

MICHAEL BRADSHAW

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APPOINTMENTS AND POSITIONS

- 2023-Present: **Assistant Professor**, Chancellors faculty excellence program in the emerging plant disease and global food security cluster, NC State, Raleigh NC
- 2023-Present: **Associate**, Harvard University, Cambridge MA
- 2023-Present: **Director of the Larry F Grand Mycological Herbarium**, NC State, Raleigh NC
- 2021-2023: **Post-Doctoral Fellow**, Mycology, Harvard University, Cambridge MA
- 2020-2021: **Post-Doctoral Research Associate**, Plant Pathology, USDA-ARS, Beltsville Maryland
- 2016-2020: **Research Assistant**, University of Washington, Seattle WA

EDUCATION

- 2016-2020: **PhD.**, Plant Pathology, University of Washington, Seattle, Washington
- 2013-2016: **MS.**, Plant Science, University of Washington, Seattle, Washington
- 2008-2012: **BS.**, Agriculture and Natural Resources, University of Delaware, Newark, Delaware

TEACHING EXPERIENCE

Instructor:

- 2025-Present: **Biology of Plant Pathogens**, PP501, NC State University
- 2025-Present: **Plant Disease Methods & Diagnosis**, PP502, NC State University
- 2024-Present: **Introduction to Mycology**, PP575, NC State University
- 2017: **Landscape Plant Identification**, ESRM 331/525, University of Washington

Teaching Assistant:

- 2016-2020: **Fundamentals of Genetics and Genomics**, GS361, University of Washington
- 2014-2016: **Plant and Animal Physiology**, BIO220, University of Washington
- 2014-2016: **Plant Identification**, ESRM331, University of Washington
- 2015: **Environmental Applications of Plants**, ESRM331/523 University of Washington
- 2015: **Introduction to Biology**, BIO180, University of Washington
- 2014-2015: **Plant Physiology and Development**, BIO425, University of Washington
- 2013: **Trends in Land Plant Evolution**, BIO441, University of Washington

Guest Lecturer:

- 2025: **Biodiversity in a Changing World**, BSC 295, NC State University
- 2023: **Biology of Plant Pathogens**, PP501, NC State University
- 2015: **Environmental Applications of Plants**, ESRM331/523, University of Washington

SCHOLARSHIPS AND GRANTS

\$1,809,079 total funds received

- 2025-2026: **BASF**. UV adjuvant trials for biocontrol efficacy against Botrytis (\$25,000)

2026-2027: **NC Department of Agriculture & Consumer Services:** Novel Antibiotics for North Carolina Agriculture (\$80,000-PI)

2026: **BASF.** Evaluation of UV degradation of Biological Controls. (\$25,000)

2025-2026: **Syngenta.** Biocontrol efficacy trails (\$29,000)

2025-2026: **Global One Health Academy.** Fungal Bioremediation, NC State (\$50,000)

2024-2027: **Goodnight Early Career Innovator Award,** NC State (\$66,000).

2026-2027: **Fred C. Gloeckner Foundation.** Biocontrol of Botrytis on Roses (\$20,000-PI)

2023-2026: **National Science Foundation (NSF).** A North American monograph of the powdery mildews (\$1,000,000-PI)

2024: **BASF.** Fungicide Efficacy Trials to Control *Botrytis* on strawberries (\$20,000)

2021-2023: **Harvard University Herbaria Fellowship** (\$154,892)

2020-2021: **ORISE Postdoctoral Fellowship** (\$100,000)

2021: **Berlin Mycological Society** (\$4,000)

2018-2021: **Stuntz Mycological Foundation Grant** (\$13,800)

2019-2021: **Ben Woo Scholarship,** Puget Sound Mycological Society (\$3,600)

2018-2021: **Sonoma County Mycological Association Scholarship** (\$2,500)

2020: **Vaadia-BARD Fellowship** (\$40,000)

2016-2020: **Campus Sustainability Fund Grant** (\$174,287) 2016-2020.

2019: **Hope Goddard Iselin Fellowship in Public Horticulture** (\$5,000)

2019: **Oregon Mycological Society Scholarship** (\$1,500)

2014, 2018: **Elisabeth Carey Miller Scholarship in Horticulture** (\$3,500)

2018: **Washington State Nursery and Landscape Association Grant** (\$3,000)

2015-2017: **American Public Garden Association Student Travel Award** (\$1,000)

2016: **Rick Pankow Foundation Scholarship** (\$2,000)

2016: **Washington State Nursery and Landscape Association Scholarship** (\$1,000)

MENTORING

Post-doctoral researchers:

2024-2025: **Dr. Jacklyn Thomas**

Graduate students:

2025-Present: **Andrew Paul**

2025-Present: **Joseph Spence**

Graduate student committee member:

2025-Present: **Tatiana Montoya,** Horticulture Science

2024-Present: **Carlos Morales,** Plant Pathology

2024-Present: **Jamie Lanzalotto,** Plant Pathology

2024-Present: **Shannon Holliday,** Plant Pathology

Undergraduate Students

2025-Present: **Sydney Clemons,** NC State

2025-Present: **Ta'Honny Exum,** NC State

2025-Present: **Javed, Cheema,** NC State

2025-Present: **Lia Hunt,** NC State

2025-Present: **Isabella Rhyne,** NC State

2025-Present: **Naomi Paige,** NC State

2025-Present: **Emma Duehring,** NC State

2025-Present: **Sara Schultz,** NC State

2025-Present: **Bekah Hirsh,** NC State

2024-Present: **Christian Shaw**, NC State
2025: **Skylar Mcdonald**, Appalachian State University (REU)
2024: **Quyên Tran**, NC State
2024: **P'Yari Wade**, NC State
2024: **Carolán McElwee**, NC State
2024: **Andrew Paul**, NC State
2024: **Jake Thompson**, NS State
2024: **Achintya Prathikantam**, NC State
2024: **Melissa Meija**, NC State
2024: **Taelia'Kai Hearty**, NC State
2024: **Lena Richardson**, University of South Carolina
2024: **Gabe Valenzano**, Highpoint University (REU)
2024: **Nina Esquerdo**, NC State
2019-2020: **Marissa De Luccia**, University of Washington
2017-2019: **Sabrina Gilmour**, University of Washington

