RICHARD P. PHILLIPS

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Keywords: Ecosystem ecology, soil biogeochemistry; plant-microbe interactions; global change

DEGREES

2005	Ph.D. Natural Resources (Ecology and Biogeochemistry), Cornell University, Ithaca, NY; Ph.D. advisor: Timothy J. Fahey
1999	M.S. Forestry (Soils), SUNY College of Environmental Science & Forestry, Syracuse, NY; M.S. advisor: Ruth D. Yanai
1992	B.A. Environmental Studies Program, University of Vermont, Burlington, VT

APPOINTMENTS AND RESEARCH EXPERIENCE

2019 -	Professor, Department of Biology, Indiana University, Bloomington (IU-B)
2014 -	Director of Research; IU Research & Teaching Preserve (RTP), IU-B
2023	Executive Committee (Chair '23-'24), Integrated Program in the Env. (IPE), IU-B
2014-2018	Associate Professor, Department of Biology, IU-B
2008-2014	Assistant Professor, Department of Biology, IU-B
2005-2008	Postdoctoral Associate, Department of Biology, Duke University, Durham, NC
2000-2005	Research Associate, Department of Natural Resources, Cornell University, Ithaca, NY; *Dissertation title:* "Rhizosphere carbon flux and rhizosphere effects on microbial activity and nutrient availability in northern hardwood forests"
1999-2000	Research Specialist - Boyce Thompson Institute for Plant Research, Ithaca, NY
1996-1998	Research Associate, Department of Forestry, SUNY CESF, Syracuse, NY; *Thesis title*: "The effects of calcium chloride and aluminum chloride additions on rhizosphere soil and sugar maple (*Acer saccharum* Marsh.) fine root chemistry

FELLOWSHIPS, HONORS AND AWARDS

2024	Highly Cited Researchers List (Cross-Field); Clarivate (Web of Science data)
2023	Highly Cited Researchers List (Cross-Field); Clarivate (Web of Science data)
2022	Highly Cited Researchers List (Cross-Field); Clarivate (Web of Science data)
2021	Highly Cited Researchers List (Cross-Field); Clarivate (Web of Science data)
2020	Highly Cited Researchers List (Cross-Field); Clarivate (Web of Science data)
2019	Highly Cited Researchers List (Cross-Field); Clarivate (Web of Science data)
2016	Outstanding Faculty Collaborative Research Award (with K.A. Novick); Office of Provost & Executive Vice President and Office of Vice Provost for Research; IU
2008	Best Oral Paper, S-7 Div., ASA-CSSA-SSSA Intl. Annual Meeting, Houston, TX
2004-2005	NSF Integrated Graduate Research (IGERT) Fellowship, Cornell University
2003	R.H. Whittaker Award, Best Oral Presentation, Ecology and Evolutionary Biology Graduate Student Symposium, Cornell University

PUBLICATIONS

Google scholar metrics: H-Index (74); I10-Index (136)

*ResearchGate "*Research interest score": 13,300 (top 1% of ResearchGate members)

Note: Last author typically indicates group leader or corresponding author

2025

153. Beidler, K.V., Huenupi, E., DeLancey, L.C., Maillard, F., Zhang, B., Persson, P., Kennedy, P.G. and **R.P. Phillips.** 2025. Minerals, microbes and melanin drive differential incorporation of fungal necromass carbon and nitrogen into mineral-associated organic matter. Soil Biology and Biochemistry. https://doi.org/10.1016/j.soilbio.2025.109843

152. Benson, M.C., Hwang, T., Maxwell, J.T., **Phillips R.P.,** and K.A. Novick. 2025. Growth-mortality coordination differs among xerophytic vs. mesophytic tree species during severe drought. Global Change Biology. http://dx.doi.org/10.1111/gcb.70260

151. Keller, A.B. and **R.P. Phillips**. 2025. Assessing carbon and nitrogen economics in temperate forests through the relationship between foliar nutrient resorption and root Production. Oecologia. https://doi.org/10.1007/s00442-025-05710-7

150. Brunn, M., Mueller, C.W., Chari, N.R., Meier, I.C., Obersteiner, S., **Phillips R.P.,** Taylor, B., Tumber-Dávila, S.J., Ullah, S., and T. Klein. 2025. Tree carbon allocation to root exudates: Implications for carbon budgets, soil sequestration, and drought response. Tree Physiology. https://doi.org/10.1093/treephys/tpaf026

149. Grandy, A.S., Daly, A.B., Bécu, T., Cardinael, R., Fontaine, S., Jilling, A., MacLaren, C., and **R.P. Phillips.** 2025. A microbial framework for nitrogen cycling solutions in agroecosystems. One Earth. https://doi.org/10.1016/j.oneear.2024.11.018

2024

148. Fahey, C., Choi, D., Wang, J., Domke, G.M., Edwards, J.D., Fei, S., Kivlin, S., LaRue, E., McCormick, M.K., McShea, W., **Phillips, R.P.**, Pullen, J. and J.D. Parker. 2024. Canopy complexity drives positive effects of tree diversity on productivity in two tree diversity experiments. Ecology. DOI: 10.1002/ecy.4500

147. Lazar, A., **Phillips, R.P.**, Kivlin, S.N., Bending, G.D., and R.M. Mushinski. 2024. Understanding the ecological versatility of *Tetracladium* spp. in temperate forest soil. Environmental Microbiology. DOI: 10.1111/1462-2920.70001

146. Muratore T.J., Knorr, M.A., Simpson, M.J., Stephens, R.B., **Phillips, R.P.**, and S.D. Frey. 2024. Response of root respiration to warming and nitrogen addition depends on tree species. Global Change Biology. DOI: 10.1111/gcb.17530

145. Eagar, A., Abu, P., Brown, M., Moledor, S., Smemo, K.A., **Phillips, R.P.**, Case, A. and C.B. Blackwood. 2024. Setting the Stage for Plant-Soil Feedback: Mycorrhizal influences over conspecific recruitment, plant and fungal communities, and coevolution. Journal of Ecology. DOI: 10.1111/1365-2745.14393

144. Liu, X., Yu, K., Liu, H., **Phillips, R.P.**, He, P-C., Liang, X., Tang, W., Terrer, C., Novick, K.A., Bapka, E., Zhao, M., Gao, X., Jin, Y., Wen, Y. and Ye, Q. 2024. Different drought tolerance of woody plants is associated with mycorrhizas at a global scale. New Phytologist. DOI: 10.1111/nph.20097

143. Maxwell, J.T., Au, T.F., Kannenberg, S.A., Harley, G.L., Dannenberg, M.P., Ficklin, D.L., Robeson, S.M., Férriz, M., Lockwood, B.R., Novick, K.A., **Phillips, R.P.**, Rochner, M.L. and N. Pederson. 2024. Differences to species level growth responses to hydroclimate extremes in eastern US forests: Implications for a changing region. Global Change Biology. DOI: 10.1111/gcb.17474

142. Schaefer, E.A. Gehring, C.A, **Phillips, R.P.**, Gadat, E. and J. Karst. 2024. Variation of root functional traits indicates flexible belowground economic strategies of the riparian tree species *Populus fremontii*. Functional Ecology. DOI: 10.1111/1365-2435.14628

141. Chari, N.R., Tumber-Dávila, S.J., **Phillips, R.P.**, Bauerle, T.L., Brunn, M., Hafner, B.D., Klein, T., Obersteiner, S., Reay, M.K., Ullah, S., and B.N. Taylor. 2024. Estimating the global root exudate carbon flux. Biogeochemistry Letters. DOI: DOI: 10.1007/s10533-024-01161-z

140. Hou, J., McCormack, M.L., Reich, P.B., Sun, T., **Phillips, R.P.**, Lambers, H., Chen, H.Y.H., Ding, Y., Comas, L.H., Valverde-Barrantes, O.J., Solly, E.F., Freschet, G.T., 2024. Linking fine root lifespan to root chemical and morphological traits - A global analysis. Proceedings of the National Academy of Sciences. DOI: e2320623121

139. Leite, M.S. et al. (**R.P. Phillips** one of 51 authors). 2024. Major axes of variation in tree demography across global forests. Ecography. DOI: 10.1111/ecog.07187

138. Edwards, J.D., Love, S.; **Phillips, R.P.,** Fei, S.; Domke, G., Parker, J.D., McCormick, M., LaRue, E.A, Schweitzer, J.A., Bailey, J.K., Fordyce, J.A., and S.N. Kivlin 2024. Long- and short-term soil storage methods other than freezing can be useful for DNA-based microbial community analysis. Soil Biology and Biochemistry. DOI: 10.1016/j.soilbio.2024.109329

137. Hülsmann, L. et al. (**R.P. Phillips** one of 52 authors). 2024. Latitudinal patterns in stabilizing density dependence of forest communities. Nature. DOI: DOI: 10.1038/s41586-024-07118-4

136. Beverly, D.P., Huenupi, E. Gandolfo, A., Lietzke, C.J., Ficklin, D.L., Barnes, M.L., Raff, J.D.; Novick, K.A., and **R.P. Phillips.** 2024. The forest, the cicadas, and the holey fluxes: periodical

cicada impacts on soil respiration depends on tree mycorrhizal type. Ecology Letters. DOI: 10.1111/ele.14349

2023

135. Podzikowski, L.Y., Lee, M., Fahey, C., Wright, J.P., Flory, S.F., and **R.P. Phillips**. 2023 Biogeochemical effects of a forest understory plant invasion depend more on dissimilar nutrient economies than invader biomass. Elementa: Science of the Anthropocene: Ecology and Earth Systems. DOI: DOI: 10.1525/elementaa.202300007

134. Smith, M.D., Wilkens, K., Holdrege, M., Wilfart, P., Collins, S.L., Knapp, A.K, Sala, O.E., Dukes, J., **Phillips, R.P.** and 131 authors). 2023. Extreme drought impacts have been underestimated in grasslands and shrublands globally. PNAS. DOI: 10.1073/pnas.2309881120

133. Delavaux, C.S., LaManna, J.A., Myers, J.A., **Phillips, R.P.** (72 additional authors). 2023. Mycorrhizal feedbacks influence global forest structure and diversity. Communications Biology. DOI: 10.1038/s42003-023-05410-z

132. Lang, A., LaRue, E.A., Kivlin, S.N., Edwards, J., **Phillips, R.P.**, Gallion, J., Kong, N., Parker, J.D., McCormick, M.K. Domke, G. and S. Fei. 2023. Forest structural diversity is linked to soil microbial diversity. Ecosphere. DOI: 10.1002/ecs2.4702

131. Seyfried, G., Midgley, M.G., **Phillips, R.P.**, and W.H. Yang. 2023. Refining the role of nitrogen mineralization in mycorrhizal nutrient syndromes. Biogeochemistry. DOI: 10.1007/s10533-023-01038-7

