

Keaton Tremble

Department of Plant Biology, University of Illinois Urbana-Champaign

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EDUCATION

PhD, Evolutionary Biology	2023
School of Biological Sciences and Natural History Museum of Utah, University of Utah	
Advisor: Dr. Bryn Dentinger	
Dissertation: Identifying the drivers of fungal divergence and adaptation: from <i>Boletus edulis</i> to the Boletaceae	
BS, Biology, with Distinction	2017
Carleton College, Northfield, Minnesota	

EMPLOYMENT RECORD

(Upcoming) Assistant Professor	Jan 1 2027-
Department of Plant Biology, University of Illinois Urbana-Champaign	
Postdoctoral Research Associate	2023–present
Department of Biology, Duke University (PI: Dr. Rytas Vilgalys)	
Postdoctoral Research Associate	2023–2023
Natural History Museum of Utah, University of Utah (PI: Dr. Bryn Dentinger)	
Graduate Research Assistant	2018–2023
School of Biological Sciences and Natural History Museum of Utah, University of Utah	
Botany Technician	2017–2018
Bureau of Land Management, Salt Lake City Field Office	
Conservation Technician	2016–2017
US Fish and Wildlife Service, Little Pend Oreille National Wildlife Refuge	
Undergraduate Research Technician	2016–2017
Department of Biology, Carleton College (Advisor: Dr. Dan Hernandez)	
Research Technician	2014–2015
Alaskan Center for Conservation Science, University of Alaska Anchorage (Advisor: Jessika Reimer)	

AWARDS AND HONORS

Riser Award Fellowship, University of Utah (\$12,000)	2021
Gold Scholarship for Plant Biology, University of Utah (\$2,500)	2021
Alexander and Helen V. Smith Research Award, Mycological Society of America (\$1,200)	2021
Research Award, Global Change and Sustainability Center, University of Utah (\$2,500)	2020
Travel Award, Global Change and Sustainability Center, University of Utah (\$333)	2019
Research Award, Global Change and Sustainability Center, University of Utah (\$3,500)	2019
Woodside Fund for Career Exploration, Carleton College (\$3,000)	2016
Questbridge National College Match Scholarship (\$244,000)	2012

GRANTS AND FUNDING AWARDS

Current Funding

PI Keaton Tremble, Duke DCMB Development Grant (\$47,000) "Resolving plant-fungal symbioses in the <i>Populus</i> microbiome using fine scale transcriptomics"	2025
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Submitted Proposals

National Institutes of Health (R01) "Fungal Pathogens at Human-Wildlife Interfaces" — Co-Investigator Keaton Tremble, Co-PI Jessica Brown (In Review)	2025
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National Science Foundation (MMORCC) "Fungal Stress responses in a changing environment" — Co-PI Keaton Tremble, Co-PI Jessica Brown (Unsuccessful)	2025
Burroughs Wellcome Fund, Climate Change and Human Health Seed Grant "Climate change- induced stress responsiveness as mechanism of fungal pathogenicity" — PI: Jessica Brown, Dentinger, BTM (Keaton Tremble contributed Aim 1 and to Aim 2) (Unsuccessful)	2022
Early Career Grant Proposal, National Geographic Society, "Finding the secret drivers of fungal diversity in Siberia" (Unsuccessful)	

Past Funding

National Science Foundation (DEB) (\$500,054 direct / \$255,102 indirect) "Resolving the phylogeny and uncovering drivers of speciation in the evolutionary radiation of porcini mushrooms (Boletaceae)." PI: Dentinger, BTM. (Keaton Tremble contributed Aim 2 of 2)	2021–2024
Duke Microbiome Center Sequencing Voucher Program "Identifying the genetic determinants of Plant-Fungal mutualisms and fungal community compositions" (\$10,000)	2023

ACADEMIC AND PROFESSIONAL SERVICE

Symposium Organizer:

1) Organized a symposium on population biology of mycorrhizal fungi at the 26th international conference on mycorrhizal fungi (ICOM).