Lab Personnel

2025-Present: **Bryn Merritt**, NC State
2025-Present: **Dylan Spangle**, NC State
2025-Present: **Bailey Pelt**, NC State
2024-Present: **Uma Crouch**, NC State
2025: **Andrew Paul**, NC State
2024-2025: **Dr. James Mitchell**, Harvard
2024: **Dr. Scott LaGreca**, NC State

PROFESSIONAL SERVICE/OUTREACH

Professional Service, NC State

2024-Present: **Member**, *Center for Integrated Fungal Research*
2024-Present: **Member**, *Plant Sciences Initiative*
2024-Present: **Member**, *GG Scholars Training Program*
2024-Present: **Member**, *Global One Health Academy*
2024-Present: **Member**, *Plant Pathology Graduate Admissions Committee*

Professional Service, Off Campus

2025-Present: **Member**, *International Commission of the Taxonomy of Fungi*
2025-Present: **Editorial Board Member**, *Mycologia Iranica*
2024-Present: **Subject Editor**, *IMA Fungus*
2023-Present: **Associate Editor**, *New Zealand Journal of Botany*
2022-Present: **Associate Editor**, *Plant Disease*
2020-2022: **Vice Chair**, *Postharvest Pathology Committee, American Phytopathological Society*
2021-Present: **Member**, *American Phytopathological Society*
2020-Present: **Member**, *Mycological Society of America*
2018-2020: **Student representative**, *Arboretum and Botanical Garden Committee*, University of Washington
2016-2017: **Curation Committee**, University of Washington Botanical Garden

Reviewer

2016-Present: Reviewer for manuscripts and grants submitted to *Agronomy*, *Australian Plant Disease Notes*, *Canadian Journal of Plant Pathology*, *Ecology Letters*, *Forest Pathology*, *Global Change Biology*, *Journal of Plant Pathology*, *Journal of Fungi*, *Journal of the American Society of Horticultural Science*, *Mycologia*, *Mycoscience*, *Phytopathology*, *Plant Disease*, *Plant Pathology & Quarantine* and *Systematic Botany*

2025: Ad Hoc Reviewer: Foundation for Food & Agriculture Research (FFAR)
2022-2024: Panel Reviewer, USDA NIFA
2024: Panel Reviewer, NSF
2023: Ad Hoc Reviewer, NSF
2020: Ad Hoc Reviewer, BARD (US-Israel Binational Agricultural Research Development Fund)

Outreach

2024-Present: Started a NC State Culture collection that contains over 2,000 fungal species that are available to researchers located throughout the USA.
2024-Present: Founded a Mycological Society serving mycology enthusiasts throughout the Research Triangle
2024-Present: Opening a museum exhibit focusing on glass fungi featuring artists throughout the world.

PEER REVIEWED PUBLICATIONS

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*=corresponding author

¹= members of the Bradshaw lab

In Review

1. Pelt, B¹., Gladfelter, A., Visagie, C., Crouch, U¹., **Bradshaw, M***. New records and novel diversity of marine fungi from the North Atlantic coast of the United States. *Mycological Progress*, in prep.
2. Pelt, B¹., Crouch, U¹., Shaw, C¹., Reiskind, M., **Bradshaw, M***. Fungal associates of mosquitoes: isolation, identification, and competitive interactions with bacterial symbionts. *Microbial Ecology*, in prep.
3. Valenzano, G., Crouch, U., Spence, J., Paul, A., Pelt, B., Bradshaw, M. The culturable mycobionte of powdery mildew infected plants at the J.C. Raulston Arboretum. *New Zealand Journal of Botany*, Review.
4. **Bradshaw, M***., Aime, M. C., Pfister, D. H., Mitchell, J., Visagie, C., Quesada, L., Garfinkel, A., Villani, S., Braun, U. Modern Taxonomy as the Foundation for Identifying and Managing Fungal and Fungus-Like Plant Pathogens. *Plant Disease*, In Review.
5. Shaw, C¹., Mitchell, J¹., Braun, U., Crouch, U¹., Paul, A¹., Robeson, S., **Bradshaw, M***. Clarifying species boundaries in oak powdery mildews: Description of *Erysiphe quercus-palustris* sp. nov. and notes on *E. abbreviata*. *Mycological Progress*, In Review.
6. Crouch, U¹., Paul, A¹., Carbone, I., Braun U., Holmes, G., Ivors, K., Takamatsu, S., Pelt, B¹., Liu S, **Bradshaw, M***. Global Crop Introduction Drives Host Jumps, Turning Native Pathogens into Emerging Diseases, *PNAS*, In Review.
7. Thomas, J¹., Paul, A., Crouch, U¹., Braun, U., Takamatsu, S., Németh, M. Z., Kiss, L., Carbone, I., Mitchell¹, J., Van Cotter, H., **Bradshaw, M.** Parasites of Parasites: Herbaria as Archives of Hidden Ecological Interactions. *Molecular Ecology*, In Review
8. Borba, M. C., Gottschalk, C. C., Jurick, W. M. II, **Bradshaw, M. J.**, Aćimović, S. G. Emergence of *Neonectria ditissima* in the Mid-Atlantic: Phylogenetics, Pathogenicity, Genomic Resources and Secondary Metabolite Gene Cluster Analysis. *PhytoFrontiers*, In Review.
9. Moparthi, S., **Bradshaw, M.**, Cline, W., Munster, M.J., Hoffman, M., Ramirez Segovia, D., Crouch, U¹., Li C., Almeyda, C., Salazar J., Bertone M.A. Identification of *Neopestalotiopsis* spp. from strawberry leaf, fruit, and crown tissues in North Carolina. *Pathogens*. In Revision
10. Gregorio-Cipriano, R., Rodríguez-Alvarado, G., Takamatsu, S., Braun, U., Siahaan, S., Díaz-Celaya, M., Gómez-Dorantes, N., Reyes-Tena, A., Fernández-Pavía, Y. L., Soto-Plancarte, A., **Bradshaw, M.**, Silva-Sáenz, P., Fernández-Pavía, S. P. New records and a new species of *Erysiphe* (Erysiphaceae, Ascomycota) from Mexico. *Mycoscience*, in Revision.
11. ***Bradshaw, M.**, Braun, U., Németh, M.Z., Paul¹, A., Mitchell¹, J.K., Crouch¹, U., Thomas¹, J., Pelt¹, B., Takamatsu, S., Kruse, J., Kummer, V., Seress, D., Pfister, D.H. 2025. Reassessment of the *Erysiphe aquilegiae* complex (Erysiphaceae)—resolution of a widespread and economically significant group of plant pathogens, *Fungal Biology*, In Revision.