130. Yang. X., R. Li, Jablonski, A., Stovall, A, Yi, K., Ma, Y., Beverly, D., **Phillips, R.P.**, Novick, K.A., Xu, X and M. Lerdau. 2023. Leaf angle as a leaf and canopy trait: a new frontier for ecosystem science. Ecology Letters. DOI: 10.1111/ele.14215

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

128. Lang, A.K., Pett-Ridge, J., McFarlane, K.J., and **R.P. Phillips**. 2023. Climate, soil mineralogy, and mycorrhizal fungi influence soil organic matter fractions in eastern US temperate forests. Journal of Ecology. DOI: 10.1111/1365-2745.14094

127. Luo, S., **Phillips, R.P.** *(co-first author)*, Jo, I., Fei, S., Liang, J., Schmid, B., and N. Eissenhauer. 2023. Mixtures of tree species with different mycorrhizal strategies maximize productivity across US forests. Nature Communications. DOI: 10.1038/s41467-023-36888-0

126. Eagar, A.C., Smemo, K.A., **Phillips, R.P.**, and C.B. Blackwood. 2023. Context-dependence of fungal community responses to dominant tree mycorrhizal types in Northern hardwood forests. Soil Biology & Biochemistry. DOI: 10.1016/j.soilbio.2023.108971

125. Zheng, H., **Phillips, R.P.**, Rousk, J., Yue, K., Schmidt, I.K., Pen, Y., Wang, S. and L. Vesterdal. 2023. Imprint of tree species mycorrhizal association on microbial-mediated enzyme activity and stoichiometry. Functional Ecology. DOI: 10.1111/1365-2435.14311

2022

124. Au, T.F., Maxwell, J.T., Robeson, S.M., Li, J., Siani, A.M.O., Novick, K.A., Dannenberg, M. P., **Phillips, R.P.**, Li, T., Chen, Z., and J. Lenoir. 2022. Younger trees in the upper canopy layer are more sensitive but also more resilient to drought. Nature Climate Change. DOI: 10.1038/s41558-022-01528-w

123. Braghiere, R.K., Fisher, J.B., Allen, K., Brzostek, E., Shi, M., Yang, X., Ricciuto, D., Fisher, R., Sulman, B., Zhu, Q and **R.P. Phillips.** 2022. Global carbon cost of plant nitrogen and phosphorus acquisition. Journal of Advances in Modeling Earth Systems, 14, e2022MS003204 DOI: 10.1029/2022MS003204

122. Mo, F, Ren, C., Yu, K., Zhou, Z., **Phillips, R.P.**, Zhang, Y, Dang, Y., Luo, Z., Ye, J., Xiong, Y and Y. Wen. 2022. Global pattern of soil priming effect intensity and its environmental drivers. Ecology. DOI: 10.1002/ecy.3790

121. Klink, S., Keller, A.B., Wild, A.J. Meyer, N., Lehndorff, L., Müller, C.W., **Phillips, R.P.**, and J. Pausch. 2022. Stable isotopes reveal that fungal residues contribute more to mineral-associated organic matter pools than plant residues. Soil Biology and Biochemistry. DOI: 10.1016/j.soilbio.2022.108634

120. Craig, M.A., Guyer, K., Beidler, K.V., Brzostek, E., Frey, S., Grandy, A.S., Liang, C., and **R.P. Phillips**. 2022. Fast-decaying plant litter enhances soil carbon in temperate forests but not through microbial physiological traits. Nature Communications. DOI: 10.1038/s41467-022-28715-9

119. Fei, S; Kivlin, S., Domke, G., Jo, I., LaRue, E.A. and **R.P. Phillips**. 2022. Coupling of plant and mycorrhizal fungal diversity - its occurrence, relevance, and possible implications under global change. Tansley Insight. New Phytologist. DOI: 10.1111/nph.17954

118. Benson, M.C., Miniat, C.F., Oishi, A.C., Denham, S.O., Domec, J.C., Johnson, D.M., Missik, J.E., **Phillips, R.P.**, Wood, J.D., and K.A. Novick. 2022. The xylem of anisohydric *Quercus alba* L. is more vulnerable to embolism than isohydric co-dominants. Plant, Cell & Environment. DOI: 10.1111/pce.14244

117. Novick, K.A., Jo, I., D'Orangeville, L., Benson, M., Au, T.F., Barnes, M., Denham, S., Fei, S., Heilman, K., Hwang, T,. Keyser, T., Maxwell, J.T., Miniat, C., McLauchlan, J., Pederson, N., Wang, L., Wood, J.D. and **R.P. Phillips**. 2022. The drought response of eastern US oaks in the context of their ongoing decline. BioScience. DOI: 10.1093/biosci/biab135

2021

116. Eagar, A., Mushinski, R.M., Horning, A.L., Smemo, K.A., **Phillips, R.P.**, and C.B. Blackwood. 2021. Arbuscular mycorrhizal tree communities have greater soil fungal diversity and abundances of saprotrophs and pathogens compared to ectomycorrhizal tree communities. Applied and Environmental Microbiology. DOI: 10.1128/AEM.01782-21

115. Lin, G., Craig M.A., Wang, X., Zeng, D., Jo, I. and **R.P. Phillips**. 2021. Mycorrhizal associations of tree species influence soil nitrogen dynamics via effects on soil acid-base chemistry. Global Ecology and Biogeography. DOI: 10.1111/geb.13418

114. Beidler, K.V., Oh, Y.E., Pritchard, S.G. and **R.P. Phillips**. 2021. Foraging roots and their associated microbes slow the decay of belowground litters in a temperate hardwood forest. Oecologia. DOI: 10.1007/s00442-021-05051-1

113. Migliavacca, M., et al. (**R.P. Phillips** one of 67 authors). 2021. The three major axes of terrestrial ecosystem function. Nature. DOI: 10.1038/s41586-021-03939-9

112. Braghiere, R.K., Fisher, J.B., Fisher, R.A., Shi, M., Steidinger, B.S., Sulman, B.N., Soudzilovskaia, N.A., Yang, X., Liang, J., Peay, K.G., Crowther, T.W. and **R.P. Phillips.** 2021. Mycorrhizal distributions impact global patterns of carbon and nutrient cycling. Geophysical Research Letters. DOI: 10.1029/2021GL094514

111. Liu, R., He, Y., Zhou, G., Shao, J., Zhou, L., Zhou, H., Lo, N., Song, B., Liang, C., Yan, E., Chen, X., Wang, X., S.H. Bai, Zhou, X., Wang, M., and **R.P. Phillips.** 2021. Mycorrhizal effects on decomposition and soil CO_2 flux depend on changes in nitrogen availability during succession. Journal of Ecology. DOI: 10.1111/1365-2745.13770

110. Saifuddin, M., Bhatnagar, J.M., **Phillips, R.P.**, and A.C. Finzi. 2021. Ectomycorrhizal fungi are associated with reduced nitrogen cycling rates in temperate forest soils without corresponding trends in bacterial functional groups. Oecologia. DOI: 10.1007/s00442-021-04966-z

109. Sousa, D., Fisher, J.B., Galvan, F.R., Pavlick, R.P., Cordell, S., Gioambelluca, T.W., Giardina, C.P., Gilbert, G.S., Imran-Narahari, F., Litton, C.M., Lutz, J.A., North, M.P., Orwig, D.A., Osterag, R., Sack, L. and **R.P. Phillips**. 2021. Tree canopies reflect mycorrhizal composition. Geophysical Research Letters. DOI: 10.1029/2021GL092764

108. Yin, L., Dijkstra, F.A., **Phillips, R.P.**, Zhu, B., Wang, P., and W. Cheng. 2021. Arbuscular mycorrhizal trees cause a higher carbon to nitrogen ratio of soil organic matter decomposition via rhizosphere priming than ectomycorrhizal trees. Soil Biology and Biochemistry. DOI: 10.1016/j.soilbio.2021.108246

107. Yahdjian, L. Sala, O.E, Piñeiro, J.M., Smith, M.D., Knapp, A.K., **Phillips, R.P.,** and S.L. Collins, 2021. Why coordinated distributed experiments should go global. BioScience. DOI: 10.1093/biosci/biab033

106. Stoy, P.C., Trowbridge, A.M., Siqueira, M.B., Friere, L.S., **Phillips, R.P.**, Jacobs, L., Wiesner, S., Stevens, P., Turner, R., and K.A. Novick. 2021. Vapor pressure deficit helps explain biogenic volatile organic compound fluxes from the forest floor and canopy of a temperate deciduous forest. Oecologia. DOI: 10.1007/s00442-021-04891-1

105. Terrer, C., **Phillips, R.P.**, Hungate, B.A., Rosende J., Pett-Ridge, J., Craig, M., van Groenigen, K.J., Keenan, T., Sulman, B., Stocker, B.D., Reich, P.B., Pellegrini, A.F.E., Pendall, E., Zhang, H., Evans, D.R., Carillo, Y., Fisher, J.B., and R.B. Jackson. 2021. A trade-off between plant and soil carbon storage under elevated CO_2. Nature, 591:599-603; DOI: 10.1038/s41586-021-03306-8; *highlighted in News & Views; Bastos and Fleischer 2021, Nature, 591: 532-534; DOI: 10.1038/d41586-021-00737-1*

104. Missik, J.E., Oishi, A.C., Benson M.C. Meretsky, V.J., **Phillips, R.P.**, and K.A. Novick. 2021. Performing gas exchange measurements on excised branches – evaluation and recommendations. Photosynthetica. DOI: 10.32615/ps.2020.079

103. Keller, A.B., Brzostek, E., Craig, M.A., Fisher, J.B. and **R.P. Phillips**. 2021. Root-derived inputs are major contributors to soil carbon in temperate forests but vary by mycorrhizal type. Ecology Letters. DOI: 10.1111/ele.13651

2020

102. Mushinski, R.M., Payne, Z.C., Raff, J.D., Craig, M.A., Pusede, S.E., Rusch, D.B., White, J.R., and **R.P. Phillips**. 2020. Nitrogen cycling microbiomes are structured by plant mycorrhizal associations with consequences for nitrogen oxide fluxes in forests. Global Change Biology. DOI: 10.1111/gcb.15439

101. Davies, S.J., et al. (**R.P. Phillips** one of 152 authors). 2020. ForestGEO: Understanding Forest Diversity and Dynamics through a Global Observatory Network. Biological Conservation. DOI: 10.1016/j.biocon.2020.108907

100. Cheeke, T.E., **Phillips, R.P.**, Kuhn, A., Rosling, A. and P. Fransson. 2020. Variation in mycorrhizal hyphal production rather than turnover regulates standing fungal biomass in temperate hardwood forests. Ecology. DOI: 10.1002/ecy.3260

