

Yuguo Yang, Ph.D.

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Education

- University of Nebraska-Lincoln (UNL)** Aug.2018-Dec.2023
Ph.D., Ecology, Evolution and Behavior Specialization (Advisor: Sabrina E. Russo)
Dissertation: Interactions between plants and belowground microbiota: covariation with diversity and productivity
- Beijing Forestry University** Jul.2018
M.S., Soil Science (Advisor: Yuqing Geng)
Thesis: Influence of understory ground cover types on soil microbial communities and enzyme activities
- Michigan State University** May.2015
B.S., Crop and Soil Sciences, Turfgrass management—joint program with Beijing Forestry University
- Beijing Forestry University** Jul.2015
B.S., Turfgrass Management, Turfgrass Management—joint program with Michigan State University

Manuscript in preparation

- Yuguo Yang**, Glenn Ledder, Sabrina E. Russo. (In prep) Costs and benefits of mycorrhizal symbiosis in a plant resource allocation framework.
- Yuguo Yang**, Gregory J. Pec, Sabrina E. Russo. (In prep) Plant-mycorrhizal-bacterial networks reflect biodiversity and productivity in a North American grassland ecosystem.

Peer-reviewed Publications

1. **Yuguo Yang**, Sabrina E. Russo. (Accepted) Trade-offs in rooting strategy dimensions along an edaphic gradient in a grassland ecosystem. *Functional Ecology*.
2. Amanda Quattrone, **Yuguo Yang**, Pooja Yadav, Karrie A Weber, Sabrina E Russo. (2023) Soil domestication: Nutrient and microbiome-mediated plant-soil feedbacks in agroecosystems. *Microorganisms*. 11(12), 2978. <https://doi.org/10.3390/microorganisms11122978>
3. Pooja Yadav, Amanda Quattrone, **Yuguo Yang**, Jacob Owens, Rebecca Kiat, Thirumurugan Kuppusamy, Sabrina E Russo, Karrie A Weber. (2023) *Zea mays* genotype influences microbial and viral rhizobiome community structure. *ISME Communications*. <https://doi.org/10.1038/s43705-023-00335-4>
4. Qiuyun Fan, **Yuguo Yang**, Yuqing Geng, Youlin Wu, Zhanen Liu. (2022) Biochemical composition and function of subalpine shrubland and meadow soil microbiomes in the Qilian Mountains, Qinghai–Tibetan plateau, China. *PeerJ* 10:e13188. <https://doi.org/10.7717/peerj.13188>.
5. Lin Yu, Guobing Lan, **Yuguo Yang**, Yafei Tang, Zhenggang Li, Xiaoman She, Zifu He. (2021) First report of anthracnose caused by *Colletotrichum fructicola* on *Brassica parachinensis* in China. *Crop Protection* 154:105842. <https://doi.org/10.1016/j.cropro.2021.105842>.
6. **Yuguo Yang**¹, Ying Yang¹, Yuqing Geng, Guilin Huang, Xueqing Cui, Meng Hou. (2018) Effects of different land types on soil enzyme activity in the Qinghai Lake region. *Wetlands* 38:711–721. <https://doi.org/10.1007/s13157-018-1014-9>.
7. **Yuguo Yang**, Yuqing Geng, Hongjuan Zhou, Guangliang Zhao, Ling Wang. (2017) Effects of gaps in the forest canopy on soil microbial communities and enzyme activity in a Chinese pine forest. *Pedobiologia* 61:51–60. <https://doi.org/10.1016/j.pedobi.2017.03.001>

Honors & Awards

UNL: Jessie A. Lee Fund (\$1500)	2023
Sigma XI Grants in Aid of Research (\$1000)	2023
UNL: Graduate student travel award (\$500)	2022
UNL: Dr. John F. Davidson prize for work in Botany or Plant Systems (\$1500)	2022
UNL: Dr. John F. Davidson Memorial Fund (\$1000, \$1998, \$1995)	2020, 2021, 2022
UNL: Jessie A. Lee Fund (\$1850)	2019
China Graduate Student National Scholarship (\$3000)	2017
1 st tier Graduate Scholarship (\$1200/y)	2016 & 2017
2 nd tier Scholarship (\$200/y)	2013 & 2014

Professional experience

Graduate Teaching Assistant, University of Nebraska-Lincoln Life121 lab, Fundamentals of Biology II.	2019, 2021-Present
Graduate Research Assistant, University of Nebraska-Lincoln Diversity-productivity relations of plants with belowground microbiota in grassland ecosystems.	2018-2019, 2020-2021
Graduate Research Fellow, Beijing Forestry University Soil microbial biomass and enzyme activities in arboreal forests and plateau wetlands. Contributed to acquired patent on soil water content measurement (ZL201620274906.7).	2015-2018
Undergraduate Research Intern, Texas A&M University (Dr. Young-Ki Jo) Soil nematode isolation & counting. Soil microbial DNA extraction.	2014
Undergraduate Research Assistant, Beijing Forestry University (Dr. Yuqing Geng) Soil enzyme assay. Soil arthropods isolation.	2013-2014

