MICHAEL BRADSHAW

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APPOINTMENTS AND POSITIONS

2023-Present: **Assistant Professor,** Chancellor's 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: **Harvard University Herbaria Fellowship,** 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:
2026-Present: **Kingdom of Fungi,** PP222, NC State University
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

GRANTS, AWARDS, AND RESEARCH SUPPORT

$1,920,079 total funds received

2026-2028: **NC Innovation Fund:** Advancing Postharvest Biocontrol in America: Ensuring Competitiveness in the Expanding Organic Market ($50,000-PI)
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-PI)
2025-2026: **American Floral Endowment:** Flower Quality Assessment of Chrysanthemums ($61,000-Co-PI)
2025-2026: **Syngenta**. Biocontrol efficacy trails ($29,000-PI)
2025-2026: **Global One Health Academy.** Fungal Bioremediation ($50,000-Co-PI)
2024-2027: **Goodnight Early Career Innovator Award**, NC State ($66,000-PI).
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-PI)
2021-2023: **Harvard University Herbaria Fellowship** ($154,892-PI)
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 (MS)**
2025-Present: **Joseph Spence (MS)**
2026-Present: **Bailey Pelt (PhD)**

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
2026-Present: **Sarah Garcia**, NC State
2026-Present: **Kyla Steadman**, NC State
2026-Present: **Elizabeth Hunt**, Lees-McRae College
2025-Present: **Bekah Hirsh**, NC State

2025-Present: **Sara Schultz**, NC State
2025-2026: **Sydney Clemons**, NC State
2025: **Francesca Gervase,** NC State
2025: **Ta'Honny Exum**, NC State
2025: **Javed, Cheema**, NC State
2025: **Lia Hunt**, NC State
2025: **Isabella Rhyne**, NC State
2025: **Naomi Paige**, NC State
2025: **Emma Duehring**, NC State
2024-2025: **Christian Shaw,** NC State
2025: **Skylar Mcdonald**, Appalachian State University (REU)
2025: **Lauralilian Baggett,** Davidson University
2024: **Quyen Tran**, NC State
2024: **I'Yari Wade**, NC State
2024: **Carolan McElwee,** NC State
2024: **Andrew Paul,** NC State
2024: **Jake Thompson,** NC 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,** High Point University (REU)
2024: **Nina Esquerdo,** NC State
2019-2020: **Marissa De Luccia**, University of Washington
2017-2019: **Sabrina Gilmour,** University of Washington

Research Staff
2025-Present: **Dylan Spangle,** NC State
2025-2026: **Bailey Pelt,** NC State
2024-Present: **Uma Crouch**, NC State
2025-2026: **Bryn Merritt,** NC State
2025: **Andrew Paul,** NC State
2024-2025: **Dr. James Mitchell**, Harvard University
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
2026-Present: **Associate Editor,** *Studies in Mycology*
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, Ecosphere, 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*
2026: Panel Reviewer, NSF
2026: Panel Reviewer, 1890 Center of Excellence for Global Food Security and Defense
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

Outreach

2024-Present: Founded and direct an NC State Culture collection that contains over 7,000 isolates consisting of ~2,000 fungal species that are available to researchers located throughout the USA.
2024-Present: Founded the Triangle Mycological Society serving mycology enthusiasts throughout the Research Triangle. Currently there are over 500 members.
2024-Present: Opening a museum exhibit focusing on glass fungi featuring artists throughout the world.

PEER REVIEWED PUBLICATIONS

*****=corresponding author
[1]= trainee or research staff mentored in the Bradshaw lab

Selected Publications

- Crouch, U[1]., Paul, A[1]., Carbone, I., Braun U., Holmes, G., Takamatsu, S., Pelt, B[1]., Liu S, **Bradshaw, M***. 2026. Global Crop Introduction Drives Host Jumps, Turning Native Pathogens into Emerging Diseases, *Proceedings of the National Academy of Sciences,* 123 (19) e2536984123
- **Bradshaw M*,** Ivors K, Broome JC, Carbone I, Braun U, Yang S, Meng E, Warres B, Cline WO, Moparthi 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 U[1], LaGreca S[1], 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:10.1111/nph.20351
- Thomas, J[1]., Paul, A[1]., Crouch, U[1]., Braun, U., Takamatsu, S., Németh, M. Z., Kiss, L., Carbone, I., Mitchell[1], J., Van Cotter, H., **Bradshaw, M.*** Parasites of Parasites: Herbaria as Archives of Hidden Ecological Interactions. *Proceedings of the Royal Society B,* Accepted.
- **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:10.1111/efp.70005.
- **Bradshaw M***, Aime MC, Rokas A, Maust A, Moparthi 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

