

Michael E. Van Nuland, Ph.D.

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EDUCATION

- Ph.D. Ecology and Evolutionary Biology (2012–2017)
University of Tennessee, Advisor: Jennifer Schweitzer, PhD
- B.S. Biology (2007–2011)
Seattle University, *Cum Laude*, Advisor: Lindsay Whitlow, PhD

PROFESSIONAL APPOINTMENTS

Stanford University

Postdoctoral Scholar July 2017–Present
Faculty Mentor: Kabir Peay, PhD

University of Tennessee

NSF Graduate Research Fellow 2013–2016
Graduate Teaching Assistant 2012, 2017

PUBLICATIONS

Submitted / In Revision

C E Willing, P T Pellitier, **M E Van Nuland**, K N Chin, L M Villa, J Yeam, S D Bourque, W Tripp, & K G Peay (2021) The small and the tall: The forest microbiome and global change. (In review).

Published

M E Van Nuland, I M Ware, C W Schadt, Z K Yang, J A Schweitzer, & J K Bailey (2021) Natural soil microbiome variation affects spring foliar phenology with consequences for plant productivity and climate-driven range shifts. *New Phytologist*, (Accepted).

I M Ware, **M E Van Nuland**, Z K Yang, C W Schadt, J A Schweitzer, & J K Bailey (2021) Climate-driven divergence in plant-microbiome interactions generates range-wide variation in microbially-mediated bud break phenology. *Nature Communications Biology*, DOI: 10.1038/s42003-021-02244-5.

M E Van Nuland, D P Smith, J M Bhatnagar, A Stefanski, S E Hobbie, P B Reich, & K G Peay (2020) Warming and disturbance alter soil microbiome diversity and function in a northern forest ecotone. *FEMS Microbiology Ecology*, DOI: 10.1093/femsec/fiaa108.

M E Van Nuland & K G Peay (2020) Symbiotic niche mapping reveals functional specialization by two ectomycorrhizal fungi that expands the host plant niche. *Fungal Ecology*, DOI: 10.1016/j.funeco.2020.100960.

M E Van Nuland, J B Vincent, I M Ware, L O Mueller, S L J Bayliss, K K Beals, J A Schweitzer, & J K Bailey (2020) Intraspecific trait variation across elevation predicts a widespread tree species' climate niche and range limits. *Ecology & Evolution*, DOI: 10.1002/ece3.5969.

- B S Steidinger, T W Crowther, J Liang, **M E Van Nuland**, *et al.* (2019) Climate drives the global biogeography of forest tree symbioses. *Nature*, 569, 404-408.
- M E Van Nuland**, M Chen, & B J England (2019) Bringing plants and soils to life through a simple role-playing activity. *The American Biology Teacher*, 81, 287-290.
- I M Ware, **M E Van Nuland**, J A Schweitzer, *et al.* (2019) Climate-driven reduction of genetic variation in plant phenology alters soil communities and nutrient pools. *Global Change Biology*, 25, 1514-1528.
- I M Ware, C Fitzpatrick, S Athmanathan, S Bayliss, K Beal, L Mueller, J Summers, R Wooliver, **M E Van Nuland**, *et al.* (2019) Feedbacks link ecosystem ecology and evolution: an eco-evolutionary synthesis across terrestrial and aquatic systems. *Functional Ecology*, 33, 31-42.
- M E Van Nuland**, I M Ware, J K Bailey, & J A Schweitzer (2018) Ecosystem feedbacks contribute to geographic variation in plant-soil eco-evolutionary dynamics across a fertility gradient. *Functional Ecology*, 33, 95-106.
- R C Wooliver, B M Potts, J K Senior, **M E Van Nuland**, J K Bailey, & J A Schweitzer (2018) Soil fungi underlie phylogenetic patterns in plant growth responses to nitrogen enrichment. *Journal of Ecology*, 106, 2161-2175.
- J A Schweitzer, **M E Van Nuland**, & J K Bailey (2018) Intraspecific positive, neutral, and negative feedbacks across gradients link ecology and evolutionary biology. In *Aboveground-Belowground Community Ecology*, Springer.
- M E Van Nuland**, J K Bailey, & J A Schweitzer (2017) Divergent plant-soil feedbacks influence range dynamics and ecosystem processes across elevation. *Nature Ecology & Evolution*, 1, 0150.
- A A Pfennigwerth, **M E Van Nuland**, J K Bailey, & J A Schweitzer (2017) Plant-soil feedbacks mediate shrub expansion in declining forests, but only in the right light. *Journal of Ecology*, 106, 179-194.
- M E Van Nuland**, R C Wooliver, A A Pfennigwerth, Q D Read, I M Ware, L Mueller, J A Fordyce, J A Schweitzer, & J K Bailey (2016) Plant-soil feedbacks: connecting ecosystem ecology and evolution. *Functional Ecology*, 30, 1032-1042.
- M E Van Nuland** & W L Whitlow (2014) Temporal effects on biodiversity and composition of arthropod communities along an urban-rural gradient. *Urban Ecosystems*, 1-14.
- J K Bailey, M A Genung, I Ware, C E Gorman, **M E Van Nuland**, *et al.* (2013) Indirect genetic effects: An evolutionary mechanism linking feedbacks, genotypic diversity and coadaptation in a climate change context. *Functional Ecology*, 28, 87-95.
- C E Gorman, Q D Read, **M E Van Nuland**, J A M Bryant, J N Welch, *et al.* (2013) Species identity influences belowground arthropod assemblages via functional traits. *Annals of Botany Plants*, DOI: 10.1093/aobpla/plt049.
- M E Van Nuland**, E N Haag, J A M Bryant, Q D Read, R N Klein, *et al.* (2013) Fire promotes pollinator visitation: Implications for ameliorating declines of pollinator services. *PLoS ONE*, e79853.