Published

1. Braun, U., **Bradshaw, M.** 2025. Correction and supplement to suborder Erysiphineae, *Schlechtendalia*, 42, 285-285.
2. Braun, U., **Bradshaw, M.** 2025. Reassessment of the order Erysiphales in its current allocation, *Schlechtendalia*, 42, 282-284.
3. ***Bradshaw, M.**, Braun, U., Mitchell, J¹., Crouch, U¹., Thomas, J.,¹, Pfister, D.H. 2025. Phylogeny and taxonomy of the genera of Erysiphaceae, part 8, Podosphaera, *Mycologia*, Online First. <https://doi.org/10.1080/00275514.2025.2554558>
4. Paul, A¹,Crouch, U¹, Mitchell J, ***Bradshaw M.** 2025. *Erysiphe* sp. nov infecting North American *Aesculus* species. A new cryptic species provides insights into the invasion dynamics of an important plant pathogen. *Forest Pathology*. 55:e70036. <https://doi.org/10.1111/efp.70036>
5. ***Bradshaw M**, Ni Jin D, Liu S-Y, Liu M, Crouch U¹, Thomas J¹, Braun U. 2025. Powdery mildews on *Fragaria* spp. and *Rubus* spp. – unravelling the phylogeny and taxonomy of economically relevant species within the intricate *Podosphaera aphanis* s. lat. complex. *Mycoscience*. <https://doi.org/10.47371/mycosci.2025.05.001>
6. Maust A, **Bradshaw M**, Braun M, Kim SH, Tobin P. 2025. Citizen science data reveals winter warming delays cherry bloom in the Pacific Northwest, USA. *Plants, People, Planet*. Online First. <https://doi.org/10.1002/ppp3.70037>
7. LaGreca S¹, Crouch U¹, Thomas J¹, Thompson J¹, Paul A¹, Shaw C¹, Braun U, **Bradshaw M***. 2025. Hidden treasures of herbaria—even small collections contain a wealth of diversity: the powdery mildews of the North Carolina State Larry F. Grand Mycological Herbarium. *IMA Fungus*. 16:156231. <https://doi.org/10.3897/imafungus.16.156231>
8. ***Bradshaw M**, Braun U, Khodaparast SA, Mitchell J, Crouch U¹, Thomas J¹, Darsaraei H, Pfister DH. 2025. Phylogeny and taxonomy of the genera of Erysiphaceae, part 7, Phyllactiniaee, *Mycologia*. Online First: <https://doi.org/10.1080/00275514.2025.2476375>.
9. Mitchell J¹, Braun U, **Bradshaw M.** 2025. Reassessment of the nomenclature of some powdery mildew names introduced by M.C. Cooke and C. H. Peck. *Schlechtendalia*. 42: 267-274. <http://dx.doi.org/10.25673/118927>
10. Carey J, Hambleton S, Shoukouhi P, Braun U, **Bradshaw M**, Liu M. 2025. *Erysiphe parmeleeana* sp. nov.: a new powdery mildew species on oak trees from Canada. *Canadian Journal of Plant Pathology*. Online First. <https://doi.org/10.1080/07060661.2025.2471097>
11. Cook R, Braun U, **Bradshaw M**, Denton G, Denton JO. 2025. In depth study of conidial morphology of *Erysiphe albitoides* on *Wisteria* species indicates self-blocking due to host-induced gene silencing. *Journal of Plant Pathology*. Online first: <https://link.springer.com/article/10.1007/s42161-025-01836-y>
12. ***Bradshaw M**, Quijada L, Braun U, Smith M, Pfister D. 2025. Powdery mildews on North American oaks: High levels of fungal diversity and pathogen-host coevolution. *Forest Pathology*. <https://doi.org/10.1111/efp.70005>.
13. ***Bradshaw M**, Ivors K, Broome JC, Carbone I, Braun U, Yang S, Meng E, Warres B, Cline WO, Moparathi S, Llanos AK, Apaza W, Liu M, Carey J, El Ghazouani M, Carvalho R, Elliott M, Boufford D, Coetzee T, De Wet J, Mitchell JK, Quijada L, Meeboon J, Takamatsu S, Crouch U¹, LaGreca S¹, Pfister DH. 2025. An emerging fungal pathogen is spreading across the globe and affecting the blueberry industry. *New Phytologist*. Priority Report. 246: 103-112. <https://doi.org/10.1111/nph.20351>
14. Johnson KA, Kreis RA, **Bradshaw MJ**, Lacka SM, Brennan PM, Jurick II WM, Villani SM. 2025. Molecular Characterization and QoI fungicide sensitivity of *Colletotrichum* species causing Glomerella leaf spot and bitter rot of apple in the Southeastern United States. *Phytopathology*. 109: 579-592. <https://doi.org/10.1094/PDIS-05-24-1006-RE>
15. Pfister DH, LoBuglio KF, **Bradshaw M**, Lebeuf R, Voitk A. 2024. *Peziza nivalis* and relatives-spring fungi of wide distribution. *Mycologia*. Online First, doi.org/10.1080/00275514.2024.2370198