99. Bond-Lamberty, B. (**R.P. Phillips** one of 96 authors). 2020. COSORE: A community database for continuous soil respiration and other soil-atmosphere greenhouse gas flux data. Global Change Biology. DOI: 10.1111/gcb.15353

98. Pastorello, G., et al. (**R.P. Phillips** one of 287 authors). 2020. The FLUXNET2015 dataset and the ONEFlux processing pipeline for eddy covariance data. Sci. Data 7, 225 (2020). DOI: 10.1038/s41597-020-0534-3

97. Au, T.F. Maxwell, J.T., Novick, K.A., Robeson, S.R., Lockwood, B.R., Warner, S.M., Harley, G.L., **Phillips, R.P.**, Therrell, M.D., Telewski, F.W., and N. Pederson. 2020. Demographic shifts in eastern US forests increases the impact of late-season drought on forest growth. Ecography. DOI: 10.1111/ecog.05055

96. Allen, K., Fisher, J.B., **Phillips, R.P.**, Powers, J.S. and E.R. Brzostek. 2020. Interactions between the C cost of N and P uptake in an optimal allocation model lead to divergent model predictions of nutrient limitation across tropical and temperate forests. Frontiers in Forests and Global Change. DOI: 10.3389/ffgc.2020.00043

95. Trowbridge, A.M., Stoy, P.C., and **R.P. Phillips**. 2020. Soil biogenic volatile organic compound flux in a mixed hardwood forest: Net uptake at warmer temperatures and the importance of mycorrhizal associations. Journal of Geophysical Research - Biogeosciences. DOI: 10.1029/2019JG005479; *(Commentary by Rinnan and Albers, DOI: 10.1029/2020JG005773 and by Schultz, DOI: 10.1029/2020EO143604)*.

94. Beidler, K.V., **Phillips, R.P.**, Andrews, E., Fernandez, C.W., Maillard, F., Mushinski, R.M., See, C.R. and P.G. Kennedy. 2020. Substrate quality drives fungal necromass decay and decomposer community structure under contrasting vegetation types. Journal of Ecology. DOI: 10.1111/1365-2745.13385

93. Kannenberg S.A., and **R.P. Phillips**. 2020. Non-structural carbohydrate pools not linked to hydraulic strategies or carbon supply in tree saplings during severe drought and subsequent recovery. Tree Physiology. DOI: 10.1093/treephys/tpz132

92. Kumar, A., **Phillips, R.P.**, Scheibe, A., Klink, S. and J Pausch. 2020. Organic matter priming by invasive plants depends on dominant mycorrhizal association. Soil Biology and Biochemistry. DOI: 10.1016/j.soilbio.2019.107645

2019

91. Keller, A.B., and **R.P. Phillips**. 2019. Relationship between belowground carbon allocation and nitrogen uptake in saplings varies by plant mycorrhizal type. Frontiers in Forests and Global Change. DOI: 10.3389/ffgc.2019.00081

90. Midgley M.G. and **R.P. Phillips**. 2019. Spatio-temporal heterogeneity in extracellular enzyme activities tracks variation in saprotrophic fungal production in a temperate forest soil. Soil Biology and Biochemistry. DOI: 10.1016/j.soilbio.2019.107600

89. Song, J. et al. (**R.P. Phillips** one of 59 authors). 2019. A meta-analysis of 1119 manipulative experiments on terrestrial carbon cycling responses to global change. Nature Ecology and Evolution. DOI: 10.1038/s41559-019-0958-3

88. Craig, M.E., Lovko, N., Flory, S.F., Wright, J.P., and **R.P. Phillips**. 2019. Impacts of an invasive grass on soil organic matter pools vary across a tree-mycorrhizal gradient. Biogeochemistry. DOI: 10.1007/s10533-019-00577-2

87. Zhang, Q., Ficklin, D.L., Manzoni, S., Wang, L., Way, D., **Phillips, R.P.**, and K.A. Novick. 2019. Rising vapor pressure deficit increases water use efficiency during drought. Environmental Research Letters. DOI: 10.1088/1748-9326/ab2603

86. Kannenberg, S.A., Novick, K.A., Alexander, M.R., Maxwell, J.T., Moore, D.J.P, **Phillips, R.P.**, and Anderegg, W.R.L. 2019. Linking drought legacy effects across scales: From leaves to tree rings to ecosystems. Global Change Biology. DOI: 10.1111/gcb.14710

85. Menge D.N.L., et al (**R.P. Phillips** one of 81 authors). 2019. Patterns of nitrogen-fixing tree abundance in forests across Asia and America. Journal of Ecology. DOI: 10.1111/1365-2745.13199

84. Jo, I., Fei., S., Oswalt, C., Domke, G., and **R.P. Phillips**. 2019. Shifts in dominant tree-mycorrhizal associations in response to anthropogenic impacts. Science Advances. DOI: 10.1126/sciadv.aav6358

83. Kannenberg, S.A., Novick, K.A., and **R.P. Phillips**. 2019. Anisohydric behavior linked to persistent hydraulic damage and delayed drought recovery across seven North American tree species. New Phytologist. DOI: 10.1111/nph.15699

82. Zak, D.R., Pellitier, P.T., Argiroff, W.A., Castillo, B., James, T.Y., Nave, L.E., Averill, C., Beidler, K., Bhatnagar, J., Blesh, J., Classen, A.T., Craig, M.E., Fernandez, C.W., Johansen, R., Koide, R.T., Lilleskov, E.A., Lindahl, B.D., Nadelhoffer, K., **Phillips, R.P.**, and A. Tunlid. 2019. Exploring the function of ectomycorrhizal fungi in soil organic matter dynamics. Tansley Insight. New Phytologist. DOI: 10.1111/nph.15679

81. Mushinski, R.M., **Phillips, R.P.**, Payne, Z.C., Abney, R.B., Jo, I., Fei, S., Pusede, S.E., White, J.R., Rusch, D.B., and J.D. Raff. 2019. Microbial mechanisms and ecosystem flux estimations for aerobic NO_y emissions from hardwood forest soils. Proceedings of the National Academy of Sciences. DOI: 10.1073/pnas.1814632116

80. Shi, M., Fisher, J.B., **Phillips, R.P.**, and E.R. Brzostek. 2019. Plant-microbe symbioses leads to underestimation of modeled climate impacts. Biogeosciences. DOI: 10.5194/bg-2018-293

79. **Phillips, R.P.**, Brandt, L., Polly, P.D., Zollner, P., Sunders, M.R., Clay, K., Iverson, L., and S. Fei. 2019. Towards an improved understanding of the ecological and economic consequences of climate change for Indiana forests. Climatic Change. DOI: 10.1007/s10584-018-2326-8

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RESEARCH MANUSCRIPTS – *In Revision or Submitted*

Jilling, A., Grandy, A.S., Daly, A., Hestrin, R., Possinger, A., Abramoff, R., Cates, A., Dynarski, K., Georgiou, K., Keiluweit, M., Lang, A., **Phillips, R.P.**, Rocci, K., Shabtai, I., Sokol, N. and E. Whalen. *In Revision*. The ecological relevance of fast-cycling mineral-associated organic matter – a dynamic pool of 'persistent' soil carbon and nitrogen.

Li, T., **Phillips R.P.,** Rillig, M.C., Angst, G., Kiers, T., Bonfante, P., Eisenhauer, N. and Liu, Z. *In Revision*. Plant-mycorrhizal associations, soil carbon sequestration, particulate organic carbon, mineral-associated organic carbon, ecosystem multifunctionality, forest restoration.

Barnes, C., Parker, J., Pullen, J., Schilling, G., Valet, D., **Phillips R.P.,** Fei, S. McCormick, M., Edwards, J., Fordyce, J., Bailey J. and S. Kivlin. *In Revision*. Losing the forest for the trees: Tree mycorrhizal associations influence belowground processes more than tree richness.

Zhu, Y., et al. (**R.P. Phillips** one of 40 authors). *In Revision*. Conspecifics reduce seedling survival more strongly in wet and low latitude forests.

Weiler, A., Craig, M., Johnson, D.J., Oh, Y.; Lang, A., Huenupi, E., Clay, K., and **R.P. Phillips.** *In Revision*. Seeing the forest for all the trees: Mycorrhizal-associated nutrient economies are modulated by stem density and the synchrony between overstory and understory communities

Oh, Y.E., Midgley, M.G., McCormack, L.M., Beidler, K.V., McCall, M., Henderson, S., Braghiere, R.K. and **R. P. Phillips**. *In Revision*. Plant functional groups and root traits are linked to exudation rates of mature temperate trees. Prep-print DOI: https://doi.org/10.1101/2024.08.01.606171

Worthy, S.J., Luong, J.C., Wainwright, B.E., Barcu, A.C., Elwood, E.C., Gujral, A.K., the International Drought Experiment Consortium, **Phillips, R.P.**, and J.L. Funk. *In Revision*. Growth form and phenology mediate the role of traits in short-term drought response: A global study on herbaceous species.

Ohlert, T., Smith, M.D., **Phillips R.P.**, and the International Drought Experiment Network. *In Revision*. Drought severity interacts with duration to erode ecosystem resistance.

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

Wang, S., Comas, L.H., Reich, P.B., McCormack, M.L., **Phillips, R.P.**, Gu, J., and T. Sun. *Submitted*. Plant growth forms in temperate forests determine their root resource foraging and conservation strategies in the root economics space.

Chen, G., Hu, Y., Wu, J., **Phillips, R.P.**, Xia, J., Wang, Y-P., Hui, D., Li, J, Yao, X. and Q. Deng. *Submitted*. Tree-mycorrhizal types differ in their biomass response to nitrogen deposition.

Kim, J., Root, A., Benson, M., Beverly, D. Johnson, J., Lerdau, M., **Phillips, R.P.**, Novick, K.A., and X. Yang. *Submitted*. Leaf angle changes strengthen the relationship between the quantum yields of chlorophyll fluorescence and photosynthesis in sugar maple and white oak seedlings.

Spanier, N.M., and **R.P. Phillips.** *Submitted*. Soil microbial drought history affects tree physiology of select species.

Coughlin, A. Peralta, P., Bernhardt, E.S., **Phillips R.P** and J.P. Wright. *Submitted*. Divergent plant and microbial community change in response to coastal salinization and sea level rise.

Hu, Y., Chen, J., Hui, D., **Phillips, R.P.**, Wang, Y-P., Chen G., Zhu Y., Huang, X., Li, J., and Q. Deng. *Submitted*. Significant impacts of mycorrhizal type and nitrogen deposition duration on soil carbon sequestration in terrestrial ecosystems.

Dukes, J., Xu, C., Liao, C., Novick, K.A., **Phillips, R.P.**, Beverly, D., Fang, Y. Jacobs, E, McAdam, S., Paudel, I., Rimer, I., and Z. Robbins. *Submitted*. Improving the representation of plant water stress and water use in Earth System Models.