- **Bradshaw M*,** 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:10.1111/nph.18622
- **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

In Review

1. **Bradshaw, M*.,** Mill, Q., Crouch, U[1]., Pelt, B[1]., Muddiman, D. Spatially resolving the chemistry of microbial competition reveals hidden antibiotic potentiation. *Science.* Submitted.
2. Mills, Q**., Bradshaw, M**., Muddiman, D. Exploring Biosynthesis, Transport, and Accumulation of Mycotoxins in Agar Cultures of Filamentous Fungi by IR-MALDESI Mass Spectrometry Imaging. *Journal of the American Society for Mass Spectrometry.* Submitted.
3. Spence, J.[1], Crouch, U.[1], de los Reyes III, F., Aziz, T., **Bradshaw, M.*** Wastewater treatment facilities as reservoirs of fungal diversity: four new species in the genera *Apiotrichum*, *Cutaneotrichosporon*, *Sporothrix*, and *Sungouiella*. *Ecology and Evolution*, In Review.
4. **Bradshaw, M*.,** Paul, A.[1], Spangle, D[1]., Crouch, U[1]., Cook, R., Kummer, V., Kruse, J., Takamatsu, S., Robeson, S., Heluta, V., Braun, U. *Neoerysiphe* (Erysiphaceae): multilocus analyses provide new insights to a phytopathologically relevant genus. New Zealand Journal of Botany, In Revision.
5. **Bradshaw, M*.,** U., Mitchell, J[1]., Pfister, D.H, Aime M.C. *Gymnosporangiaceae*: Taxonomy, Phylogeny, and Future Directions for the Cedar Apple Rusts. *Mycologia,* In Review.
6. Pelt, B[1]., Crouch, U[1]., Shaw, C[1]., Reiskind, M., **Bradshaw, M*.** Fungal associates of mosquitoes: isolation, identification, and competitive interactions with bacterial symbionts. *Environmental Microbiology Reports*, In Review.
7. **Bradshaw, M*.,** Braun, U., Mitchell, J[1]., Crouch, U[1]., Pfister, D.H. Phylogeny and taxonomy of the genera of Erysiphaceae, part 9, *Podosphaera* sect. Magnicellulatae, *Mycologia,* Accepted.
8. Thomas, J[1]., Paul, A[1]., Crouch, U[1]., Braun, U., Takamatsu, S., Németh, M. Z., Kiss, L., Carbone, I., Mitchell[1], J., Van Cotter, H., **Bradshaw, M*.** Parasites of Parasites: Herbaria as Archives of Hidden Ecological Interactions. *Proceedings of the Royal Society B,* Accepted.

Published

9. Thompson, S.R., **Bradshaw, M.,** Naegele, R.P. Miles, L.A., Miles, T.D. 2026. Molecular Tools for the powdery mildew genus *Podosphaera*. *Plant Disease,* First Look. https://doi:10.1094/PDIS-12-25-2462-SR
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. 2026. New records and a new species of *Erysiphe* (Erysiphaceae, Ascomycota) from Mexico. *Mycoscience*, 67(3), 105-116.
11. Borba, M. C., Gottschalk, C. C., Jurick, W. M. II, **Bradshaw, M. J.**, Aćimović, S. G. 2026. High-Quality Genomic and Phylogenetic Resources for *Neonectria ditissima* Isolates Obtained from Virginia Apple Orchards. *PhytoFrontiers*, First Look. https://doi:10.1094/PHYTOFR-12-25-0142-R
12. Shaw, C[1]., Mitchell, J[1]., Braun, U., Crouch, U[1]., Paul, A[1]., Robeson, S., **Bradshaw, M***. 2026. Clarifying species boundaries in oak powdery mildews: Description *of Erysiphe quercus-palustris* sp. nov. and notes on *E. abbreviata*. *Mycological Progress*, 25,18. https://doi:10.1007/s11557-026-02132-4
13. Valenzano, G[1]., Crouch, U[1]., Spence, J[1]., Paul, A[1]., Pelt, B[1]., **Bradshaw, M***. 2026. The culturable mycobiome of powdery mildew infected plants at the J.C. Raulston Arboretum. *New Zealand Journal of Botany*, 64, e70074. https://doi:10.1002/nzb2.70074
14. **Bradshaw, M*.,** Paul, A[1]., Rennie, E., Gilbert, G. S., Robeson, S., Donnelly, R., Crouch, U[1]., Mitchell, J[1]., Braun, U. 2026. Herbarium specimens provide evidence for the early introduction of *Erysiphe*

quercicola into the United States and document new hosts. *Forest Pathology*, 56(2), e70072. https://doi:10.1111/efp.70072