16. ***Bradshaw M**, Braun U, Mitchell J, Crouch U¹, LaGreca S¹, Pfister DH. 2024. Phylogeny and taxonomy of the genera of Erysiphaceae, part 6: *Erysiphe* (the “*Microsphaera* lineage” part 2), *Mycologia*, Online First: <https://doi.org/10.1080/00275514.2024.2386230>
17. Thite S, Wagh SH, Kanade MB, **Bradshaw M**, Braun U. 2024. Identification of anamorphic Indian powdery mildews (*Erysiphaceae*) based on sequence analyses. *Current Research in Environmental & Applied Mycology*, 14:371-387.
18. Moparthy S, Perez-Hernandez O, Eileen Burrows M, **Bradshaw M**, Busingo C, Brelsford M, McPhee K. 2024. Identification of *Fusarium* spp. associated with chickpea root rot in Montana, *Agriculture*. 14: 974. doi.org/10.3390/agriculture14070974
19. **Bradshaw M**, Braun U, Götz M, Dog˘an G, Erdog˘du M, Ates, MA, Pastirc˘áková K, Pastirc˘ák M, Fernández-Pavía S, Takamatsu S, Abbasi M, Moparthy S, Gafforov Y, Chinan VC, Kummer V, Kruse J, Pfister DH. 2024. Contributions to the knowledge of the phylogeny and taxonomy of the Erysiphaceae (powdery mildews) – part 2. *Sydowia* ,76:113. doi.org/10.12905/0380.sydowia76-2024-0113.
20. ***Bradshaw M**, Braun U, Quijada L, Pfister DH. 2024. Phylogeny and taxonomy of the genera of Erysiphaceae, part 5: *Erysiphe* (the “*Microsphaera* lineage” part 1), *Mycologia*, 1:106-147. doi.org/10.1080/00275514.2023.2252715
21. ***Bradshaw M**, Boufford D, Braun U, Moparthy S, Jellings K, Maust A, Pandey B, Slack S, Pfister D. 2024. An in-depth evaluation of powdery mildew hosts reveals one of the world’s most common and widespread groups of fungal plant pathogens. *Plant disease*. 108: 576-581. doi.org/10.1094/PDIS-07-23-1471-RE
22. Bartholomew HP, Luciano-Rosario D, **Bradshaw M**, Gaskins VL, Peng H, Fonseca JM, Jurick II WM. 2023. Avirulent isolates of *Penicillium chrysogenum* to control the blue mold of apple caused by *P. expansum*, *Microorganisms*, 11:2792. doi.org/10.3390/microorganisms11112792
23. ***Bradshaw M**, Braun U, Takamatsu S, Németh MZ, Seress D, Pfister DH. 2023. The *Erysiphe albitoides* complex (powdery mildews)– unravelling the phylogeny and taxonomy of an intricate assemblage of species, *New Zealand Journal of Botany*, In Press. doi.org/10.1080/0028825X.2023.2276913
24. ***Bradshaw M**, Braun U, Pfister D. 2023. Phylogeny and taxonomy of the genera of the Erysiphaceae, part 4, *Erysiphe* (The “*Uncinula* Lineage”). *Mycologia*, 115:871-903. doi.org/10.1080/00275514.2023.2230853
25. Götz M, Kruse J, **Bradshaw M**, Richter U, Braun U. 2023. *Golovinomyces inulae* U. Braun & H.D. Shin is the causative agent of powdery mildew on *Telekia speciosa* L. in Germany, *Journal of Plant Disease and Protection* 130:1129-1134
26. ***Bradshaw M**, Braun U, Pfister D. 2023. Phylogeny and taxonomy of the genera of the Erysiphaceae, part 3, *Cystotheca*, *Mycologia* 115:427-436
27. ***Bradshaw MJ**, Aime MC, Rokas A, Maust A, Moparthy S, Jellings K, Pane AM, Hendricks D, Pandey B, Li Y, Pfister DH. 2023. Extensive intragenomic variation in the Internal Transcribed Spacer (ITS) Region, the universal barcode in Kingdom Fungi. *iScience* 26:8
28. ***Bradshaw MJ**, Carey J, Liu M, Bartholomew HP, Jurick WM, Hambleton S, Hendricks D, Schnittler M, Scholler M. 2023. Genetic Time Traveling: Sequencing old herbarium specimens, including the oldest specimen sequenced from Kingdom Fungi, reveals the population structure of an agriculturally significant rust. *New Phytologist* 237:1463-1473. doi.org/10.1111/nph.18622
29. Bartholomew H, Lichtner F, **Bradshaw M**, Jurick II W. 2022. Comparative *Penicillium* spp. Transcriptomics: Conserved Pathways and Processes Revealed in Ungerminated Conidia and During Postharvest Apple Fruit Decay *Microorganisms* 10:2414
30. ***Bradshaw M**, Braun U, Götz M, Pfister D. 2022. Phylogeny and taxonomy of the genera of the Erysiphaceae, part 2, *Neoerysiphe*. *Mycologia* 114:994-1007. doi.org/10.1080/00275514.2022.2115419
31. ***Bradshaw M**, Braun U, Pfister D. 2022. Phylogeny and taxonomy of the genera of the Erysiphaceae, part 1, *Golovinomyces*. *Mycologia* 114:964-993. doi.org/10.1080/00275514.2022.2115419