Yan, H. (**R.P. Phillips** one of 38 authors). *Submitted*. Tree diversity–soil organic carbon relationships strengthen with climatic stress.

Muratore, T.J., Chari, N.R., **Phillips, R.P.**, Taylor, B.N., Knorr, M.A., and S.D. Frey. *Submitted*. Increased root-derived carbon offsets soil carbon loss under simultaneous warming and nitrogen addition.

Cortese, A., Eagar, A, Moledor, S., Smemo, K.A, **Phillips, R.P.**, and C.B. Blackwood. *Submitted*. The non-host with the most? Arbuscular mycorrhizal trees enhance diversity of ectomycorrhizal fungi in mixed temperate forests

Hauser, E., **Phillips, R.P.**, Wieder, E.R. and C.C. Cleveland. *Submitted*. Stoichiometric flexibility on land: Patterns, consequences, and knowledge gaps.

Machado, S., Garnica-Díaz, C., Jumani, S., Smith, N.A., John, G.P. **Phillips, R.P.**, Clay, K. and D.J. Johnson. *Submitted*. Drought decreases tree survival with size-dependent effects but is decoupled from functional traits in a temperate broadleaf forest.

BOOK CHAPTERS AND EDITED BOOKS

Novick, K.A., Mincey, M., Lave, R, Baeten, J., Maxwell, J. and **R.P. Phillips**. 2022. Chapter 3: Indiana forest resilience is a matter of scale and perspective; *Climate Change and Resilience in Indiana and Beyond* (Eds., McCabe, Filippelli, Novick, Shanahan), Indiana University Press.

Avis, P.G., Meier, I.C., and **R.P. Phillips**. 2017. Chapter 13: An intact soil core bioassay for cultivating forest ectomycorrhizal fungal communities. In M. Lukac, P. Grenni & M. Gamboni Eds., *Soil Biological Communities and Ecosystem Resilience*. Springer. Electronic ISBN: 978-3-319-63335-0.

Brzostek, E.R. Rebel, K., Smith, K.R., and **R.P. Phillips**. 2017. Chapter 25: Integrating mycorrhizae into global scale models: A journey toward relevance in the earth's climate system. In Johnson, N.C., Gehring, C., and J. Jansa. Eds. *Mycorrhizal mediation of soil: fertility, structure, and carbon storage*. Elsevier, 201; Electronic ISBN 9780128043837.

McDowell, N., Hanson, P.J., Ibáñez, I., **Phillips, R.P.**, and M.G. Ryan. 2016. Chapter 3: Physiological responses of forests to future drought. In: Vose, J.M.; and J.S. Clark, eds., USDA Forest Service Report: Effects of Drought on Forests and Rangelands in the United States: A Comprehensive Science Synthesis. Gen. Tech. Report WO-93b January 2016

Schlesinger, W.H., Dietze, M.C., Jackson, R.B., **Phillips, R.P.**, Rhoades, C.C., Rustad, L.E., and J.M. Vose. 2016. Chapter 5: Forest biogeochemistry in response to drought. In: Vose, J.M.; and J.S. Clark, eds., USDA Forest Service Report: Effects of Drought on Forests and Rangelands in the United States: A Comprehensive Science Synthesis. Gen. Tech. Report WO-93b Jan. 2016

CONTRACTS AND GRANTS *(all amounts = total IU budget)*

Current awards

2023-2026 PI. (Collaborative with Jonathan Raff) "Understanding emission sources and sinks of nitrous acid in North American forests", NSF, Atmospheric Chemistry Program (Award # 2243202); $892,691

2021-2024 Co-PI. (PI, Jeff Dukes) "Understanding spatial and temporal drivers of variation in tree hydraulic processes and their consequences for climate feedbacks", DOE, ESS (Award# DE-SC0021980); $316,000

2021-2024 PI. (Collaborative with Songlin Fei, Stephanie Kivlin and John Parker) "Elucidating plant and mycorrhizal fungal relationships and consequences across space and time", NSF, DEB, MacroSysBIO & NEON-Enabled Science (Award# 2106096); $229,332

2020-2023 Co-PI. (Collaborative with Kimberly Novick and Xi Yang) "The coordinated structural and physiological responses of trees to water stress: an organismal approach", NSF, IOS - Integrative Ecological Physiology (Award# 2006196) $393,585

2021-2023 Contract with Lawrence Berkeley National Lab to purchase instruments needed to analyze soil samples (water potential, water retention, and texture) from select Amerflux sites, plus ancillary funding request; $104,581 *(estimate)*

2020-2025 Co-PI. (PI, Kimberly Novick). Contract with DOE-funded Ameriflux Network Management Project run through Lawrence Berkeley National Lab to provide long-term support to the Morgan Monroe State Forest eddy-flux tower; $965,331

Past awards

2018-2021 PI. (Collaborative with Chris Blackwood and Kurt Smemo) "EAGER: Shifting control from negative plant-microbe feedback to nutrient limitation: predictions from dominant tree traits and ecosystem nutrient economies", NSF, DEB - Population and Community Ecology (Award# 1834255); $129,450

2019-2022 PI. "Ecosystem and climate consequences of forest community change"; Environmental Resilience Institute, Indiana University; $237,383

2019-2020 Co-PI. (PI, Jonathan Raff) "Mineralogy and soil organic matter composition as drivers of reactive nitrogen emissions from midwestern hardwood forest soils", DOE, Environmental Molecular Sciences Laboratory User Project Grant. $97,314 (*estimate*)

2017-2020 Co-PI. (PI, Kimberly Novick) "Drought impacts on species-specific carbon uptake and growth in Eastern U.S. hardwood forests", USDA, AFRI, Physiology of Agricultural Plant Program; Grant #2017-67013-26191; $470,000

2016-2019 Co-PI. (PI, Joshua Fisher) "The carbon–nutrient economy of the rhizosphere: Improving biogeochemical prediction and scaling feedbacks from ecosystem to global scales", DOE, Environmental System Science Program, Terrestrial Ecosystem Sciences (Award# DE-SC0016188); $598,109

2014-2019 Co-PI. (PI, Melinda Smith), "Drought-Net: A global network to assess terrestrial ecosystem sensitivity to drought", NSF, Research Coordination Network, DEB (Award# 1354732). $499,992

2017-2019 PI. (Doctoral Dissertation Improvement Grant for Matt Craig) "Where plant litter ends and soil carbon begins: The role of microbial physiology in stabilizing soil organic matter", NSF, DEB Ecosystem Studies (Award# 1701652); $20,275

2016-2021 Co-PI. (PI, Kimberly Novick). Contract with DOE-funded Ameriflux Network Management Project to continue to provide long- term support for the Morgan Monroe State Forest eddy-flux tower; our site is among a core group of AmeriFlux towers spread across ecological and climate zones in the US; $780,754

2016-2019 Co-PI. (PI, Jonathan Raff) "Combined Flux Chamber and Genomics Approach to Understanding Soil Emissions of Reactive Nitrogen Oxides in a Forested Environment", DOE, Joint Genome Institute, Community Science Program.

2015-2017 Co-PI. (PI, William Wieder) "Benchmarking and improving microbial-explicit soil biogeochemistry models", DOE, Environmental System Science Program (Award# DE-SC0014374-1214.11.3201B); $497,780

2014-2016 PI. (Collaborative with Justin Wright and Luke Flory) "Testing a conceptually-driven framework to predict variability in the ecosystem consequences of plant invasion across heterogeneous landscapes", NSF, DEB - Ecosystem Studies (Award# 1353296); $372,337

2017 PI. (Collaborative with Keith Clay). Contract with Smithsonian Tropical Research Institute (unit of Smithsonian Institution of Washington D.C.) to re-census the 25 ha Indiana University Forest Dynamics Plots at Lilly Dickey Woods; $14,115

2012-2016 Co-PI. (PI, Josh Fisher), "Nutrient cycle impacts on forest ecosystem carbon cycling: Improved prediction of climate feedbacks from coupled C–nutrient dynamics from ecosystem to regional scales", Department of Energy, Terrestrial Carbon Cycle Research, $1,044,835

2013-2016 Co-PI (PI, Kimberly Novick). Contract with DOE-funded Ameriflux Network Management Project to continue to provide long- term support for the Morgan Monroe State Forest eddy-flux tower; our site is among a core group of AmeriFlux towers spread across ecological and climate zones in the US; $562,508

2013-2015 Co-PI. (PI, Amy Trowbridge), "Above and belowground connections and species interactions: Controls over ecosystem fluxes", Department of Energy, Terrestrial Carbon Cycle Research, $150,000

2014-2015 Co-PI. (PI, Karin Rebel), "Climate models revisited: the biogeochemical consequences of mycorrhizal dynamics", Royal Netherlands Academy of Arts and Sciences, $25,939

2012-2014 PI. "A belowground framework for predicting how plant-microbial interactions couple carbon and nutrient economies of forests", NSF, DEB - Ecosystem Studies (#1153401), $398,042

2012-2014 Co-PI. (PI, Jeffrey Dukes), "Climate change feedbacks from interactions between new and old carbon", Department of Energy, Terrestrial Carbon Cycle Research, $150,000

2008-2011 PI. "Rhizosphere priming effects on soil N availability: the role of root exudates in coupling ecosystem C and N cycles under elevated CO_2", USDA NIFA, Soil Processes Program, $385,000; *NOTE: Excerpts of this grant were included as an exercise and writing example in "Scientific Writing and Communication: Papers, Proposals and Presentations", Oxford University Press, 2009*.