FUNDING & AWARDS

- 2017 **DOE JGI Community Science Program Small-scale Microbial/Metagenome grant:** “How Does Precipitation Impact the Taxonomic and Functional Diversity of the *Populus trichocarpa* Soil Microbiome?” (co-PI with Kabir Peay)

2017	Jim Tanner EEB Outstanding Dissertation Award, University of Tennessee
2017	Outstanding Graduate Research Award, University of Tennessee Graduate School
2016	BES Functional Ecology Haldane Award Nominee
2016	University of Tennessee EEB “Best Progress Towards Dissertation” (\$500)
2016	NSF Doctoral Dissertation Improvement Grant: “ <i>Do plant genetic X soil microbiome X environment interactions determine plant and soil function across global change gradients?</i> ” (\$19,630)
2015	Soil Ecology Society Conference Best Oral Presentation, honorable mention
2015	Soil Ecology Society Travel Award (\$500)
2015	Outstanding Graduate Research Award, University of Tennessee Graduate School
2014	University of Tennessee Graduate Student Senate Travel Award (\$850)
2014	University of Tennessee EEB Departmental Travel Award (\$1100)
2014	SSSA Francis & Evelyn Clark Soil Biology Scholarship (\$2000)
2013	Editors choice (Gorman <i>et al.</i> Annals of Botany Plants)
2013	Open Access Publishing Grant, University of Tennessee Library (\$810)
2013	Soil Ecology Section of the Ecological Society of America Travel Award (\$500)
2012-15	University of Tennessee EEB Chancellors Funds (total \$7500)
2012-17	NSF Graduate Research Fellowship: “ <i>Do soil communities mediate evolutionary consequences of plant-soil feedback?</i> ” (total \$96,000)
2009-11	Seattle University Science & Engineering Bannan Scholar (total \$13,000)
2011	Seattle University Biology Award (1 awarded per graduating class)

PRESENTATIONS

Invited talks & seminars

2020	FEMS Microbiology Ecology Webinar – Warming and disturbance alter soil microbiome diversity and function in a northern forest ecotone (Remote).
2019	Bay Area Mycological Society – Fungal symbioses and plant ecological niches (University of California, Berkeley).
2019	Advanced Seminar in Microbial Molecular Biology – Mapping ectomycorrhizal symbioses and plant niche dimensions (Stanford University; <i>Invitation transferred to colleague to promote gender balance in the series</i>).
2018	San Francisco State University , Biology Department Seminar Series – Linking plant and soil microbial responses to global change (<i>Invitation rescheduled</i>).
2018	Stanford Eco Evo lunch seminar series – Writing science tips and tricks.
2015	The 100th ESA Conference – Landscape level eco-evolutionary dynamics of plant-soil feedbacks (SYMP 14; Baltimore, MD).
2014	Great Smoky Mountains National Park Science Colloquium – Fire promotes pollinator visitation (Gatlinburg, TN).

