Andrew C. Eagar, PhD
Department of Plant Biology, Michigan State University
East Lansing, MI 48824
Phone: (615) 957-5557 Email: eagar.c.a@gmail.com

I. Educational Background

A. Degrees

2022 Ph.D., Ecology & Evolutionary Biology, Kent State University
Dissertation: The Spillover Effect Hypothesis: Using Mycorrhizal Associations of Temperate Hardwood Forests as Study Models for Community-Wide Plant-Soil Feedback Effects
Advisor: Christopher B. Blackwood

2015 B.S., Geology, minor in Chemistry, Tennessee Tech University

B.S., Environmental Biology, minor in Mathematics, Tennessee Tech University

B. Assistantships and Fellowships

2021 Kent State University Fellowship Award
Total: $9,000

2014 NSF REU Fellowship, Kent State University
Total: $6,000

C. Academic and Professional Awards

2021 Graduate Student Teaching Award, Kent State University

2015 *Cum laude* University Honors, Tennessee Tech University

2015 Outstanding Senior Award, Dept. of Earth Sciences, Tennessee Tech University

2015 Outstanding Senior Eminence Award Runner-Up, Tennessee Tech University

II. Academic Appointments

2023 Postdoctoral Research Associate, Department of Plant Biology, Michigan State University

III. Scholarly Activity

A. Grant Proposals & Awards

PI Graduate Student Senate Research Award, Kent State University
4/05/19
"Linking Leaf Herbivory and Oak Tree Evolutionary History to
the Development of Soil Microbial Communities: Are There Unknown Interactions Underground?"
Total: $2000

PI Art and Margaret Herrick Aquatic Ecology Research Grant
4/10/2019 – 3/1/2020
"Linking foliar herbivory and oak evolutionary history to soil microbial community composition."
Total: $3000

PI Art and Margaret Herrick Aquatic Ecology Research Grant
4/10/2017 – 3/1/2018
"Linking seedling immunodefensive responses to biological drivers of negative plant-soil feedback."
Total: $2000

B. Publications

12. Cosgrove, C.R., Kershner, M.W., **Eagar, A.C.**, and Blackwood, C.B., *In Review at Oikos.* Ecotone effects drive decoupling of generalist and specialist species from soil. *Draft available upon request.*

11. Hossain, M.R., **Eagar, A.C.**, Blackwood, C.B., and Leff, L.G., *In Review at Environmental Microbiology.* Bacterial community composition progression on microplastic disks in a freshwater stream.

10. Hossain, M.R., **Eagar, A.C.**, Blackwood, C.B., and Leff, L.G., *In Prep. for Journal of Applied Microbiology.* Effects of conditioning films and surface modifications of microplastics on bacterial colonization in streamwater.

9. Eagar, A.C., Phillips, R.P., Smemo, K.A., and Blackwood, C.B., 2023. Context-dependence of fungal community responses to dominant tree mycorrhizal types in Northern hardwood forests. *Soil Biology & Biochemistry*, 108971.

8. Smemo, K.A., **Eagar, A.C.**, Moledor, S., Casarella, D., Cristiano, J., Heumann, R., and Blackwood, C.B., *In Prep. for Journal of Ecology.* Diminished mycorrhizal tree type effects on soil carbon and nutrient dynamics across a northern temperate forest environmental gradient. *Draft available upon request.*

7. Droz, A.G., Coffman, R.R., **Eagar, A.C**. and Blackwood, C.B., 2022. Drivers of fungal diversity and community biogeography differ between green roofs and adjacent ground-level green space. *Environmental Microbiology,* 24 (12), 5809-5824.

6. Sternbach, S., **Eagar, A.**, Clements, C., Zeisel, S., Freeman, E., and McDonough, J., *In Prep*. Betaine rescues stress-induced impairments in oligodendrocyte maturation and metabolism through the BHMT-betaine methylation pathway.

5. Bhattacharyya, S., **Eagar, A.C.**, Engohang-Ndong, J., and Leff, L.G., *In Review at Freshwater Biology.* Antibiotic resistance gene abundance and bacterial community composition in macroinvertebrates of an urban stream. *Draft available upon request.*

4. Bhattacharyya, S., **Eagar, A.C.**, Blackwood, C.B., and Leff, L.G., *In Review at Freshwater Science.* Effect of bioturbation by freshwater invertebrates on denitrification and bacterial community composition. *Draft available upon request.*

3. Eagar, A.C., Mushinski, R.M., Horning, A.L., Smemo, K.A., Phillips, R.P., and Blackwood, C.B., 2021. Arbuscular mycorrhizal tree communities have greater soil fungal diversity and abundances of saprotrophs and pathogens compared to ectomycorrhizal tree communities in temperate forests. *Applied & Environmental Microbiology* 88 (1), e01782-21.

2. Eagar, A.C., Cosgrove, C.R., Kershner, M.W. and Blackwood, C.B., 2020. Dominant community mycorrhizal types influence local spatial structure between adult and juvenile temperate forest tree communities. *Functional Ecology*, 34(12), pp. 2571-2583.

1. Mason, L.M., **Eagar, A.,** Patel, P., Blackwood, C.B. and DeForest, J.L., 2020. Potential microbial bioindicators of phosphorus mining in a temperate deciduous forest. *Journal of Applied Microbiology*, 130(1), pp. 109-122.