15. **Bradshaw, M*.,** Braun, U., Németh, M.Z., Paul[1], A., Mitchell[1], J.K., Crouch[1], U., Thomas[1], J., Pelt[1], B., Takamatsu, S., Kruse, J., Kummer, V., Seress, D., Pfister, D.H. 2026. Reassessment of the *Erysiphe aquilegiae* complex (*Erysiphaceae*)—resolution of a widespread and economically significant group of plant pathogens, *Fungal Biology*, 130, 101717. https://doi:10.1016/j.funbio.2026.101717.
16. Jin, D.-N., Wang, S.-B., Guan, L.-P., Wu, X.-L., Feng, J., Liu, L., **Bradshaw, M.,** Braun, U., Yang, J.-H., Yu, S.-R., Li, Y., Liu, S.-Y. Revision of powdery mildews (Ascomycota, Erysiphaceae) on Rosa in China: Unexpected taxonomic complexity with phytopathological implications. *IMA Fungus*, 17: e184484. https://doi: 10.3897/imafungus.17.184484.
17. Moparthi, S., **Bradshaw, M.,** Cline, W., Munster, M.J., Hoffman, M., Ramirez Segovia, D., Crouch, U[1]., Li C., Almeyda, C., Salazar J., Bertone M.A. 2026. Identification of *Neopestalotiopsis* spp. from strawberry leaf, fruit, and crown tissues in North Carolina. *Pathogens*. 15(1):10. https://doi:10.3390/pathogens15010010
18. **Bradshaw M*,** Ivors K, Broome JC, Carbone I, Braun U, Yang S, Meng E, Warres B, Cline WO, Moparthi 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 U[1], LaGreca S[1], 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:10.1111/nph.20351
19. **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:10.1111/efp.70005.
20. Braun, U., **Bradshaw, M. 2025.** Correction and supplement to suborder *Erysiphineae*, *Schlechtendalia,* 42, 285-285.
21. Braun, U., **Bradshaw, M. 2025.** Reassessment of the order *Erysiphales* in its current allocation, *Schlechtendalia,* 42, 282-284.
22. **Bradshaw, M*.,** Braun, U., Mitchell, J[1]., Crouch, U[1]., Thomas, J.,[1], Pfister, D.H. 2025. Phylogeny and taxonomy of the genera of Erysiphaceae, part 8, Podosphaera, *Mycologia,*118(1):116–129. https://doi:10.1080/00275514.2025.2554558
23. Paul, A[1],Crouch, U[1], Mitchell J, **Bradshaw M***. 2025. *Erysiphe* sp. nov infecting North American *Aesculus* species. A new cryptic species provides insights into the invasión dynamics of an important plant pathogen. *Forest Pathology*. 55:e70036. https://doi:10.1111/efp.70036
24. Feng, J., Guan, G.X., Wu, X.L., Liu, S.Y., Song, J.G., **Bradshaw, M.,** Götz, M., Braun, U., Takamatsu, S., Heluta, V., Jin, D.N., Wang, S.B., He, Y.H., Zhang, Z.Y., Liu, L., Liu, T.Z., Ilyukhin, E.V., Lu, X.X., Li, Y. Phylogeny and taxonomy of *Acer* powdery mildews, including genera *Sawadaea* and *Takamatsuella* (*Erysiphaceae*, *Ascomycota*). *Studies in Mycology*. 112: 1–38 (2025).
25. **Bradshaw M*,** Ni Jin D, Liu S-Y, Liu M, Crouch U[1], Thomas J[1], 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:10.47371/mycosci.2025.05.001
26. 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*. 7, 1729-1738. https://doi:10.1002/ppp3.70037
27. LaGreca S[1], Crouch U[1], Thomas J[1], Thompson J[1], Paul A[1], Shaw C[1], 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:10.3897/imafungus.16.156231
28. **Bradshaw M***, Braun U, Khodaparast SA, Mitchell J, Crouch U[1], Thomas J[1], Darsaraei H, Pfister DH. 2025. Phylogeny and taxonomy of the genera of Erysiphaceae, part 7, Phyllactinieae, *Mycologia*. 117(4), 640–700.: https://doi:10.1080/00275514.2025.2476375.

