "Effects of Nitrogen Fertilization and Mycorrhizal Type on Below-ground Carbon Dynamics in a Temperate Forest" in collaboration with Corben Andrews– 2019 (\$3,000)
Provost's Travel Award for Women in Science, *Indiana University* – 2018 & 2019 (\$1,000)
Cleland Travel Award, *Indiana University* – 2018 & 2019 (\$1,000)
Floyd Plant Summer Fellowship, *Indiana University* – 2017-2020 (\$6,334)
Sears Crowell Scholarship, *Indiana University* – 2018 & 2019 (\$5,000)
College of Charleston Foundation MES Fellowship – 2014 (\$2,500)
College of Charleston Biology Department: Plant Biology Prize – 2012
NSF REU Summer Fellow, *College of Charleston*, Undergraduate Phenotyping of Arabidopsis Knockouts –2011 (\$4,500)
HHMI Summer Fellowship, *College of Charleston* – 2010 (\$3,000)

SCIART COLLABORATIONS

Kaitlin Bryson, *Bellow Forth*, Anonymous Was A Woman Environmental Art Grant, 2022-2023
Jillian Sico, *Mycorrhizae*, The University of Alabama MFA Book Arts Thesis Show, 2020
Maria Whiteman, *State of Nature: Picturing Indiana Biodiversity*, Traveling exhibition, Grunwald Gallery & Indiana State Museum, 2020

WORKSHOPS

Creating a framework to interpret and model plant and mycorrhizal fungal traits at the global scale, NIMBIOS Virtual Workshop, 2020
Organizers: Stephanie Kivlin and Amy Zanne
Enhancing Long-Term Soil C Sequestration by Ectomycorrhizal Fungi Workshop, 2018
Organizers: Don Zak, Tim James, and Luke Nave

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SHORT COURSES

IsoCamp, Summer 2019

Stable Isotope Biogeochemistry and Ecology Course, *University of Utah, Salt Lake City, UT.*

EDAMAME, Summer 2018

Course in microbial metagenome analysis, *Kellogg Biological Station, Hickory Corners, MI*

Plant Anatomy: Development, Function, and Evolution Course, Summer 2015

Emphasis on Woody Plants, *Arnold Arboretum, Boston, MA*

Summer Soil Institute, Summer 2014

Course is soil ecology and Biogeochemistry, *Colorado State University, Fort Collins, CO*

PUBLICATIONS & PRESENTATIONS

Oh, Y.E., Midgley, M.G., McCormack, M.L., Beidler, K.V., McCall, M., Henderson, S., Braghieri, R.K., Phillips, R.P., 2024. Root traits and tree functional groups determine variability in root exudation and N uptake rates in mature temperate trees. *Functional Ecology*. In review and bioRxiv 2024.08.01.606171.

Beidler, K.V., Huenupi, E., DeLancey, L.C., Maillard, F., Zhang, B., Persson, P., Kennedy, P.G. and Phillips, R (2025). Minerals, Microbes and Melanin Drive Differential Incorporation of Fungal Necromass Carbon and Nitrogen into Mineral-Associated Organic Matter. *Soil Biology and Biochemistry*. 109843. doi: 10.1016/j.soilbio.2025.109843.

Nieves, D.J., , E. , Reich, P.B., Stefanski, A., Raimundo, **Beidler, K.V.**, and Kennedy, P.G (2024). Ectomycorrhizal fungal community responses to warming and rainfall reduction differ between pine host species but are similar across experimental cohorts. *Mycorrhiza*. 34.5 (2024): 403-416. doi: 10.1007/s00572-024-01169-1.

Benson, M.C., **Beidler, K.V.**, , E. , Barnes, M.L., Beverly, D.P., Crookshanks, A.E., Cyliax, R.M., Phillips, R.P., and Novick, K.A. Vapor pressure deficit and soil moisture stress induce independent and divergent adjustments in tree seedling biomass. *New Phytologist*. In review.

Pérez-Pazos, E. , **Beidler, K.V.**, Narayanan, A., Bancos, A., Heckman, K.A., and Kennedy, P.G. (2024). Fungi rather than bacteria drive early mass loss from fungal necromass regardless of particle size. *Environmental Microbiology Reports*, 16(3):e13280. doi: 10.1111/1758-2229.13280.

Beidler, K. V., Huenupi Pena, E., DeLancey, L.C., Kennedy, P.G. and Phillips, R.P. Melanin “ghosts” and soil minerals: evaluating controls on fungal necromass persistence. Contributed talk at: 91st MSA Annual Meeting; July 2023; Flagstaff, AZ, USA.