32. Tymon L, **Bradshaw M**, Gotz M, Braun U, Peever TL, Edmonds RL. 2022. Phylogeny and Taxonomy of *Erysiphe* spp. on Rhododendron with a special emphasis on North American species. *Mycologia* 114:887-899. doi.org/10.1080/00275514.2022.2090219
33. Jurick WM, Messinger L, Wallis A, Peter KA, Villani S, **Bradshaw MJ**, Bartholomew HP, Buser M, Aćimović SG, Fonseca JM, Cox KD. 2022. PATHMAP (Pathogen And Tree fruit Health MAP): A Smart Phone App and Interactive Dashboard to Record and Map Tree Fruit Diseases, Disorders, and Insect Pests. *PhytoFrontiers* 2:331-338. doi.org/10.1094/PHYTOFR-06-22-0070-TA
34. Liu L, **Bradshaw M**, Braun U, Götz M, Khodaparast SA, Liu TZ, Bulgakov TS, Darsaraei H, Hofbauer WK, Li Y, Liu SY. 2022. Phylogeny and taxonomy of *Erysiphe berberidis* (s. lat.) revisited. *Mycoscience* 63:222-234. doi.org/10.47371/mycosci.2022.07.005
35. ***Bradshaw MJ**, Quijada L, Tobin PC, Braun U, Newlander C, Potterfield T, Alford ER, Contreras C, Coombes A, Moparthi S, Buchholz E, Murphy D, Enos W, Fields-Taylor A, Bower A, Pfister DH. 2022. More than just plants: Botanical gardens as a source of fungal diversity. *HortScience* 57:1289-1293. doi.org/10.21273/HORTSCI16755-22
36. Lichtner F, Jurick II W, ***Bradshaw M**, Broeckling C, Bauchan G, Broders K. 2022. *Penicillium raperi*, a species isolated from Colorado cropping soils, is a potential biological control agent that produces multiple metabolites and is antagonistic against postharvest phytopathogens. *Mycological progress* 21:62. doi:10.1007/s11557-022-01812-1
37. ***Bradshaw M**, Guan GX, Nokes L, Braun U, Liu SY, Pfister D. 2022. Secondary DNA barcodes (CAM, GAPDH, GS, and RPB2) to characterize species complexes and strengthen the powdery mildew phylogeny. *Frontiers in Ecology and Evolution* 10:918908. doi:10.3389/fevo.2022.918908
38. Feng J, Liu SY, Braun U, Takamatsu S, **Bradshaw M**, Khodaparast SA, Bulgakov TS, Guan GX, Zhao FY, Tang SR. 2022. Discovery of a cryptic species, *Erysiphe salicina* sp. nov., and reconstruction of the phylogeny of powdery mildews on *Populus* and *Salix* spp. *Mycological Progress* 21:54. doi:10.1007/s11557-022-01793-1
39. ***Bradshaw M**, Braun U, Pfister D. 2022. Powdery mildews on *Quercus*: A worldwide distribution and rediscovered holotype provide insights into the spread of these ecologically important pathogens. *Forest Pathology* 52:(3) e12742.
40. Braun U, **Bradshaw M**, Pfister D. 2022. Proposal to conserve the name *Golovinomyces* against *Euoidium* (Ascomycota: Erysiphaceae). *TAXON* 71:459.
41. Braun U, **Bradshaw M**, Pfister D. 2022. Proposal to conserve the name *Microphaera albitoides* (*Erysiphe albitoides*) (Ascomycota: Erysiphaceae) with a conserved type. *TAXON* 71: 460.
42. Bartholomew H, **Bradshaw M**, Jurick II W, Fonseca J. 2022. More than a virulence factor: patulin is a non-host specific toxin that inhibits postharvest phytopathogens and requires efflux for *Penicillium* tolerance. *Phytopathology* 112:1165-1174.
43. ***Bradshaw M**, Braun U, Götz M, Jurick II W. 2022. Phylogeny and taxonomy of powdery mildew caused by *Erysiphe* species on *Lupinus* hosts. *Mycologia* 114:76-88.
44. ***Bradshaw M**, Bartholomew H, Hendricks D, Maust A, Jurick II W. 2021. A global analysis of postharvest fungal pathogens reveals temporal-spatial and host-pathogen associations linked with FRAC1 fungicide resistance. *Phytopathology* 111:1942-1951. doi:10.1094/PHYTO-03-21-0119-R
45. Liu SY, Jin D, Götz M, **Bradshaw M**, Liu M, Takamatsu S, Braun U. 2021. Phylogeny and taxonomy of *Podosphaera filipendulae* (Erysiphaceae) revisited. *Mycoscience* 62:390-394
46. Darsaraei H, Khodaparast S, Takamatsu S, Abbasi M, Asgari B, Falibadi F, Sajedi S, Götz M, Liu SY, **Bradshaw M**, Bulgakov T, Braun U. 2021. Phylogeny and taxonomy of the *Erysiphe adunca* complex (*Erysiphaceae*, *Helotiales*) on poplars and willows. *Mycological Progress* 20:517-537. doi:10.1007/s11557-021-01688-7
47. ***Bradshaw M**, Bartholomew H, Fonseca J, Gaskins V, Prusky D, Jurick II W. 2021. Delivering the goods: Fungal secretion modulates virulence during host-pathogen interactions. *Fungal Biology Reviews* 36:76-86. doi:10.1016/j.fbr.2021.03.007