2009-2011 PI. "Examining the role of mycorrhizal associations in mediating carbon storage in southern Indiana", Indiana University, Center for Research in Environmental Science, $18,700

2010-2012 Co-PI. (PI, Danilo Dragoni), "Ecosystem-atmosphere exchange over a mixed deciduous forest in the Midwest: How does the carbon budget respond to short- and long-term climate variability?", Department of Energy, Terrestrial Carbon Cycle Research, $457,706

2010-2011 Co-PI. (PI, Todd Royer), "Hydrological controls on greenhouse gas emissions from agricultural landscape: the role of artificial subsurface drainage", Indiana University, Office of the Vice Provost for Research $59,269

2010-2011 PI. "Development of an improved land cover classification scheme to estimate ecosystem functioning in southern Indiana forests", Indiana University, Summer Stipends for Collaborative Research and Creative Activities, $9,767

2010-2011 Co-PI. (PI, Tom Evans). "New media approaches for cross-disciplinary education and community awareness of remote sensing and land use dynamics", Indiana Space Grant Consortium, $15,000

2011-2012 Co-PI. (PI, Phil Stevens), "Temporal dynamics of volatile organic carbon (C) emissions from forest soils: In-situ measurements of the C we do not see", Indiana University, Center for Research in Environmental Science, $26,000

2012-2013 Co-PI (Collaborative with Keith Clay). Contract with Smithsonian Tropical Research Institute (unit of Smithsonian Institution of Washington D.C.) to establish the 25 ha Indiana University Forest Dynamics Plots at Lilly Dickey Woods; $30,759

INVITED TALKS AT SYMPOSIA AND MEETINGS

2025 Rhizosphere 6 - *invited plenary talk*; Edinburgh, Scotland; June 16-19, 2025
2025 MONet Community Science Meeting; *invited speaker*; Environmental Molecular Sciences Laboratory at the Pacific Northwest National Laboratory; Richland, WA
2024 American Geophysical Union Annual Meeting "Land Biogeochemical Cycling Under Global Environmental Change: Patterns, Drivers, and Mechanisms"; Washington DC
2024 Rhizosphere Function Lab Workshop (virtual); *invited speaker* (one of six); Pacific Northwest National Lab, Richland, WA
2023 Biotic Interactions & their role in ecosystem-climate feedbacks; *keynote speaker* in session: "Microbial interactions & ecosystems functions"; Hamburg, Germany (*declined*)
2023 Lawrence Livermore National Lab Soil Microbiome Scientific Focus Area (SFA) all-hands meeting; *invited plenary talk*; Innovative Genomics Institute; Berkeley, CA
2022 Soil Science Society of America Annual Meeting (session: "The Role of Soil Microorganisms in Sustainable Forest Management"); Baltimore, MD
2020 Soil Science Society of America Annual Meeting (CrossDiv Symposium on "Mycorrhizal Fungi As Modulators of Soil Organic Matter Dynamics"); Virtual Meeting
2020 Ecological Society of America Annual Meeting (session: "The Role of Mycorrhizae in Mediating Species Interactions"); Virtual Meeting (cancelled)
2019 Ecological Society of America Annual Meeting (session: "Mapping Earth's Microbiome: Understanding macroecological rules of microbial distributions and their implications for ecosystem function"); Louisville, KY
2019 International Conference on Mycorrhiza (ICOM-10); *keynote speaker* in session: "New technologies and innovation in the study of mycorrhizal symbioses: the way forward"; Merida, Mexico
2018 Geological Society of America, Critical Zone Science: Bio-Geo Interactions across Environmental Gradients and Time; Indianapolis, IN
2018 Energy Institute at the University of Michigan (co-sponsored by the Beyond Carbon Neutral Program); "Fungal Communities and Soil Carbon Storage"; Ann Arbor, MI
2018 Ecological Society of America Annual Meeting, (session: "Integrating Diverse Evidence for Effects Rising CO_2 on Terrestrial Ecosystems"); New Orleans, LA
2017 DOE Office of Biological & Environmental Research "Long-term Vision" Workshop; Washington, DC; *one of six invited plenary speakers*
2016 American Geophysical Union Annual Meeting "Soil Carbon Dynamics: Interactions of Plants, Microbes, and Minerals"; San Francisco, CA

2016 Ecological Society of America Annual Meeting, (session: "Mycorrhizal fungi as drivers and modulators of ecosystem processes"); Ft. Lauderdale, FL
2015 American Geophysical Union Annual Meeting "Roots & Modeling"; San Francisco, CA
2015 Climate models revisited: the biochemical consequences of mycorrhizal dynamics; hosted by KNAW, Amsterdam, Netherlands
2014 Roots in Models Workshop; DOE-funded workshop to explore how root dynamics can be included in land surface models; hosted by Oak Ridge National Lab, Oak Ridge, TN
2014 Ecological Society of America Annual Meeting, (session: "Rhizosphere interactions: An exploration of patterns across systems"), Sacramento, CA
2014 RhizoNet Workshop; Chinese Academy of Sciences-funded workshop on new ways to couple roots and belowground processes with ecosystem functions; Beijing, China
2013 Midwest Flux Tower Workshop, funded by the Ameriflux Management Project; Bloomington, IN
2012 Department of Energy Workshop, "Scaling Root Processes: Global Impacts", Washington D.C.
2012 Gordon Conference, "Biogenic Hydrocarbons and the Atmosphere", Lewiston, ME (declined)
2011 Ecological Society of America Annual Meeting, (session: "Measuring and Modeling Roots, the Rhizosphere, and Microbial Processes Belowground"), Austin TX
2010 Goldschmidt Conference, (session: "Biological Weathering in the Critical Zone: From Nano to Global Scale"), Knoxville, TN
2009 Subsurface Biosphere Workshop, Oregon State University, Corvallis OR
2009 Ecological Society of America Annual Meeting (session: "The long-term response of ecosystems to simulated global change"), Albuquerque, NM
2009 American Geophysical Union Fall Meeting (session: "Soil Organic matter and carbon sequestration: From models to mechanisms"), San Francisco, CA
2008 American Geophysical Union Fall Meeting, (session: "Impact on terrestrial ecosystems of CO_2, climate, limiting nutrients, human activities and biofuel production"), San Francisco, CA

INVITED SEMINARS

2024 Michigan State University; Department of Forestry
2024 University of Bayreuth; BayCEER Colloquium; Bayreuth, Germany
2024 German Centre for Integrative Biodiversity Research; Leipzig, Germany
2024 University of Hamburg; Plant Science Colloquium; Hamburg Germany
2024 University of Massachusetts; Stockbridge School of Agriculture Seminar Series; Amherst, MA
2024 University of California – Riverside; Dept of Environmental Sciences; Riverside, CA
2023 University of New Hampshire; Department of Natural Resources and the Environment; Durham, NH
2023 UC Davis; 'Soils in the climate crisis' seminar series; Department of Land, Air and Water Resources; Davis, CA

2023 Lawrence Berkeley National Lab; Distinguished Scientist Seminar Series; Climate & Ecosystems Sciences Department; Berkeley, CA
2023 Carnegie Institute, Department of Global Ecology, Palo Alto, CA
2023 UC Davis; Ecology and Evolution Seminar Series; Davis, CA
2022 Massachusetts Institute of Technology; Parsons Seminar Series; Department of Civil and Environmental Engineering; Cambridge, MA
2022 Harvard University; Dept. of Organismic and Evolutionary Biology; Cambridge, MA
2022 West Virginia University; Department of Biology; Morgantown, WV
2021 University of Leiden; Institute of Env. Sciences & Centre for Sustainability, Netherlands
2020 Texas Tech; Department of Biological Science; Lubbock, TX
2020 Duke University, Department of Biology; Durham, NC
2018 Butler University, Department of Biological Sciences; Indianapolis, IN
2018 University of Alberta, Dept. of Renewable Resources; Edmonton, Alberta, Canada
2018 University of Connecticut, Dept. of Natural Resources and the Environment; Storrs, CT
2017 Washington University, Tyson Research Center Summer Seminar Series, St Louis, MO
2017 Syracuse University, Department of Biology; Syracuse, NY
2017 University of Florida, Department of Biology; Gainesville, FL
2016 The Ecosystems Center, Marine Biological Laboratory; Woods Hole, MA
2016 University of Minnesota, Dept. of Ecology, Evolution and Behavior; Minneapolis, MN
2015 Cornell University; Biogeochemistry Program, Ithaca, NY
2015 University of Illinois - Chicago; Department of Biological Sciences; Chicago, IL
2014 Institute of Geographical Sciences & Natural Resources, Chinese Academy of Sciences
2014 Kellogg Biological Station, Hickory Corners, MI
2013 Ohio State University, Dept. of Evolution, Ecology and Org. Biology, Columbus, OH
2013 Cary Institute of Ecosystem Studies, Millbrook, NY
2012 University of Toledo, Department of Environmental Sciences, Toledo, OH
2012 Ohio University, Department of Environmental and Plant Biology, Athens, OH
2012 Colorado State University, Department of Soil and Crop Sciences, Fort Collins, CO
2012 Kent State, Department of Biological Sciences, Kent, OH
2011 University of Missouri – St Louis, Department of Biology, St Louis, MO
2011 University of Illinois, Urbana-Champaign, Department of Natural Resources
2011 DePauw University, Department of Biology, Greencastle, IN
2010 Purdue University, Department of Biological Sciences, W. Lafayette, IN
2009 Cornell University, Biogeochemistry Program, Ithaca, NY
2009 Michigan State University, Department of Forestry, Lansing MI
2009 Indiana-Purdue University at Indianapolis, Dept. of Earth Sciences, Indianapolis, IN
2009 Indiana University, Department of Geography, Bloomington, IN
2008 Indiana University, School of Public and Environmental Affairs, Bloomington, IN
2005 University of North Carolina, Department of Biology, Chapel Hill, NC

POSTDOCS, STUDENTS & TECHNICIANS TRAINED AND MENTORED

Current post-docs

1. Daniel Beverly (co-advised by K. Novick) – Ph.D. University of Wyoming (recipient of USDA AFRI NIFA post-doc fellowship; 2023)
2. Feng Jiang (co-advised by J. Raff) – Ph.D. Karlsruhe Institute of Technology, Institute of Meteorology and Climate Research, Germany

Current Ph.D. students

1. Young Oh - Ph.D. student (started in fall, 2021)
2. Nicole Spanier - Ph.D. student (started in fall, 2021)
3. Ashish Nambiar - Ph.D. student (started in fall, 2023)
4. Elaine Hoffman - Ph.D. student (started in fall, 2023)

Current graduate advisory committees (Indiana University; IU)

1. Bryan Guevara – Ph.D. student in the Department of Biology; EEB Program
2. Jaeyoung Yoo - Ph.D. student in the Environmental Science Program, SPEA, IU
3. Joy O'Brien – Ph.D. student in the Department of Biology; EEB Program
4. Anna Werkowski – Ph.D. student in the Department of Biology; EEB Program
5. Madison Stolz – M.S. student in the Department of Biology; EEB Program
6. Jocelyn Huang – Ph.D. student in the Department of Biology; EEB Program

Current graduate advisory committees *(Institutions other than IU*)

1. David Moore - Ph.D. student; Department of Natural Resources & the Environment; University of New Hampshire
2. Amanda Daily - Ph.D. student; Department of Natural Resources & Environment; University of New Hampshire
3. Nikhil Chari - Ph.D. student; Department of Organismic and Evolutionary Biology, Harvard University
4. Aeran Coughlin - Ph.D. student; Department of Biology, Duke University
5. Carina Berlingeri - Ph.D. student; Department of Organismic and Evolutionary Biology, Harvard University
6. Shubham – Ph.D. student in National Centre for Biological Sciences in Bangalore, India
7. Roman Dubreucque – Ph.D. student at the Theoretical and Experimental Ecology Station in Moulis, France
8. Tobias Käcks – Ph.D. student at the German Centre for Integrative Biodiversity Research (iDiv), Halle-Jenna-Leipzig, Germany
9. Alejandra Castillo – Ph.D. student; Department of Biology; Boston University