Outreach:

- 1) Served as SPORE Mentor for underrepresented individuals at the annual Mycological Society of America Meeting (July 2025)
- 2) Served as Research Mentor for NCSSM High School Mentorship Program
- 3) Served as Mentor for Youth-Teaching-Youth Mentorship Program for underrepresented high school students in Salt Lake Valley

Publication Reviewer:

Molecular Phylogenetics and Evolution, Molecular Ecology, Fungal Biology, Mycologia, Environmental Microbiology

TEACHING EXPERIENCE

Graduate Teaching Assistant

2018–2023

School of Biological Sciences, University of Utah
Mycology Course and Lab, Teaching Assistant (designed Lab course)
Biology of Variation, Teaching Assistant
Conservation Biology, Teaching Assistant

Undergraduate Teaching Assistant

2012

Biology Department, Carleton College
Ecosystem Ecology, Teaching Assistant

UNDERGRADUATE MENTORSHIP

Alan Lertpatanakul, Research Technician, Duke University	2025–present
Oliver Wang, Independent Research, Duke University	2025–present
Carmen Hall, Independent Research, Duke University	2024–present
Grace Hall, Independent Research, Duke University	2024–2025
Mira Polishook, Independent Research, Duke University	2024–present
Yuan Yuzhe, Honors Thesis Research, Duke University	2024–2025
Ethan Gurwitch, Independent Research, Duke University	2024–2025
Alexander Housley, Honors Thesis Research, University of Utah	2023–present
Sariah Vanderveur, Individual Research, University of Utah	2022–2023
Tiffany Doh, Honors Thesis Research, University of Utah	2021–2023
Jake Lowe, Individual Research, University of Utah	2021–2022
Ellie Lowell, Individual Research, University of Utah	2020–2021
Karrin Tennant, Individual Research, University of Utah	2021–2022
Abbey Siler, Individual Research, University of Utah	2020

PUBLICATIONS

1. Tremble, Keaton, Aeran Coughlin (June 2025). "Prospective: Ectomycorrhizal communities of imperiled coastal forests become less diverse in a saltier world." *Molecular Ecology*. (<https://doi.org/10.1111/mec.70285>)
2. Cosner, Julian, Gaurav Pandharikar, Keaton Tremble, Jake Nash, Rytas Vilgalys, Claire Veneault-Fourrey (August 2025). "Primer: Fungal Endophytes." *Current Biology*. DOI: <https://doi.org/10.1016/j.cub.2025.08.058>
3. Tremble, Keaton, E. Lamartinière et al. (April 2025). "Investigating the role of ecology and genomic architecture in maintaining species boundaries in the porcini mushroom, *Boletus edulis*." *New Phytologist*. (IN REVISION) DOI: <https://doi.org/10.1101/2023.09.05.556370>
4. Nash, Jake, Keaton Tremble, Christopher Schadt, Melissa Cregger, Corbin Bryan, and Rytas Vilgalys (January 2025). "Time-series RNA metabarcoding of the active *Populus tremuloides* root microbiome reveals hidden temporal dynamics and dormant core members." *mSystems*. (<https://doi.org/10.1101/2025.02.19.639079>)
5. Brejon-Lamartinière, Etienne; Tremble, Keaton et al. (March 2025). "A haplotype-resolved chromosomal reference genome for the porcini mushroom *Boletus edulis*." *G3: Genes|Genomes|Genetics*. <https://doi.org/10.1093/g3journal/jkaf069>
6. Bradshaw, Alexander J., Cathy Sharp, Breyten Van Der Merwe, Keaton Tremble, Bryn T.M. Dentinger (2025). "Discovery of the closest free-living relative of the domesticated 'magic mushroom' *Psilocybe cubensis* in Africa." *Proceedings of the Royal Society B*. <https://doi.org/10.1101/2024.12.03.626483>
7. Brejon-Lamartinière, Etienne; Tremble, Keaton et al. (July 2024). "Runs of homozygosity reveal contrasting histories of inbreeding across global lineages of the edible mushroom, *Boletus edulis*." *Molecular Ecology*. DOI: <https://doi.org/10.1111/mec.17470>
8. Tremble, Keaton, Henkel T.W., Domnauer C., Bradshaw A. et al. (October 2023). "A revised phylogeny of Boletaceae using whole genome sequences." *Mycologia*. DOI: <https://doi.org/10.1080/00275514.2024.2314963>
9. Tremble, Keaton, J. Hoffman, B.T.M. Dentinger (October 2022). "Contrasting continental patterns of adaptive population divergence in the holarctic ectomycorrhizal fungus *Boletus edulis*." *New Phytologist*. DOI: <https://doi.org/10.1111/nph.18521>
10. Tremble, Keaton, Laura M. Suz, B.T.M. Dentinger (July 2020). "Lost in translation: Population genomics and long-read sequencing reveals relaxation of concerted evolution of the ribosomal DNA cistron." *Molecular Phylogenetics and Evolution*. DOI: 10.1016/j.ympev.2020.106804