Other presentations

2021	DOE Genomic Science Program – Patterns of diversity in the North American <i>Populus</i> mycobiome (Virtual conference; Washington, D.C.).
2019	Soil Ecological Society Conference – The biogeography of ectomycorrhizal fungi across North American <i>Populus</i> species ranges (Toledo, OH).
2019	DOE Genomic Science Program – Environmental drivers of the North American <i>Populus</i> root microbiome (Washington, D.C.).

2018	The 103rd Annual ESA Conference – How does precipitation influence the mycobiome of <i>Populus trichocarpa</i> ? (New Orleans, LA).
2015	Soil Ecology Society Conference – Plant-soil feedbacks vary along elevation gradients and affect range shifts. *Second place winner (Colorado Springs, CO).
2014	British Ecological Society & Société Française d'Ecologie Annual Meeting – Plant-soil feedback drives landscape-level eco-evo dynamics (Lille, France).
2013	The 98th ESA Conference – Contemporary evolution drives landscape-level ecosystem change: Implications for feedbacks and range-shifts (COS 100-7; Minneapolis, MN).
2012	The 95th & 97th ESA Conferences – Investigation of Pacific Northwest forest litter invertebrate communities and resilience along an urbanization gradient (Pittsburgh, PA and Portland, OR).
2009	Murdock Trust Natural Science Seminar – Contaminants & Collembollans (Seattle University; Seattle, WA).

TEACHING

<i>Instructor of Record</i>		<i>Teaching Assistant</i>	
2016	Writing Science (graduate seminar)	2013, 2017	Plant Ecology
		2012, 2016	General Biology

Guest Lectures and Pedagogy Coursework:*

2017	Data analysis & visualization in R
2017	Plant-soil interactions and feedbacks
2014	Urban ecology
2014	Plant-soil feedbacks
2013	Belowground interactions
2013	Competition
2015	Teaching Soil Ecology* (Dr. Loren Byrne)
2013-14	Modern Curriculum Design* (Dr. Beth Schussler)

SERVICE & COMMUNITY ENGAGEMENT

Referee: *Nature Ecology & Evolution, Trends in Ecology & Evolution, Ecology Letters, PNAS, New Phytologist, Ecology, Functional Ecology, Journal of Applied Ecology, Landscape Ecology, Oecologia, Oikos, Ecological Monographs, Global Ecology & Biogeography, Fungal Ecology, Plant and Soil, and PLoS ONE*

Bay Area Mycological Society, fungal ecology guest lecture and discussion (Berkeley, 2019)

California Academy of Sciences Fungal Nightlife (2019 & 2020)

Science Fair Judge for Exhibition of Undergrad Research & Creative Achievement (UTK, 2017)

BES Plant-Soil-Ecosystems Student Representative (2015–2016)

Undergraduate mentor for 15 students (lab, research, writing, and presentation skills)

Blog posts: BES Plant-Soils-Ecosystems journal club, The Culture Dish (MO BIO)

Darwin Day event promoter, University of Tennessee (2014)

Boo at the Zoo departmental outreach event, Knoxville Zoo (2012)

Seward Park Audubon Center research presentation for general public (2011)

Bailey Gatzert Elementary Science Fair activity leader (2008–2011)

Explore Alki Beach science mentor, Seattle public beaches (2009)

Darwin Day co-organizer and activity leader, Seattle University (2009)

PROFESSIONAL ASSOCIATIONS

Ecological Society of America – Soil Ecology Section and Microbial Ecology Section
Soil Science Society of America
Soil Ecology Society
British Ecological Society Plant – Soil-Ecosystems special interest group
National Association of Biology Teachers

PROFESSIONAL DEVELOPMENT & SKILLS

- 2015 Academic Professional Development course (Joe Bailey, Univ. of Tennessee)
- 2014 EDAMAME workshop – *Explorations in Data Analyses for Metagenomic Advances in Microbial Ecology* (Ashley Shade & Tracy Teal, Michigan State Univ.)
- 2014 Structural Equation Modeling workshop (Jim Grace, Univ. of Tennessee)