Current technicians

1. Elizabeth Huenupi (lab manager and supervisor); Ph.D. in Engineering Science and Chemistry; University of Chile, Santiago, Chile
2. Mark Sheehan (field technician); Ph.D. in Botany; Indiana University, Bloomington

Current undergraduate technicians or mentees

1. Sam Burkle; Major: Biology; IU (X490 independent research)
2. Malaak Alqaisi; Major: Biology; IU (Honor's thesis committee Chair)
3. Emily Andrews; Major: Biology; IU (Cox Scholar; independent research)
4. Zoe Worman; Major: Biology; IU
5. Zach Spencer; Major: Biology; IU

Current and Former visiting scholars

1. Valentin Kurbel, visiting Ph.D. student from Univ. of Bayreuth, Germany (2024-25)
2. Huimin Yi, visiting Ph.D. student from German Centre for Integrative Biodiversity Research (2024)
3. Veronica Vasilica, visiting MS student from Univ. of Bayreuth, Germany (2022)
4. Svenja Stock – visiting PhD student from Univ. of Bayreuth, Germany; Fullbright recipient (2018)
5. Saskia Klink – visiting Ph.D. student from Univ. of Bayreuth, Germany (2018)
6. Amit Kumar – visiting Ph.D. student from Univ. of Bayreuth, Germany (2017)
7. Johanna Pausch – visiting professor from Univ. of Bayreuth, Germany; DAAD scholar (2017)
8. Linette Viertelhauzen – visiting MS student from Utrecht University, Netherlands (2013)
9. Anna Rosling – visiting scholar from Uppsala University, Uppsala, Sweden (2013-15)
10. Huajun Yin – visiting scholar; Chengdu Institute of Biology, Chinese Acad. of Sci., (2013-14)

Former post-docs

1. Ashley Lang; now Post-doc with the FIA Carbon Science Group, US Forest Service
2. Ryan Mushinski; now Associate Professor at University of Warwick, UK
3. Quan Zhang; now Lecturer at State Key Laboratory, Wuhan University, Wuhan, China
4. Loïc D'Orangeville; now Associate Professor at Université Laval; Quebec, Canada
5. Andrea Scheibe; now Research Assistant at University of Bayreuth; Bayreuth, Germany
6. Tanya Cheeke; now Associate Professor at Washington State University
7. Benjamin Sulman; now Staff Scientist at Oak Ridge National Lab
8. Amy Trowbridge; now Associate Professor at University of Wisconsin-Madison
9. Edward Brzostek; now Professor at West Virginia University
10. Ina Meier; now Heisenberg Professor at the University of Hamburg

Former Ph.D. students

1. Katie Beidler – now Assistant Professor at Berry College, Mt. Berry, Georgia
2. Adrienne Keller – now Scientist at Northern Institute for Applied Climate Science, Minneapolis, MN
3. Matthew Craig – now Research Scientist at Oak Ridge National Lab, Oak Ridge, TN
4. Steve Kannenberg – now Post-doc at Assistant Professor at West Virginia Univ., Morgantown, WV
5. Meghan Midgley – now Soil Ecologist at Morten Arboretum, Chicago, IL

Former undergraduate mentees (only those who carried out independent research)

2022-2023	Adam Weiler - Honor's thesis committee member (Chair); Major: Biology and Env. Science; X490 independent research
2021	Lauren Martin - Honor's thesis committee member; Major: Biology
2021	Emma Hand - Honor's thesis committee member (Chair); Major: Env. Science
2019-2020	Ashley Kovach-Hammons - Honor's thesis committee (Chair); Major: Biology; X490 independent research
2018-2019	Hongxi Lyu - Honor's thesis committee (Chair); Major: Biology; X490 research
2019	Karl Hagan – BS in Chemistry; X490 independent research
2018-2019	Kelly Fox – Honor's thesis committee (Chair); Major: Biology; X490 research
2018-2019	KC Cifizzari – Honor's thesis committee member; Major: Biology
2018-2019	Andrew Reese – BS in Environmental Science; X490 independent research
2018-2019	Corben Andrews – BS in Environmental Science; X490 independent research
2017-2018	Max Zaret – Honor's thesis committee; Major: Biology; Class of 2018
2017-2018	Julius Hain – BS in Biology; X490 independent research
2016-2017	Peyton Joachim – BS in Biology; X490 independent research
2014-2015	Nadia Lovko – BS in Environmental Science; L490 independent research
2013-2015	Luke Jacobs – BS in Biology; L490 independent research
2014-2015	Jack Feighery – BS in Environmental Science; L490 independent research
2014	Sam Incardona – BS in Biology; L490 independent research
2014	Alexander Kuhn – BS in Conservation Biology at SUNY ESF; REU student
2013-2014	Jennifer Swillik – BS in Environmental Science; L490 independent research
2013-2014	Rachel Gidley – BS in Environmental Science; L490 independent research
2013	Frances Einterz – BS in Environmental Science; L490 independent research
2012-2013	Elizabeth Allaby – BS in Biology; L490 independent research
2012-2013	Tyler Klingenberger – BS in Environmental Science; L490 independent research
2012	Daniel O'Conner; visiting undergraduate (summer); Occidental College, CA
2012	Emily Wheeler – BS in Environmental Science; L490 independent research
2011-2012	Tyler Pietrykowski – BS in Environmental Science; L490 independent research
2011-2012	Nate Barnett – BS in Environmental Science; L490 independent research
2010	Paula Arenas – BS in Environmental Science; L490 independent research
2010	Janelle Steffan – BS in Environmental Science; L490 independent research
2009	Ryan Kessens – Integrated Freshman Learning Experience
2008-2009	Sarah Hoffman – BS in Environmental Science; L490 independent research

Former graduate student graduate advisory committees

1. Michael Benson - Ph.D. student in the Environmental Science Program, SPEA, IU
2. Benjamin Lockwood - Ph.D. student in the Department of Geography, IU
3. Savannah Bennett - Ph.D. student in EEB, Department of Biology, IU
4. Lienne Sethna - Ph.D. student in the Environmental Science Program, SPEA, IU
5. Tsun Fung Au - Ph.D. student in the Department of Geography, IU
6. Ashley Lang - Ph.D. student; Department of Biological Sciences; Dartmouth College
7. Emma Oschrin - Ph.D. student in EEB, Department of Biology, IU

8. Ellen Herbert - Ph.D. student in Environmental Sciences Program in SPEA at IU
9. Kim Elsenbroek – former M.S. student in EEB at IU
10. Lauren Smith – former Ph.D. student in EEB at IU
11. Jonathan Bauer - former Ph.D. student in EEB at IU
12. Diana Oveido Vargas - former Ph.D. student in SPEA at IU
13. Joe Morgan - former M.S. student in SPEA at IU
14. Michael Brennan - former M.S. student in SPEA at IU
15. Erica Waters – former Ph.D. student in EEB at IU
16. Liz Koziol – former Ph.D. student in EEB at IU
17. Brian Steidinger – former Ph.D. student in EEB at IU
18. Mario Muscarella – former Ph.D. student in EEB at IU
19. Geoffrey House – former Ph.D. student in EEB at IU
20. Alyssa Beck – former Ph.D. student in Ecology, Evolution, & Conserv. Biology; U. Illinois
21. Alejandro Salazar – former Ph.D. student, Biological Sciences, Purdue University
22. Amy Snyder – former M.S. student in EEB at IU
23. Amanda Daly – former Ph.D. student, University of New Hampshire
24. Noah Sokol – former Ph.D. student, School of Forestry & Env. Studies, Yale University
25. Venus Kuo – former Ph.D. student in EEB, Department of Biology, IU
26. Koong Yi – former Ph.D. student in Environmental Science Program, SPEA, IU
27. Nathan Wisnoski – former Ph.D. student in EEB at IU
28. Erin Andersen – M.S. student in the Environmental Science Program, SPEA, IU
29. Laura Jessup - Ph.D. student; Department of Forestry & Nat. Res.; Purdue University
30. Thomas Muratore - Ph.D. student; Department of Natural Resources & Environment; University of New Hampshire

<u>Former full-time technicians</u>

1. Trevor Gress; MS in Environmental Science, O'Neil School, IU, Bloomington
2. Laura Podzikowski – now a post-doc; Department of EEB at University of Kansas
3. Robin Johnson – now Laboratory Safety Specialist for Environmental Health & Safety, IU
4. Dan Du – now Ph.D. student in Dept. of Soil & Water Systems at Univ. of Idaho
5. Zach Brown – now a Ph.D. student in Ecology at University of Tasmania, Australia
6. Andrea Martin – now Senior Associate at Cascade Consulting Group, WA
7. Christina Kuchle – now at Department of Natural Resources, OH
8. Daniel Lehman – now at lab manager in O'Neil School of Public & Env. Affairs, IU
9. Marissa Lee – now a Research Associate at North Carolina State University, NC
10. Nathan Kleczewski – now Research Assistant Professor in Crop Sciences at Univ of Illin.
11. Jill Greiner – now Coordinator of Water Conservation for City of Charlottesville, VA
12. Raven Bier – now Research Associate at Stroud Water Research Center, PA

STUDENT / POSTDOC AWARDS AND FELLOWSHIPS

2025 Elaine Hoffman; IU Research and Teaching Preserve grant; $1,125
2025 Elaine Hoffman; Indiana Academy of Sciences grant; $4,900
2025 Elaine Hoffman; NSF GRFP – honorable mention