C. Invited Seminars

2023 Michigan State University Plant Pathology Seminar, Department of Plant, Soil and Microbial Sciences

2022 Slippery Rock University, Department of Biology

D. Abstracts and Presentations at Scientific Conferences

11. Andrew C. Eagar, Colleen Cosgrove, Mark W. Kershner, Ryan M. Mushinski, Amber L. Horning, Kurt A. Smemo, Richard P. Phillips, Christopher B. Blackwood. 2021, Broadening our understanding of plant-soil feedback at the community level through mycorrhizal associations of temperate hardwood forests. Presentation Abstract, Ecological Society of America 106th Annual Meeting, virtual.

10. Colleen Cosgrove, **Andrew C. Eagar**, Mark W. Kershner, Christopher B. Blackwood. 2021. Enzyme activity and leaf type lead to changes in decomposition rate in forest ecotones. Presentation Abstract, Ecological Society of America 106th Annual Meeting, virtual.

9. Andrew C. Eagar, Ryan M. Mushinski, Amber L. Horning, Kurt A. Smemo, Richard P. Phillips, Christopher B. Blackwood. 2020. Mycorrhizal dominance of forests predicts soil fungal community composition, diversity, and function. Presentation Abstract, Ecological Society of America 105th Annual Meeting, virtual.

8. Colleen Cosgrove, **Andrew C. Eagar**, Mark W. Kershner, Christopher Blackwood. 2020. Decomposition rate changes at forest ecotones as a function of leaf chemistry and microbial community composition. Poster Abstract, Ecological Society of America 105th Annual Meeting, virtual.

7. Sara Moledor, **Andrew C. Eagar**, Kurt A. Smemo, Richard Phillips, Christopher Blackwood. 2020. Does the importance of nutrient limitation and pathogen damage on root growth depend

on AM or ECM-dominance of forest plots?. Poster Abstract, Ecological Society of America 105th Annual Meeting, virtual.

6. Andrew C. Eagar, Colleen Cosgrove, Mark W. Kershner, and Christopher B. Blackwood. 2019. Testing frameworks of plant-soil feedback: Mycorrhizal types, not phylogenetic relationships, influence the local community spatial structure of trees in a temperate hardwood forest. Presentation Abstract, Ecological Society of America 104th Annual Meeting, Louisville, KY.

1. Andrew C. Eagar, Colleen Cosgrove, Mark W. Kershner, and Christopher B. Blackwood. 2017. Evaluating community relatedness and mycorrhizal associations as drivers of temperate hardwood forest composition. Poster Abstract, KSU Water and Land Symposium 4th Annual Meeting, Kent, OH.

4. Colleen Cosgrove, **Andrew C. Eagar**, Mark W. Kershner, Christopher B. Blackwood. 2017. Tree growth and mortality in ecotones in a temperate hardwood forest. Poster Abstract, Ecological Society of America 102nd Annual meeting, Portland, OR.

3. Andrew C. Eagar, Colleen Cosgrove, Mark W. Kershner, and Christopher B. Blackwood. 2017. A point pattern analysis of trees by age class, mycorrhizal type, and phylogeny in a temperate hardwood forest. Poster Abstract, Ecological Society of America 102nd Annual meeting, Portland, OR.

2. Colleen Cosgrove, **Andrew Eagar**, Mark Kershner, Chris Blackwood. 2016. Temporal shifts and spatial source-sink dynamics of tree species in a diverse forest in northeast Ohio. Poster Abstract, KSU Water and Land Symposium 3rd Annual Meeting, Kent, OH.

1. Eagar, A.C., O.J. Valverde-Barrantes, R.P. Phillips, K.A. Smemo, C.B. Blackwood. 2015. Examining the effects of soil type and fungicide use on American elm seedling germination, survival, and development. Poster Abstract, Ecological Society of America 100th Annual Meeting, Baltimore, MD.

E. Society Memberships

Ecological Society of America 2015 – present

Society for the Study of Evolution 2021 – present

American Society for Microbiology 2021 – present

IV. Teaching

A. Courses Taught

Kent State University

BSCI 30171 General Microbiology Lab (4 cr)
Teaching Assistant: Fall 2019, Spring 2020
Lab Coordinator: Fall 2020, Spring 2021, Fall 2021

BSCI 30360 Ecology (4 cr)
Teaching Assistant: Fall 2018

BSCI 10120 Biological Foundations (4 cr)
Teaching Assistant: Spring 2019

BSCI 10110 Biological Diversity (4 cr)
Teaching Assistant: Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017

Tennessee Tech University

GEOL 3210 Geology for Engineers (3 cr)
Teaching Assistant: Spring 2014, Spring 2015

GEOL 1040 The Dynamic Earth (4 cr)
Teaching Assistant: Fall 2012, Spring 2013, Fall 2013, Fall 2014

BIOL 1114 General Zoology (4 cr)
Teaching Assistant: Fall 2013, Spring 2014, Spring 2015

BIOL 1020 Introduction to Biology II (4 cr)
Teaching Assistant: Fall 2014

B. Volunteer Activities

Training and management of undergraduate and graduate students in lab and field-based work, statistical analysis, and writing.

Tutorial development and training of graduate students on computational bioinformatics platforms (Mothur, Qiime2) and modeling for microbial community sequencing studies.

V. Service Activities

A. Peer Review Responsibilities

Journals Served as Ad Hoc Reviewer

Applied Vegetation Science

Ecology & Evolution

Environmental Microbiology

European Journal of Forest Research

International Journal of Biodiversity & Conservation

Soil Biology & Biochemistry

B. Groups & Committees

Ecology & Evolutionary Biology journal discussion group organizer 2017 – 2021

Carbon Processes and Regulation discussion group co-organizer 2021 – 2022