Beidler, K.V., Powers, J.S., Dupuy-Rada, J.M., Hulshof, C., Medvigy, D., Pizano, C., Salgado-Negret, B., Van Bloem, S.J., Vargas, G., Waring, B.G., Kennedy, P.G. (2023). Seasonality regulates the structure and biogeochemical impact of ectomycorrhizal fungal communities across environmentally divergent neotropical dry forests. *Journal of Ecology*, 111(8) 1598-1613. doi: 10.1111/1365-2745.14112

Beidler, K.V., Benson, M.C., Craig, M.E., Oh, Y.E., and Phillips, R.P. (2023). Effects of root litter traits on soil organic matter dynamics depend on decay stage and root branching order. *Soil Biology and Biogeochemistry*, 180: 109008. doi:10.1016/j.soilbio.2023.109008

Craig, M.E. , Geyer K.M., **Beidler, K.V.**, Brzostek, E.R., Frey, S.D., Grandy A.S., Liang, C., and Phillips, R.P. (2022). Fast-decaying plant litter enhances soil carbon in temperate forests but not through microbial physiological traits. *Nature communications*, 13 (1): 1-10. doi:10.1038/s41467-022-28715-9

Beidler, K. V., Young, O.E., Pritchard, S.G., and Phillips, R.P. (2021). Mycorrhizal roots slow the decay of belowground litters in a temperate hardwood forest. *Oecologia*, 197(3): 743-755. doi: 10.1007/s00442-021-05051-1

Beidler, K. V., Benson, M.C., Craig, M.E., and Phillips, R.P. Examining root-derived soil organic matter formation in the light of root branching order and mycorrhizal status. Contributed talk at: 106th ESA Annual Meeting; August 2021; Virtual Meeting

PUBLICATIONS & PRESENTATIONS Ctd.

Beidler, K. V., Phillips, R.P., Andrews E., Maillard, F., Mushinski, R.M., and Kennedy, P.G. (2020). Substrate quality drives fungal necromass decay and decomposer community structure under contrasting vegetation types. *Journal of Ecology*, 108(5): 1845-1859. doi: 10.1111/1365-2745.13385

Beidler, K. V., Pritchard, S.G., and Phillips, R.P. Do living roots and mycorrhizal fungi decay dead roots? Evidence from a root exclusion experiment in a deciduous hardwood forest. Contributed talk at: 104th ESA Annual Meeting; August 2019; Louisville, KY, USA.

Zak, D.R., Pellitier, P.T., Argiroff, W.A., Castillo, B., James, T.Y., Nave, L.E., Averill, C., Beidler K.V., Bhatnagar, J., Blesh, J., et al. (2019). Exploring the role of ectomycorrhizal fungi in soil carbon dynamics. *New Phytologist*, 223(1): 33-39. doi: 10.1111/nph.15679

Beidler, K.V., Fernandez, C.W., Mushinski, R.M., Phillips, R.P., and Kennedy, P.G. Effects of mycorrhizal stand association and melanin on decomposition of fungal necromass in a temperate forest. Poster presented at: 103rd ESA Annual Meeting; August 2018; New Orleans, LA

Beidler, K.V., Pritchard, S.G. (2017). Maintaining connectivity: understanding the role of root order and mycelial networks in fine root decomposition of woody plants. *Plant and Soil*, 420: 19-36. doi: 10.1007/s11104-017-3393-8

Beidler, K.V., Taylor, B. N., Strand, A. E., Cooper, E. R., Schönholz, M. and Pritchard, S. G. (2015). Changes in root architecture under elevated concentrations of CO₂ and nitrogen reflect alternate soil exploration strategies. *New Phytologist*, 205 (3): 1153–1163. doi: 10.1111/nph.13123

Taylor, B.N., Strand, A.E., Cooper, E.R., Beidler, K.V., Schonholz, M. and Pritchard, S.G. (2014). Root length, biomass, tissue chemistry and mycorrhizal colonization following 14 years of CO₂ enrichment and 6 years of N fertilization in a warm temperate forest. *Tree Physiology*, 34: 955-965. doi: 10.1093/treephys/tpu058

Pritchard, S.G., Taylor, B. N., Cooper, E. R., Beidler, K. V., Strand, A. E., McCormack, M. L. and Zhang, S. (2014). Long-term dynamics of mycorrhizal root tips in a loblolly pine forest grown with free-air CO₂ enrichment and soil N fertilization for 6 years. *Global Change Biology*, 20: 1313–1326. doi: 10.1111/gcb.12409

Taylor, B.N., Beidler, K.V., Strand, A.E. and Pritchard, S.G. (2014). Improved Scaling of Minirhizotron Data Using an Empirically-Derived Depth of Field and Correcting for the Underestimation of Root Diameters. *Plant and Soil*, 374: 941–948. doi: 10.1007/s11104-013-1930-7

Taylor B.N., Beidler K.V., Cooper E.R., Strand A.E., and Pritchard S.G. (2013). Sampling volume in root studies: the pitfalls of under-sampling exposed using accumulation curves. *Ecology letters*, 16:862-869. doi:10.1111/ele.12119

Rutter, M. T., Cross, K. V., & Van Woert, P. A. (2012). Birth, death and subfunctionalization in the *Arabidopsis* genome. *Trends in plant science*, 17(4), 204-212. doi:10.1016/j.tplants.2012.01.006

Cross, K.V. Valentine, M.E., Rutter, M.T. Gene age in relation to gene expression in *Arabidopsis thaliana*. Poster Presented at College of Charleston SSM Research Poster Session. August 2010.

INVITED SEMINARS

Penn State Plant Science. 2023. Huck Center for Root and Rhizosphere Biology Seminar. April 14th. State College, PA