2025 Ashish Nambiar; IU Research and Teaching Preserve Grant; $2,250
2025 Ashish Nambiar; IU OVPIA Pre-dissertation Travel Award; $3,500
2025 Young Oh; Midwest Climate Adaptation Science Center fellowship; ~$45,000
2025 Young Oh; George W. Brackenridge Fellowship; $2,500
2024 Ashish Nambiar; Invited to Smithsonian Tropical Research Institute's ForestGEO in Kenya (declined); ~$4,000
2024 Ashish Nambiar; George W. Brackenridge Fellowship; $5,000
2024 Nicole Spanier; George W. Brackenridge Fellowship; $5,000
2024 Nicole Spanier; Midwest Climate Adaptation Science Center fellowship; ~$45,000
2024 Elaine Hoffman; Invited to attend Stable Isotopes in Environmental Biology Workshop at the Pacific Northwest National Lab; ~$1,000
2023 Adam Weiler; IU Engaged Learning Travel Scholarship to attend ESA meeting; $300
2023 Daniel Beverly; USDA AFRI NIFA Postdoctoral Fellowship; ~$170,000
2023 Nicole Spanier; Women in Science Travel Award (IU-B) to attend ESA meeting; $650
2022 Young Oh; IU Research and Teaching Preserve Grant; $2,860
2022 Nicole Spanier; IU Research and Teaching Preserve Grant; $2,376
2021 Katie Beidler; William Ogg Final Year Fellowship; $10,000
2020 Ashley Lang; NSF Postdoctoral Research Fellowship in Biology - Interdisciplinary Research Using Biological Collections; $138,000
2020 Katie Beidler; George W. Brackenridge Fellowship; $2,500
2020 Katie Beidler and Young Oh (MS student); IU Research and Teaching Preserve Grant; $3,000
2019 Katie Beidler; Smithsonian CTFS-ForestGEO Research Grants Program; $10,000
2019 Corben Andrews (undergraduate) and Katie Beidler; IU Research and Teaching Preserve Grant; $3,000
2019 Katie Beidler; Sears Crowell Scholarship; $2,500
2019 Adrienne Keller; USDA AFRI NIFA Predoctoral Fellowship; $119,985
2019 Ryan Mushinski; USDA AFRI NIFA Postdoctoral Fellowship; $161,500
2019 Adrienne Keller; Floyd/Ogg/Cleland Final Year Fellowship (declined)
2018 Matt Craig; IU Research and Teaching Preserve Grant; $2,000
2018 Katie Beidler; Sears Crowell Scholarship; $2,500
2018 Adrienne Keller; Blatchley Nature Study Club Scholarship; $500
2018 Julius Hain; Howard W. Clark Scholarship; $500
2017 Matt Craig; NSF DEB, Doctoral Dissertation Improvement Grant; $20,275
2017 Matt Craig; Best Student Presentation – International Symposium on Soil Organic Matter; $332
2017 Adrienne Keller; Smithsonian CTFS-ForestGEO Research Grants Program; $14,977
2017 Steve Kannenberg; Ehleringer & Hanski Prize (best student paper in Plant Ecology; Oecologia); $500
2017 Adrienne Keller; Louise Constable Hoover Fellowship; $1,500
2017 Adrienne Keller; IU Research and Teaching Preserve Grant; $2,000
2017 Matt Craig; Alfred Parson Mower Fellowship; $1,500
2017 Matt Craig; Blatchley Nature Study Club Scholarship; $500
2016 Steve Kannenberg; Sears Crowell Scholarship; $3,200

2016 Adrienne Keller; Fred Seward Award; $2,500
2016 Matt Craig; Best Student Presentation – Biogeosciences Section; ESA Annual Meeting; $500
2016 Matt Craig; Louise Constable Hoover Fellowship; $1,000
2015 Steve Kannenberg; Travel award to attend INTERFACE workshop in Tampa, Florida
2014 Tanya Cheeke; Forest Fungal Ecology Postdoc Award – Mycological Society of America; $2,500
2014 Matt Craig; Smithsonian-Forest Global Earth Observatory Program grant; $15,000
2014 Tanya Cheeke; Indiana Academy of Sciences Award; $3,000
2013 Meghan Midgley; USDA Graduate Research Fellowship; $66,000
2013 Amy Trowbridge; NSF Postdoctoral Research Fellowships in Biology;
2012 Emily Wheeler; IU Women in Science Fellowship, 2012; $500
2012 Elizabeth Allaby; Indiana Daffodil Society ($500) and Women in Science ($500) Fellowships
2011 Brian Steidinger; NSF Graduate Research Fellowship
2011 Meghan Midgley; Indiana Academy of Sciences Award; $3,000
2009 Meghan Midgley; Indiana Space Grant Fellowship; $15,000

CLASSROOM TEACHING (Indiana University only)

2025 L402 "Ecosystems and Global Change"; 3 credit hours
2025 Z620 (cross-listed with L402) "Ecosystems and Global Change"; 3 credit hours
2024 L402 "Ecosystems and Global Change"; 3 credit hours
2024 Z620 (cross-listed with L402) "Ecosystems and Global Change"; 3 credit hours
2022 Z620 "Advance in Ecosystem Science" 3 credit hours
2021 L402 "Ecosystems and Global Change"; 3 credit hours
2021 Z620 (cross-listed with L402) "Ecosystems and Global Change"; 3 credit hours
2021 L570 "Special Topics: EEB Grad Student Brownbag"; 1.5 credit hours
2020 L402 "Ecosystems and Global Change"; 3 credit hours
2020 Z620 (cross-listed with L402) "Ecosystems and Global Change"; 3 credit hours
2019 L402 "Ecosystems and Global Change"; 3 credit hours
2018 Z620 "Distributed Graduate Seminar: Modeling Drought Impacts";1.5 cr. hours
2018 L402 "Ecosystems and Global Change"; 3 credit hours
2017 L410 Special topic in Biology: "Ecosystems and Global Change"; 3 credit hours
2016 Z620 "Ecosystems and Global Change"; 2 credit hours; graduate class
2016 L570 "Brownbag" discussion leader; 1 credit hour
2015 Z620 "Ecological Stoichiometry"; 1.5 credit hours
2014 Z620 "Ecosystems and Global Change"; 1.5 credit hours; graduate class
2013 Z620 "Above-belowground linkages in a changing world"; 1.5 cr hours
2012 Z620 "Ecological Stoichiometry"; 1.5 credit hours
2010 L575 "Ecosystems and Global Change"; 3 credit hours
2013 L473 "Ecology"; 3 credit hours
2012 L473 "Ecology"; 3 credit hours
2011 L473 "Ecology"; 3 credit hours

2010 L473 "Ecology"; 3 credit hours
2009 L473 "Ecology"; 3 credit hours
2008 L473 "Ecology"; 3 credit hours

UNIVERSITY AND DEPARTMENTAL SERVICE

Affiliations

2022 – present	Providing Scientist, Soil Biodiversity Observation Network (Soil BON)
2021 - present	Director of EEB Graduate Program, Dept of Biology, IU, Bloomington, IN
2021 – present	Collaborator, USGS-funded Midwest Climate Adaptation Science Center, Bloomington, IN (IU is one of five partner institutions)
2014 - present	Director of Research, IU Research & Teaching Preserve, Bloomington, IN
2013 - present	Co-PI, AmeriFlux Management Program (AMP) lead by Lawrence Berkeley National Laboratory (funded by DOE); one of 12 "core sites" selected
2012 - present	Co-PI, IU Forest Dynamics Plot (Lilly Dickey Woods, IN), member of Smithsonian's Forest Global Earth Observatory (ForestGEO; one of 50 plots in global network
2009 - 2017	Delegate for Indiana University at Organization for Tropical Studies
2009 - 2015	Delegate for Indiana University at NEON
2008-2010	NSF IGERT training grant – Biosphere-Atmosphere Research and Training (BART) University of Michigan

Committees

2023 – present	Committee member, Task Force on revamping Environment and Sustainability Programs at IUB (commissioned by the Deans of the O'Neill School, School of Public Health and the College of Arts and Sciences)
2023 – present	Chair, Committee for the Integrated Program of the Environment, IUB
2021 – 2022	Committee member, Task Force for integrating the Integrated Program for the Environment & Environmental Resilience Institute
2021	Promotion Committee for Heather Reynolds (EEB; Dept. of Bio; IU)
2020	Promotion Committee for Tara Darcy (EEB; Department of Bio; IU)
2020	Promotion Advisory Committee for Adam Fudickar (Environmental Resilience Institute; IU)
2018-present	EEB seminar coordinator
2018-2019	EEB Graduate Admissions Committee (Chair)
2018	Environmental Resilience Institute at IU, Fellows Search Committee (for invasive species ecologist)
2017-2018	Biology Dept., Faculty Search Committee (for invasive species ecologist)
2011-present	Research and Teaching Preserve Executive Committee
2010-present	Biology Dept. Graduate and Undergraduate Fellowship Committee
2010-12; 2017-2018	Departmental Planning Committee (DPC)
2013-2014	SPEA Faculty Search Committee (for eco-hydrologist)
2012-2014	EEB Admissions Committee (Committee Chair in 2013-14)
2009-2012	Graduate Recruitment Weekend Committee (Committee Chair in 2011)

2009 College of Arts and Sciences - Dissertation Year Fellowship Committee

PROFESSIONAL SERVICE

Committees

2025 AGU Fellows Review Committee (Biogeosciences section)

2024 – present Steering Committee member; MICROBENet^Net (International belowground plant-microbial interactions network of networks) funded by NSF's AccelNet program

2023 – present Advisory Board member; Watershed Function Scientific Focus Area at Lawrence Berkeley National Laboratory

2022 – present Advisory Committee member; Molecular Observation Network (MONet), developed by Environmental Molecular Sciences Lab, S&T Committee

2021 – present Strategic Partner with PERICLES (Partnership for Research on Biota-Climate-Feedbacks), an international, multi-institution research collaboration to understand complex interactions between climate, biota, and carbon storage/sequestration.

2021 – present Steering Committee; INCyTE (Investigating Nutrient Cycling in Terrestrial Ecosystems); International team funded by NSF's Research Coordination Network program.

Editorships

2018 - present Associate Editor: Plant Physiological and Ecosystem Ecology section at Oecologia

2020 - 2021 Guest Handling Editor: Science Advances

2012 - 2021 Editorial Review Board: Biogeochemistry

Reviewer

Grants: National Aeronautics and Space Administration - United States Department of Agriculture NIFA (panelist; Carbon Cycle Science Program), National Science Foundation (ad hoc reviewer for Ecosystem Studies Program in DEB; Integrative Ecological Physiology Program in Integrative Organismal Systems), Natural Environmental Research Council – Science of the Environment (ad hoc reviewer); Department of Energy (ad hoc reviewer; National Institute for Climate Change Research); Canada's Discovery Grants - Forest & Conservation Sciences (ad hoc reviewer); Research Foundation - Flanders Belgium (ad hoc reviewer for Fonds Wetenschappelijk Onderzoe; FWO). Swiss National Science Foundation (ad hoc reviewer)

Manuscripts: American Journal of Botany, Applied Soil Ecology, Biogeochemistry, Biogeochemistry Letters, Biological Reviews, Canadian Journal of Forest Research, Ecology, Ecology Letters, Ecosphere, Ecosystems, eLife, Environmental & Experimental Botany, Forest Ecology & Management; Functional Ecology, Geoderma, Global Change Biology, Global Ecology and Biogeography, ISME Communications, Journal of Ecology, Journal of Environmental Quality, Nature, Nature Climate Change, Nature Plants, New Phytologist, Oecologia, Plant Biology, Plant Physiology and Biochemistry, Plant and Soil, PNAS, Science, Soil Biology & Biochemistry, Tree Physiology, Trends in Plant Science.