Presentations and National and International Meetings

- Yuguo Yang**, Gregory J. Pec, Sabrina E. Russo. Diversity-productivity relations of plants with belowground microbiota in a North American grassland: mechanisms and consequences for plant productivity. *British Ecological Society Annual Meeting 2022*. Edinburgh, UK, December 18 – 21.
- Yuguo Yang**, Gregory J. Pec, Sabrina E. Russo. Plant and belowground microbial relations along an edaphic gradient in Nebraska sandhills. *UNL Plant Science Retreat 2022*. November 10 – 11.
- Yuguo Yang**, Gregory J. Pec, Sabrina E. Russo. Covariation of plant and belowground microbial communities along an edaphic gradient in Nebraska sandhills. *The Ecological Society of America and the Canadian Society of Ecology and Evolution joint Annual Conference 2022*. Montréal, Canada, August 14 – 19.
- Yuguo Yang**, Sabrina E. Russo. Trade-offs in rooting strategies along a grassland water availability gradient. *American Society of Plant Sciences Annual Conference 2021*. Virtual presentation.
- Yuguo Yang**, Sabrina E. Russo. Trade-offs in rooting strategies along a water availability gradient in Nebraska sandhills. *UNL Plant Science Symposium 2021*.
- Yuguo Yang**, Sabrina E. Russo. Covariation of root traits and community structure in western Nebraska prairies along a water availability gradient. *UNL BioGSA Symposium 2021*.
- Yuguo Yang**, Sabrina E. Russo. Covariation of root functional traits and community structure in grasslands along a water availability gradient. *British Ecological Society Annual Meeting 2021*. Virtual presentation.
- Yuguo Yang**, Sabrina E. Russo. Determinants of arbuscular mycorrhizal colonization among C3 and C4 grasses. *UNL BioGSA Symposium 2019*.
- Amanda Quattrone, **Yuguo Yang**, Sabrina E. Russo. Plant-soil feedback of maize affect Agronomic Land Use and Prairie Restoration. *NSF Site Visit, Center for Root and Rhizobiome Innovation 2019*.
- Yuguo Yang**, Ying Yang, Yuqing Geng. Influence of understory ground cover types on soil microbial communities and enzyme activities. *Nebraska Research & Innovation Conference 2018*.

Guest Lectures

BIOS454/854 – Ecological Interactions	2023
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Titled “Phenological mismatch in plants and animals under climate change”.

BIOS454/854 – Ecological Interactions

2021

Titled “Effects of climate change on biodiversity”.

Professional Service & Outreach

Forest Festival (Nebraska Forest Service)

2023

Science communication: introducing local tree species to the public

UNL: SRP Research Symposium

2023

Served as a judge for undergraduate poster presentations.

UNL: McNair Summer Research Colloquium

2023

Served as a judge for undergraduate research talks.

STEAM-focused Summer Camp (Spark Summer Learning)

2023

Served as a guest speaker introducing plant leaf and plant diversity to students from local K12 schools.

UNL: First Year Research Experience Project (UBMS)

2021 & 2022

Mentored two first-year undergraduate students from groups underrepresented in STEM on research on mycorrhizal colonization of prairie plants, including oral presentations. [Nebraska Today news article.](#)

UNL: CASNR Undergraduate Scholarship Program (CUSP)

2021

Mentored two undergraduate students from Rwanda on research on plant trait variation, including poster presentations.

UNL: EPSCoR Young Nebraska Scientist (YNS) at prairie in Nebraska sandhills

2020

Mentored a high school student in research on plant-soil microbe interactions in prairie, including an oral presentation in virtual YNS conference. [Featured: 1011 News – Pure Nebraska, Aug/14/2020.](#)

UNL: Fascination of Plants Day

2019

Worked as a volunteer and used interactive demonstrations of root/ninhydrin activity to illustrate how plant roots interact with soil microorganisms.

Secretary of Undergraduate Thesis Defense College of Forestry, Beijing Forestry University

2016 & 2017

Coordinated the full process of undergraduate thesis defense and helping with documentation.

Evaluation of Ecological Forest Management in Beijing Mountainous Area (Dr. Yuqing Geng)

2017

Investigated the current status of ecological forest management in mountainous areas through interviews and surveys.

Skills

Software and programming languages: R, Linux, Matlab, Qiime2, IQ-TREE, MrBayes, Mega-X, Mesquite, WinRhizo, Adobe Photoshop, Adobe Illustrator, SPSS, GraphPad Prism, Canoco.

Skills and equipment:

Soil properties: soil texture, gravimetric water content, pH, organic matter content, C, N, P, K, Na, soil enzyme colorimetric assay. Atomic absorption spectrophotometer, atomic fluorescence photometer, flame photometer, multi NC 3100 TOC analyzer, Kjeldahl nitrogen analyzer, continuous flow injector, spectrophotometer, microplate reader.

Plant biology, physiology, and molecular biology: arbuscular mycorrhizal staining and microscopy, plant gas exchange, photosynthetic rate, photosystem efficiency, plant functional traits, plant species identification based on morphology, microbial DNA extraction, gel electrophoresis, microbial bioinformatics. LI600 porometer/fluorometer and LI6400XT portable photosynthetic system, PCR.