48. ***Bradshaw M**, Braun U, Elliott M, Kruse J, Liu SY, Tobin PC. 2021. A global genetic analysis of herbarium specimens reveals the invasion dynamics of a detrimental plant pathogen. *Fungal Biology* 125:585-595. doi:10.1016/j.funbio.2021.03.002
49. Moparathi S, ***Bradshaw M**. 2021. Powdery mildew epidemics in the nursery: Source of initial inoculum and fungicide regimes to limit chasmothecia formation. *Mycological Progress* 20:641-646.
50. Bartholomew H, **Bradshaw M**, Jurick II W, Fonseca J. 2021. The good, the bad and the ugly: mycotoxin production during postharvest fruit decay and their influence on tritrophic host-pathogen-microbe interactions. *Frontiers in Microbiology* 12:611881. doi:10.3389/fmicb.2021.611881
51. ***Bradshaw M**, Braun U, Meeboon J, Tobin PC. 2021. Phylogeny and taxonomy of powdery mildew on *Corylus* species. *Mycologia* 113:459-475. doi:10.1080/00275514.2020.1837568
52. **Bradshaw M**, Braun U, Götz M, Takamatsu S. 2021. Taxonomy and phylogeny of the *Erysiphe lonicerae* complex (*Helotiales, Erysiphaceae*). *Fungal Systematics and Evolution* 7:49-65. doi:10.3114/fuse.2021.07.03
53. ***Bradshaw M**, Goolsby E, Mason C, Tobin PC. 2021. Evolution of severity and susceptibility in the Asteraceae to the powdery mildew *Golovinomyces latisporus*: major phylogenetic structure coupled with highly variable susceptibility at fine scales. *Plant Disease* 105:268-275 doi:10.1094/PDIS-06-20-1375-RE
54. **Bradshaw M**, Braun U, Götz M, Takamatsu S, Brand T, Cabrera M, Dirchwolf P, Kummer V, Medina R, Moparathi S, Salcedo-Sarmiento S. 2021. Contributions to the phylogeny and taxonomy of the Erysiphaceae (powdery mildew) – part 1. *Sydowia* 73:89-112.
55. De Luccia M, Peterson B, **Bradshaw M**, Tobin PC. 2020. The effectiveness of herbicides on *Lysimachia vulgaris* L: A 17-year case study, *Invasive Plant Science and Management* 13:282-287. doi:10.1017/inp.2020.26
56. ***Bradshaw M**, Pane A. 2020. Field inoculations of nitrogen fixing endophytes on turfgrass. *Physiological and Molecular Plant Pathology* special issue “Beneficial Microorganisms in Agriculture” 112:101557. doi:10.1016/j.pmpp.2020.101557
57. ***Bradshaw M**, Tobin P. 2020. Sequencing herbarium specimens of a common detrimental plant disease (powdery mildew). *Phytopathology* 110: 1248-1254. doi:10.1094/PHYTO-04-20-0139-PER
58. Moparathi S, ***Bradshaw M**. 2020. Fungicide efficacy trials for the control of powdery mildew (*Podosphaera cerasi*) on sweet cherry trees (*Prunus avium*). *Biocontrol Science & Technology* 30:659-670. doi:10.1080/09583157.2020.1755616
59. ***Bradshaw M**, Braun U, Wang S, Liu SY, Feng J, Shin HD, Choi Y-J, Takamatsu S, Bulgakov T, Tobin, PC. 2020. Phylogeny and taxonomy of powdery mildew on *Viburnum* species. *Mycologia* 112:616-632. doi:10.1080/00275514.2020.1739508
60. Qiu PL, Liu SY, **Bradshaw M**, Rooney-Latham S, Takamatsu S, Bulgakov TS, Tang SR, Feng J, Jin DN, Aroge T, Li Y, Wang LL, Braun U. 2020. Multi-locus phylogeny and taxonomy of an unresolved, heteroenous species complex within the genus *Golovinomyces* (Ascomycota, Erysiphales), including *G. ambrosiae*, *G. circumfusum* and *G. spadiceum*. *BMC Microbiology* 20:51. doi:10.1186/s12866-020-01731-9
61. Moparathi S, Grove G, Binod P, **Bradshaw M**, Rooney-Latham S, Braun U, Meeboon J, Romberg M. 2019. Phylogeny and taxonomy of *Podosphaera cerasi* sp. nov., and *Podosphaera prunicola* sensu lato. *Mycologia* 111:647-659. doi:10.1080/00275514.2019.1611316
62. Braun U, **Bradshaw M**, Zhao T, Cho S, Shin HD. 2018. Taxonomy of the *Golovinomyces cynoglossi* complex (*Erysiphales, Ascomycota*) disentangled by phylogenetic analyses and reassessments of morphological traits. *Mycobiology* 46:192-204. doi: 10.1080/12298093.2018.1509512
63. ***Bradshaw M**, Braun U, Götz M, Takamatsu S. 2017. Phylogeny and taxonomy of the *Chrysanthemum x morifolium* powdery mildew. *Mycologia* 109: 508-519. doi:10.1080/00275514.2017.1358136