Journals: Committee to evaluate Editor in Chief at Ecology (2015)

Book chapters: "Nutrient Cycling" and "Decomposition" (SimUtext); SimBiotic Software Co. Ithaca, NY

Thesis: External examiner for PhD student (Alberto Canarini) at University of Sydney, 2016

Author

Department of Energy, Biological and Environmental Research Advisory Committee "Grand Challenges in Microbial to Earth System Pathways" in *Grand Challenges for Biological and Environmental Research: Progress and Future Vision*; November 2017; DOE/SC–0190

Indiana Climate Change Impacts Assessment "Forest ecosystems"; 2017-2018 (lead author)

Symposium and Workshop organizer/co-organizer

2025 *Workshop:* The C we do not see: Building international consensus on methods, knowledge gaps and future needs of root exudation research in ecology; June, 23-24, Berlin Germany

2024 *Symposium:* The Effect of Plant Communities and Their Microbial Associations on Soil Biogeochemistry"; American Geophysical Union Fall Meeting; December, 9-13.

2020 *Symposium:* "Soils in the Anthropocene: The Effect of Plant Communities and Their Microbial Associations on Soil Biogeochemistry"; American Geophysical Union Fall Meeting

2015 *Workshop:* "Climate models revisited: the biogeochemical consequences of mycorrhizal dynamics"; Amsterdam, Netherlands; April 7-10.

2015 *Symposium:* "Biogeochemical consequences of alterations in the water balance of terrestrial ecosystems: Lessons learned from experimental approaches"; American Geophysical Union Fall Meeting

2012 *Symposium:* "Root and microbial interactions that influence soil organic matter formation and stabilization", American Geophysical Union Fall Meeting

2011 *Symposium:* "Biological weathering: Carbon, water and nutrient flow through plant-microbe-soil networks", American Geophysical Union Fall Meeting

Invited Participant

2025 *In-situ* methods for mycorrhizal ecology – how is our toolbox expanding and are we using the tools effectively? MPG Ranch, Missoula Montana, Oct. 2025

2023 Lawrence Livermore National Lab Soil Microbiome Scientific Focus Area (SFA) all-hands meeting; Innovative Genomics Institute; Berkeley, CA; Jan 9-10, 2023

2023 Biotic Interactions & their role in ecosystem-climate feedbacks; "Microbial interactions & ecosystems functions"; Hamburg, Germany, May 14-17, 2023 (*declined*)

2022 INCyTE (Investigating Nutrient Cycling in Terrestrial Ecosystems) Workshop funded by NSF's Research Coordination Network; Missoula Montana, October, 10-14

2022 Soil Carbon Storage Workshop (carbon dioxide removal strategies); Pacific Northwest National Lab, September, 19-20, 2022 (*declined*)
2019 INCyTE (Investigating Nutrient Cycling in Terrestrial Ecosystems) Workshop funded by NSF's Research Coordination Network; Missoula Montana, June 10-14
2018 "Fungal Communities and Soil Carbon Storage" sponsored by the Energy Institute at the University of Michigan and the Beyond Carbon Neutral Program; Ann Arbor, MI; May 20-22
2017 "DOE Biological and Environmental Research Grand Challenges". Writer and invited participant for workshop identifying grand challenges relevant to DOE's interests/mission. Rockville, MD.
2016 "Understanding soil's resilience and vulnerability"; sponsored by Carbon Cycle Interagency Working Group; Boulder, CO; March 14-16.
2014 "Forest DroughtNet Workshop"; University of New Hampshire; November 17-19.
2014 "Roots and models"; DOE-sponsored Workshop, Oak Ridge, TN
2014 "National Forest-Drought Assessment" (US Forest Service), virtual workshop and synthesis
2014 "Using results from global change experiments to inform land model development and calibration", NSF- and Chinese Ministry of Science and Technology-funded workshop.
2013 "Ecosystem Sensitivity to Rainfall Experiment (EcoSeRE): Design and Synthesis": NSF-funded (LTEREB) working group to design an international network of rainfall manipulation experiments. Fort Collins, CO
2012 "Scaling Root Processes: Global Impacts" DOE-sponsored Workshop, Washington, DC
2011 "Emerging Frontiers in Rhizosphere Science" Workshop, Arlee Virginia

Society memberships

American Association for the Advancement of Science (*since 2018*); American Geophysical Union (*since 1997*), Ecological Society of America (*since 1997*), Soil Science Society of America (*since 1997*), Indiana Academy of Sciences (*since 2010*), Mycological Society of America (*since 2012*)

SERVICE/OUTREACH

Field trips at Morgan Monroe State Forest

35th Annual Central States Forest Soils Workshop; Martinsville, Indiana (October 13-15, 2015)
North American Forest Ecology Workshop (2012, 2013)

Invited outreach talks

2024 Sycamore Land Trust and Citizens Climate Lobby seminar. "From tree tops to deep roots: The role of eastern forests as C sinks" November 15, 2024
2023 Molecular Observatory Network Community Science meeting; "Enhancing MONet with multi-investigator proposals" November 7-8, 2023
2023 Educating for Environmental Change public series "From Oil to Soil: Global Carbon Flux and Soil Respiration"; Upland Brewery; November 7, 2023

2020 Critical Interface Network in Intensively Managed Landscapes; "Seeing the forest beneath the trees: In search of the C we cannot see"; Virtual presentation to working group; October 30, 2020

2019 Indiana DNR Division of Forestry Annual Meeting; "How will climate change affect Hoosier forests?", McCormack's Creek State Park, IN; February 26-28, 2019

2018 Forest ecosystems in a Changing Climate; Science Fest; Indiana University; Bloomington, IN; October 27, 2018

2018 Indiana Climate Change Impacts Assessment Report; Press Briefing for release of reports titled *Indiana's Future Forests* and *Maintaining Indiana's Urban Green Spaces*; Bloomington, IN; May 13, 2018

2016 Indiana DNR Division of Forestry Annual Meeting; "Carbon Sequestration and Atmosphere-Biosphere Interactions in a Mixed Hardwood Midwest Forest", Clifty Falls State Park, IN; February 22-23, 2016

2015 35th Annual Central States Forest Soils Workshop; "The carbon consequences of water stress: A case study from Morgan Monroe State Forest", Martinsville, Indiana; October 13-15, 2015.

2015 "Grant Writing Tips"; presentation for Midwestern Ecology and Evolution Meeting, Bloomington IN; March 28-29, 2015

<u>Instructor/mentor - broadening participation of underrepresented groups</u>

2016-2017 Mentor and host lab; Jim Holland Research Initiative in STEM Education (RISE) Program; two-week research-intensive program for high school students from underrepresented groups

2013-16; 23 Mentor and host lab; Jim Holland Summer Science Research (SSR) Program; one week program where high school students from underrepresented groups are mentored by lab members

<u>Instructor/mentor</u>

2018-2025 Summer Science Institute*; partnership between IU and WonderLab (local science museum for kids), where middle and high school teachers are trained on developing lesson plans about climate change and its impact on communities and ecosystems; *winner of Indiana Dept. of Env. Management Governor's Award for excellence in Environmental Education/Outreach (2020)

2014-2016 Biology Summer Institute; partnership between IU Biology Faculty and Indiana high school science teachers

1993-96 Instructor-teacher; Upward Bound Program @ Northfield Mount Hermon School, MA; Federally funded program designed to provide low-income students with the skills and motivation needed to succeed in high school and college

<u>Panelist</u>

2024 Lessons learned: An academic career revisited; EEB PhD students. Feb 26, 2024
2021 Grant writing and other skills for PhD research - SPEA-E 710; Sep 29, 2021
2021 ASURE "careers class" faculty panel, IU Bloomington; Sep. 20, 2021
2016 "Preparing Future Faculty", IU Annual Conference; Bloomington, IN (Feb. 12, 2016)

MEDIA EXPOSURE

2024 Science consultant on the play titled "The Only Issue" – An original environmental conversation one-act play and discussion at the Phoenix Theatre Cultural Centre in Indianapolis, IN, August, 2024
2023 Article about tree-mycorrhizal effects on soil microbes in Adirondack forests. https://www.adirondackexplorer.org/stories/climate-lessons-from-fungi
2023 Article about DroughtNet in Science "Scientists exposed plants to a yearlong drought. The result is worrying for climate change"; https://www.science.org/content/article/scientists-exposed-plants-yearlong-drought-result-worrying-climate-change
2022 Interview with BioScience magazine about eastern oaks and drought; https://www.podchaser.com/podcasts/bioscience-talks-195017/episodes/drought-response-and-the-decli-134065049
2021 Interview with Imagine magazine (IU Foundation); fall issue, "Brood X"
2021 Interview with The Scientist in spring; "Scientists go down the cicada hole", https://www.the-scientist.com/news-opinion/scientists-go-down-the-cicada-hole-68922
2019 Interview with Mongabay "Earth's hidden tree-microbe network mapped for the first time ever" https://news.mongabay.com/2019/05/earths-hidden-tree-microbe-network-mapped-for-the-first-time-ever/
2019 Interview with Bloom Magazine on Indiana forests and climate change "Under the Weather: How Climate Change is Messing with Monroe County (cover story for April, issue); http://www.magbloom.com/2019/04/under-the-weather-how-climate-change-is-messing-with-monroe-county/
2018 Television interview about the Indiana Climate Change Impacts Assessment's "Forest Report"; May, 2018; https://youtu.be/94Vc61BiFdQ
2018 Radio interview for WFHB's Eco Report on the state and future of Indiana's forests ; June, 2018; http://wfhb.org/public-affairs/ecoreport/eco-feature-june-14-2018/
2016 Print interview for Inside Science article "The Changing Face of American Forests", December, 2016; https://www.insidescience.org/news/changing-face-american-forests
2016 Environmental Science Journal for Kids. High school lesson plan "What kind of fungus are you?"; developed from Fisher et al. 2016 (Global Change Biology; DOI: 10.1111/gcb.13264); http://www.sciencejournalforkids.org/articles/what-kind-of-fungus-are-you
2015 Television interview on WTIU in Bloomington, IN; *topic:* IU Research and Teaching Preserve; http://indianapublicmedia.org/news/iu-environmental-research-preserve-directors-71180/

2013 Radio interview with Chesapeake Quarterly (Maryland Sea Grant at the University of Maryland); *topic:* carbon storage under elevated CO_2 and climate change; http://www.mdsg.umd.edu/news/marshes-changing-world-part-1

2013 Television interview on WTIU in Bloomington, IN; *topic:* How water affects carbon storage in forests; http://www.youtube.com/watch?v=99Z5DfXH4Ko&feature=player_embedded

2012 Article in Scientific American Online; "Higher CO_2 Levels in Atmosphere May Speed Soil Emissions", July, 2012.

2012 Radio interview on nationally syndicated weekly radio show and podcast (Sea Change Radio), first aired on August 7, 2012; http://www.cchange.net/2012/08/07/science-policy-progress/

2012 Radio interview on WFIU in Bloomington, IN; *topic:* Midwest forests and climate change, first aired on May 20, 2012

2011 Cover story for The Scientist; "The Root of the Problem: New research suggests that the flow of carbon through plants to underground ecosystems may be crucial to how the environment responds to climate change." August 1, 2011