

# Kendall K. Beals, PhD

Postdoctoral Research Associate in Soil Ecology  
San Diego State University

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## EDUCATION

2022 Ph.D., Ecology & Evolutionary Biology, University of Tennessee  
2013 B.S., Biology, Dickinson College

## RESEARCH SUMMARY

*As a soil ecologist, I examine the dynamic properties of soil microbial communities and the roles they play in plant functioning and carbon cycling in temperate forests and grasslands of natural, disturbed, and agro-ecological systems. I integrate ecosystem, plant, microbial, and evolutionary ecology in my research using a diversity of approaches including field sampling, glasshouse experiments, molecular biology laboratory techniques, soil chemistry, genomic sequencing, and bioinformatics. I am passionate about using rigorous and readily translatable science to solve pressing environmental challenges.*

## RESEARCH EXPERIENCE

2022-Present **Postdoctoral Research Associate**, San Diego State University  
2016-2022 **Graduate Teaching Assistant**, University of Tennessee  
2015 **Lab manager**, University of New Mexico  
2014 **Project manager and research technician**, Duke University

## PUBLICATIONS

1. **Beals, K.K.**, Lebeis, S.L., Bailey, J.K., Schweitzer, J.A. (2022). Conditionality of soil microbial mediation of *Solidago* plant phenotype: indicator taxa within complex microbiomes influence some, but not all *Solidago* traits. *Plant and Soil*. <https://doi.org/10.1007/s11104-022-05828-0>
2. Collins, C.G., Phillips, M.L., **Beals, K.K.**, Bailey, L., O'Brien, J., Dhungana, I., Jech, S. (2022). Mentoring is more than a mentor. *Frontiers in Ecology and the Environment*. <https://doi.org/10.1002/fee.2518>
3. **Beals, K.K.**, Searce, A.E., Swystun, A.T., Schweitzer, J.A. (2022). Belowground mechanisms for oak regeneration: interactions among fire, soil microbes and plant community alter oak seedling growth. *Forest Ecology and Management*. <https://doi.org/10.1016/j.foreco.2021.119774>
4. Kivlin, S.N., Harpe, R.V., Turner, J.H., Moore, J.A.M., Moorhead, L.C., **Beals, K.K.**, Hubert, M.M., Papes, M., Schweitzer, J.A. (2021). Arbuscular mycorrhizal fungal response to fire and urbanization in the Great Smoky Mountains National Park. *Elementa: Science of the Anthropocene*. <https://doi.org/10.1525/elementa.2021.00037>
5. Dickey, J.R., Swenie, R.A., Turner, S.C., Winfrey, C.C., Yaffar, D., Padukone, A., **Beals, K.K.**, Sheldon, K.S., Kivlin, S.N. (2021). The utility of macroecological rules for microbial biogeography. *Frontiers in Ecology and Evolution*. <https://doi.org/10.3389/fevo.2021.633155>
6. **Beals, K.K.**, Moore, J.A., Kivlin, S.N., Bayliss, S.L.J., Lumibao, C.Y., Moorhead, L.C., Patel, M., Summers, J.L., Ware, I.M., Bailey, J.K., Schweitzer, J.A. (2020). Predicting plant-soil feedback in the field: meta-analysis reveals that competition and environmental stress

differentially influence PSF. *Frontiers in Ecology and Evolution*.  
<https://doi.org/10.3389/fevo.2020.00191>

7. Rosin, C., **Beals, K.K.**, Belovtich, M.W., Harrison, R.E., Pendred, M., Sullivan, M.K., Yao, N., Poulsen, J.R. (2020). Assessing the effects of elephant foraging on the structure and diversity of an Afrotropical forest. *Biotropica*. <https://doi.org/10.1111/btp.12758>
8. Van Nuland, M.E., Vincent, J.B., Ware, I.M., Mueller, L., Bayliss, S.L., **Beals, K.K.**, Schweitzer, J.A., Bailey, J.K. (2020). Intraspecific trait variation across elevation predicts a widespread tree species' climate niche and range limits. *Ecology and Evolution*. <https://doi.org/10.1002/ece3.5969>
9. Ware, I.M., Fitzpatrick, C.R., Senthilnathan, A., Bayliss, S.L.J., **Beals, K.K.**, Mueller, L.O., Summers, J.L., Wooliver, R.C., Van Nuland, M.E., Kinnison, M.T., Palkovacs, E.P., Schweitzer, J.A., Bailey, J.K. (2018). Feedbacks link ecosystem ecology and evolution across spatial and temporal scales: Empirical evidence and future directions. *Functional Ecology*. <https://doi.org/10.1111/1365-2435.13267>
10. Kivlin, S.N., Lynn, J.S., Kazenel, M.R., **Beals, K.K.**, Rudgers, J.A. (2017). Biogeography of plant-associated fungal symbionts in mountain ecosystems: A meta-analysis. *Diversity and Distributions*. <https://doi.org/10.1111/ddi.12595>

## GRANTS AND AWARDS

- 2022 Outstanding Dissertation by a Graduate Student, Dept. of Ecology and Evolutionary Biology, UTK (\$500)
- 2021 Outstanding Scholarly Achievement by a Graduate Student, Division of Biology, UTK (\$1,000)
- 2020 Extraordinary Professional Promise, Chancellor's Honors Award, UTK
- 2019 Hesler Herbarium Student Research Award, UTK (\$1,100)
- 2018 Ecological, Evolutionary, and Conservation Genomics Award, American Genetic Association (\$9,927)
- 2018 Graduate Student Training Fellowship, Torrey Botanical Society (\$1,000)
- 2018 Student-Faculty Research Award, UTK (\$4,800)
- 2017 Hesler Herbarium Student Research Award, UTK (\$500)

## CONFERENCES (\*, invited presentation)

**Beals, K.K.**, Schweitzer, J.A. 2022. Fire-induced shifts in microbial community composition influence rates of carbon degradation. Soil Ecological Society. Oral presentation.

**Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2021. Bouncing back from burn: examining asynchrony in soil microbial responses to wildfire over time. Ecological Society of America. Oral presentation.

\***Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2021. Bouncing back from burn: examining asynchrony in soil microbial responses to wildfire over time. National Park Service (National Capital Area) Science Spillover. Oral presentation.

**Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2021. Bouncing back from burn: long-term monitoring of GSMNP soil microbial stability from Chimney Tops 2 wildfire. Great Smoky Mountains National Park Science Colloquium. Oral presentation.

**Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2020. Fire induced changes to the soil microbiome shift plant phenotype. Natural Areas Conference. Poster presentation.

**Beals, K.K.**, Lebeis, S.L., Bailey, J.K., Schweitzer, J.A. 2020. Importance of soil microbiome for plant phenotype differs among traits and plant species. Ecological Society of America. Poster presentation.

Scarce, A., Swystun, A., **Beals, K.K.**, Franklin, J., Hughes, K., Schweitzer, J.A. 2020. Oak regeneration after Chimney Tops II fire is influenced by pine seedling neighbors and soil microbes. Great Smoky Mountains National Park Science Colloquium. Oral presentation.

\***Beals, K.K.**, Moore, J.A.M., Moorhead, L., Hubert, M., Kivlin, S.N., Schweitzer, J.A. 2020. Burning questions: How wildfire alters ecosystem dynamics in a Southeastern forest through disruptions of plant-soil interactions. National Ecological Observatory Network. Oral presentation.

**Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2019. Burning questions: Importance of plant-soil microbiome interactions and how the Chimney Tops fire affects this ecological internet. Science at Sugarlands, Great Smoky Mountains National Park. Oral presentation.

**Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2019. Burning questions: the role of wildfire severity on plant function through disruptions of plant-soil interactions. Ecological Society of America. Oral presentation.

**Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2019. Hidden players of plant function: variation in soil microbiome conditioning source influences phenotypic variation in a common perennial. Soil Ecology Society. Oral presentation.

**Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2019. Understanding Chimney Tops 2 wildfire from the ground up: functional response of plant-soil interactions to fire. Great Smoky Mountains National Park Science Colloquium. Oral presentation.

**Beals, K.K.**, Bailey, J.K., Schweitzer, J.A. 2018. Hidden players of plant function: the role of the soil microbiome on plant phenotype. Ecological Society of America. Oral presentation.

## TEACHING EXPERIENCE

Plant Ecology (EEB 433), University of Tennessee, 2019-2022

Field Ecology (EEB 415), University of Tennessee, 2019

Skills of Biological Investigation Laboratory (BIOL 159), University of Tennessee, 2017-2019

Cell, Genetic, and Physiology Laboratory (BIOL 101), University of Tennessee, 2016

Natural History of Vertebrates (BIOL 332), Dickinson College, 2013

## MENTORSHIP (undergraduate students)

**Alexandra Searce**, 2019-2022

Currently a graduate student at University of Maine

Co-author of paper published in *Forest Ecology and Management*

Great Smoky Mountains National Park Science Colloquium, oral presentation, 2020

Exhibition of Undergraduate Research and Achievement Conference, poster

presentation, University of Tennessee, 2020

**Alex Swystun**, 2018-2021

Currently a graduate student at University of North Carolina, Wilmington

Co-author of paper published in *Forest Ecology and Management*

Great Smoky Mountains National Park Science Colloquium, oral presentation, 2020

**Terrell Carter**, 2017

Currently a post-baccalaureate intern at University of South Carolina

Exhibition of Undergraduate Research and Achievement Conference, poster

presentation, University of Tennessee, 2017

## PROFESSIONAL SERVICE

### Grant Proposal Reviewing

Ad hoc reviewer: NSF Population and Community Ecology cluster

**Journal Reviewing**

Plant and Soil; Soil Biology and Biochemistry; Fungal Ecology; Frontiers in Forest and Global Change; Ecological Monographs

**Professional Development Inclusion**

Leadership team member, co-organizer: [Women in Soil Ecology network](#)

Help organize events to facilitate professional development of women in soil science across sectors and career stages, including skills-based workshops, career panels, customized mentorship matching, and in-person and virtual meet and greets.

**SKILLS**

- Skilled use of R statistical software (including Rmarkdown) and working knowledge of command line
- Proficient at using remote servers (e.g., AWS)
- Develop and maintain reproducible research workflows in GitHub
- French (professional working proficiency)