SELECTED PRESENTATIONS

1. Tremble, Keaton. "Phylo- and pan-genomics of the *Laccaria bicolor* species complex reveal surprising conservation of the mycorrhizal toolkit." July 2025. Mycological Society of America Annual Meeting.
2. Tremble, Keaton. "A survey of fungal small secreted protein expression in the Aspen soil microbiome." July 2025. Mycological Society of America Annual Meeting.
3. Tremble, Keaton. "An introduction to Fungal Genomics." February 2025. Duke University Microbiology Course Guest Lecture.
4. Tremble, Keaton. "Phylo and pan-genomics of the *Laccaria bicolor* complex reveals surprising conservation of the ectomycorrhizal toolkit." December 2024. Duke University, Evolution and Organismal Biology Seminar Series.
5. Tremble, Keaton. "Understanding fungal speciation through a genomic lens." October 2024. University of Florida, Department of Plant Pathology Invited Seminar.
6. Tremble, Keaton, Bryn Dentinger. "A revised phylogeny of the Boletaceae." 2024. International Mycological Congress 12, Maastricht, Netherlands.
7. Tremble, Keaton, Rytas Vilgalys. "Phylo- and pan-genomics of the *Laccaria bicolor* species complex reveals surprising conservation of the ectomycorrhizal toolkit." 2024. International Conference on Mycorrhiza 12, Manchester, UK.
8. Tremble, Keaton, Rytas Vilgalys. "How functionally diverse are natural populations of ECM?" 2023. Oak Ridge National Laboratory PMI Monthly Meeting.
9. Tremble, Keaton, E. Brejon-Lamartinière, A. Bradshaw, J.I. Hoffman, B.T.M. Dentinger. "From populations to pan-genomes: identifying patterns of global genomic evolution in the porcini mushroom, *Boletus edulis*." 2023. Mycological Society of America.
10. Tremble, Keaton, E. Brejon-Lamartinière, A. Bradshaw, J.I. Hoffman, B.T.M. Dentinger. "From populations to pan-genomes: identifying patterns of global genomic evolution in the porcini mushroom, *Boletus edulis*." 2023. European Fungal Genetics Conference 16.
11. Tremble, Keaton, T.W. Henkel, R.E. Halling, J.M. Moncalvo, B.T.M. Dentinger. "Boletes in paradise: investigating genomic signatures of niche evolution in temperate and tropical Boletaceae." 2022. Mycological Society of America.
12. Tremble, Keaton, J.I. Hoffman, B.T.M. Dentinger. "Identifying drivers of divergence in the world's most delicious model organism." 2021. Departmental Evolution Seminar Series, Bielefeld University, Germany.
13. Tremble, Keaton, Bryn Dentinger. "Can we assess extinction rates in Fungi?: The porcini mushroom *Boletus edulis* as a case study." 2020. State of the World's Plants and Fungi Symposium, Kew.