Disease Reports

1. Crouch U¹, Bean DW, Paul A¹, ***Bradshaw M**. First Report of *Golovinomyces ambrosiae* on *Cirsium arvense* worldwide. *Plant Disease*. Online First: <https://doi.org/10.1094/PDIS-05-25-0945-PDN>
2. Baggio JS, LaGreca S¹, Lingaits A, Crouch U¹, **Bradshaw M**. 2024. First report of powdery mildew caused by *Golovinomyces ambrosiae* on *Verbena x hybrida* in the U.S., *Plant Disease*, 108:3192. doi.org/10.1094/PDIS-06-24-1336-PDN

3. ***Bradshaw M**, Bartholomew H, Lichtner F, Gaskins V, Jurick II W. 2021. First report of blue mold caused by *Penicillium polonicum* on apple in the United States. *Plant Disease* 106:762.
4. ***Bradshaw M**. 2018. First report of powdery mildew caused by *Erysiphe aquilegiae* var. *aquilegiae* on *Aquilegia vulgaris* in the United States. *Plant Health Progress* 19:69-70. doi: 10.1094/PHP-11-17-0069-BR
5. Moparathi S, **Bradshaw M**, Grove G. 2018. First report of powdery mildew on *Verbascum thapsus* caused by *Golovinomyces verbasci* in the USA. *Plant Disease* 102:1177. doi:10.1094/PDIS-09-17-1453-PDN
6. Moparathi S, **Bradshaw M**, Grove G. 2017. First report of powdery mildew caused by *Golovinomyces spadiceus* on *Helianthus annuus* in the USA. *Plant Disease* 102:1176. doi:10.1094/PDIS-09-17-1434-PDN
7. Moparathi S, **Bradshaw M**, Grove G. 2017. First report of powdery mildew on *Spiraea japonica* caused by *Podosphaera spiraeae* in the USA. *Plant Disease* 102:62. doi:10.1094/PDIS-09-17-1419-PDN
8. ***Bradshaw M**, Elliott M, Reichard S. 2016. First report of powdery mildew caused by *Euoidium chrysanthemi* on *Chrysanthemum* × *morifolium* in the United States. *Plant Disease* 100:2325. doi:10.1094/PDIS-04-16-0452-PDN

OUTREACH AND ENGAGEMENT

Presentations

1. **Bradshaw M**. 2025. The Larry F. Grand Mycological Herbarium. Raleigh, North Carolina, *NC State University, Partnering with Local Science Museums on STEM Outreach*.
2. **Bradshaw M**. 2025. Herbaria in the Modern Age: Insights from Powdery Mildews and Managing a Small Mycological Collection. Cambridge, Massachusetts, *Harvard University Herbaria Seminar Series*.
3. Crouch U, Paul A, **Bradshaw M**. Adult Night Zombie Prom, Raleigh, North Carolina, *NC Museum of Natural Sciences, Adult Night Series Exhibitor*.
4. **Bradshaw M**. 2025. Beyond Systematics: Exploring the Research Potential of Mycological Herbaria Through Powdery Mildews. Raleigh, North Carolina. *North Carolina State University. Department of Entomology and Plant Pathology Seminar Series*
5. **Bradshaw M**. 2025. Novel Uses of Arboreta, Fungal Diversity in Botanical Gardens. Seattle, Washington. *University of Washington. UW Botanical Garden*.
6. **Bradshaw M**. 2025. The Relevance of Herbaria: Powdery Mildews and Managing a Small Mycological Herbarium in the Modern Age. Athens, Georgia. *University of Georgia. Department of Plant Pathology Seminar Series*.
7. **Bradshaw M**. 2025. Stewarding a Small Mycological Herbarium in the Age of Genomics: Lessons from Powdery Mildews. Berkeley, California. *University of California Berkeley. Jepson Herbaria Seminar*.
8. **Bradshaw M**. 2025. Using Herbarium Specimens to Uncover Fungal Diversity, Disease Spread, and Potential Extinction Events. Raleigh, North Carolina. *Genomics and Genetics Academy Seminar Series*
9. **Bradshaw M**. 2024. Powdery Mildews: Biology, Disease Spread, and Fungicide Resistance. Raleigh, North Carolina. *Ornamental Workshop on Insects and Diseases*. Key Note Speaker.
10. **Bradshaw M**. 2024. Powdery mildews (Erysiphaceae) and their hosts: Co-evolution, systematics, and global biodiversity. Maastricht, Netherland. *International Mycological Conference*. Symposium Chair (led and organized a symposium that consisted of 8 talks centered on powdery mildews).
11. **Bradshaw M**. 2024. Branching out: Exploring the diversity of powdery mildews in North America. Maastricht, Netherland. *International Mycological Conference*. Symposium
12. **Bradshaw M**. 2024. Powdery mildews (Erysiphaceae) and their hosts: co-evolution, systematics, and global biodiversity. Maastricht, Netherlands. *International Mycological Conference*. Symposium Chair.
13. **Bradshaw M**. 2024. Mapping the Global Diversity of Powdery Mildew Affecting Blueberries Using Herbarium Collections. *Duke University, Durham, North Carolina. Tri-I-MMPTP Symposium*
14. **Bradshaw M**. 2024. Tracing pathogens through time: the role of herbarium collections in fungal genomics. *NC State, Raleigh, North Carolina. Global One Health Academy Research Symposium*

15. **Bradshaw M.** 2024. Global diversity of blueberry powdery mildew. *Driscoll's Global Plant Health*. Watsonville, CA
16. **Bradshaw M.** 2023. Everything, everywhere, all at once: mapping powdery mildew diversity, disease severity, and global distribution. *NC State*, Raleigh, North Carolina.
17. **Bradshaw M.** 2023. The ecological effects of non-native fungal pathogens in the Pacific Northwest, City of Seattle and Recertification, Seattle, Washington
18. **Bradshaw M.** 2023, Powdery Mildews: The world's best plant taxonomists, *Harvard University Herbaria*, Seminar. [2023 0404 Michael Bradshaw: Powdery mildews: The world's best plant taxonomists \(youtube.com\)](https://www.youtube.com/watch?v=eMYNRMFOKrg)
19. **Bradshaw M.** 2023. Epidemiology and biology of a common plant pathogen. *USDA*, Beltsville, Maryland.
20. **Bradshaw M.** 2023. Reconstructing the worldwide spread of powdery mildew on maple trees using herbarium specimens, *North Carolina State University*, Raleigh, North Carolina
21. **Bradshaw M.** 2022. Powdery mildews on *Quercus*: North America as a hot spot of genetic diversity. *Mycological Society of America*, Gainesville, Florida
22. **Bradshaw M.** 2022. Powdery mildew of blueberry: Tracking its incidence and phylogenetic relationships of *Erysiphe* species on *Vaccinium* hosts. *Driscoll's Global Plant Health*. Watsonville, CA
23. **Bradshaw M.** 2022. Tracking the spread of forest pathogens. *USDA*, Hilo, Hawaii. **Bradshaw M.** 2022. Exploration of North American powdery mildews reveals hidden diversity. *Sonoma Mycological Society*, Sonoma County, California
24. **Bradshaw M.** 2021. Molecular epidemiology of phytopathogenic fungi. *German Mycological Society*, 100th year anniversary, Berlin
25. **Bradshaw M.** 2021. Reconstructing the worldwide epidemic spread of powdery mildews by sequencing herbarium specimens. *Harvard University Herbaria*, <https://www.youtube.com/watch?v=eMYNRMFOKrg>
26. **Bradshaw M.** 2021. A global analysis of FRAC1 fungicide resistance in postharvest pathogens, *Plant Pathology & Microbiology Meeting*, University of Maryland, College Park, MD
27. **Bradshaw M.** 2020. Pathogenic Fungi of the Pacific Northwest: Mitigation Methods & More. *Oregon Mycological Society*. <https://youtu.be/y2nMSitDk2Q>
28. **Bradshaw M.** 2019. Epidemiology and Biology of the Powdery Mildews. *American Public Garden Association*, Annual Conference, Washington DC, District of Columbia
29. **Bradshaw M.** 2019. Assessing the Biodiversity and Epidemiology of Common, Understudied, Pacific Northwest Fungi: An Introduction to the Powdery Mildews and their Relevance in the Pacific Northwest. *Puget Sound Mycological Society*, Seattle, WA
30. **Bradshaw M.** 2018. Powdery mildew in the Landscape, Identification and IPM Strategies for Control. *University of Washington Grounds Crew Monthly Seminar Series*, Seattle, WA
31. **Bradshaw M.** 2017. Landscape Plant Identification. *University of Washington Grounds Crew Monthly Seminar Series*, Seattle, WA.
32. **Bradshaw M.** 2016. Organic Fungicides for the Control of Powdery Mildew, *Northwest Horticultural Society*, Seattle, WA.

Posters

1. **Bradshaw M.** 2025. Powdery Mildews: One of the world's most common yet understudied plant pathogens. *American Phytopathological Society Annual Conference*. Honolulu, Hawaii.
2. **Bradshaw M.** 2022. A North American monograph of the powdery mildews. *Mycological Society of America*, Gainesville, Florida
3. **Bradshaw M**, Quijada L, Pfister D. 2022. Plant pathogens in botanical gardens. *Plant Biology Initiative Symposium*, Harvard University, Arnold Arboretum
4. **Bradshaw M.** 2021. Fungicide Resistance is Prevalent in Postharvest Fungal Pathogens and Impacted by Temporal-Spatial and Host-Pathogen Associations Across the Globe, *American Phytopathological Society*, Annual Meeting

5. **Bradshaw M.** 2020. Evolution of disease severity in the *Golovinomyces latisporus*-Asteraceae system. *Mid-Atlantic Plant Molecular Biology Society, Annual Meeting*
6. Jurick WM, Messinger L, Wallis A, Peter KA, Villani S, **Bradshaw MJ**, Bartholomew HP, Buser M, Aćimović SG, Fonseca JM, Cox KD. 2021. Pathogen and tree fruit health-map (PATH-Map): A smart phone application and dashboard for tree fruit pathogen, pest and disorder tracking. *American Phytopathological Society*
7. **Bradshaw M.** 2020. A worldwide assessment of an ecologically detrimental plant pathogen. *Mycological Society of America, Annual Meeting*
8. **Bradshaw M.** 2019. Fungal Diversity in Botanical Gardens. *American Public Garden Association, Annual Conference, Washington DC, District of Columbia*

Outreach Publications

1. **Bradshaw M.** 2023. Close up on Powdery Mildew. *Arnoldia* 80:10-11. [Closeup on Powdery Mildew - Arnold Arboretum | Arnold Arboretum \(harvard.edu\)](#)
2. Moparthy S, **Bradshaw M.** 2019 *Podosphaera spiraeae* (Japanese spiraea powdery mildew). CABI, Invasive Species Compendium. <https://www.cabi.org/isc/datasheet/57273799>
3. **Bradshaw M.** 2017. Controlling powdery mildew: researchers look at four common compounds used in commercial organic fungicides for the control of powdery mildew. *Digger Magazine*, August 2017 issue. <http://www.diggermagazine.com/controlling-powdery-mildew/>
4. **Bradshaw M**, Elliott M, Reichard S. 2016. Plant Disease Cover Photo. *Plant Disease*, November 2016 Volume 100 Issue. <https://apsjournals.apsnet.org/toc/pdis/100/11>