29. Mitchell J[1], 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:10.25673/118927
30. **Bradshaw M*,** Braun U, Takamatsu S, Németh MZ, Seress D, Pfister DH. 2025. The *Erysiphe alphitoides* complex (powdery mildews)– unravelling the phylogeny and taxonomy of an intricate assemblage of species, *New Zealand Journal of Botany*, 63(1), 28–44. doi:10.1080/0028825X.2023.2276913
31. 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.* 47(4), 382–392. https://doi:10.1080/07060661.2025.2471097
32. Cook R, Braun U, **Bradshaw M,** Denton G, Denton JO. 2025. In depth study of conidial morphology of *Erysiphe alphitoides* on *Wisteria* species indicates self-blocking due to host-induced gene silencing. *Journal of Plant Pathology.* 107, 969–984. https://link.springer.com/article/10.1007/s42161-025-01836-y
33. Johnson KA, Kreis RA, **Bradshaw M**, 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:10.1094/PDIS-05-24-1006-RE
34. Pfister DH, LoBuglio KF, **Bradshaw M**, Lebeuf R, Voitk A. 2024. *Peziza nivalis* and relatives-spring fungi of wide distribution. *Mycologia.* Online First, doi:10.1080/00275514.2024.2370198
35. **Bradshaw M*,** Braun U, Mitchell J, Crouch U[1], LaGreca S[1], Pfister DH. 2024. Phylogeny and taxonomy of the genera of Erysiphaceae, part 6: *Erysiphe* (the "*Microsphaera* lineage" part 2), *Mycologia*, Online First: https://doi:10.1080/00275514.2024.2386230
36. 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.
37. Moparthi S, Perez-Hernandez O, Eileen Burrows M, **Bradshaw M**, Bugingo C, Brelsford M, McPhee K. 2024. Identification of *Fusarium* spp. associated with chickpea root rot in Montana, *Agriculture.* 14: 974. doi:10.3390/agriculture14070974
38. **Bradshaw M**, Braun U, Götz M, Dogˇan G, Erdogˇdu M, Ates¸ MA, Pastircˇáková K, Pastircˇák M, Fernández-Pavía S, Takamatsu S, Abbasi M, Moparthi 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:10.12905/0380.sydowia76-2024-0113.
39. **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:10.1080/00275514.2023.2252715
40. **Bradshaw M*,** Boufford D, Braun U, Moparthi 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:10.1094/PDIS-07-23-1471-RE
41. 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:10.3390/microorganisms11112792
42. **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:10.1080/00275514.2023.2230853
43. 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
44. **Bradshaw M***, Aime MC, Rokas A, Maust A, Moparthi 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
45. **Bradshaw M*,** Braun U, Pfister D. 2023. Phylogeny and taxonomy of the genera of the Erysiphaceae, part 3, *Cystotheca, Mycologia* 115:427-436

46. **Bradshaw M***, 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:10.1111/nph.18622
47. 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
48. **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:10.1080/00275514.2022.2115419
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62. **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

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66. **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
67. **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
68. Moparthi 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.
69. 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
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73. 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
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80. 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

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Disease Reports

1. Crouch U[1], Bean DW, Paul A[1], **Bradshaw M***. First Report of *Golovinomyces ambrosiae* on *Cirsium arvense* worldwide. *Plant Disease*. Online First: https://doi:10.1094/PDIS-05-25-0945-PDN
2. Baggio JS, LaGreca S[1], Lingaits A, Crouch U[1], **Bradshaw M.** 2024. First report of powdery mildew caused by *Golovinomyces ambrosiae* on *Verbena* × *hybrida* in the U.S., *Plant Disease*, 108:3192. doi: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. Moparthi 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. Moparthi S, **Bradshaw M**, Grove G. 2017. First report of powdery mildew caused by *Golovinomyces spadiceus* on *Helianthus annuus* in the USA. P*lant Disease* 102:1176. doi:10.1094/PDIS-09-17-1434-PDN
7. Moparthi 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

INVITED SEMINARS AND SELECTED PRESENTATIONS

Presentations

1. **Bradshaw M.** 2026. Herbaria as Engines of Fungal Biodiversity Research and Public Engagement*, UNC Botanical Garden, Carolina Biodiversity Collaborative's fifth-annual symposium*
2. **Bradshaw M.** 2026. The Larry F. Grand Mycological Herbarium as a Research and Outreach Platform at NC State, *North Carolina A&T*, *Mid-Atlantic States Mycology Conference.*
3. **Bradshaw M.** 2026. Leveraging Herbaria to Study the Evolution and Emergence of Powdery Mildews, *UC Davis, Department of Plant Pathology Seminar.*
4. **Bradshaw M.** 2025. The Larry F. Grand Mycological Herbarium. Raleigh, North Carolina, *NC State University, Partnering with Local Science Museums on STEM Outreach.*
5. **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.*
6. Crouch U, Paul A, **Bradshaw M**. Adult Night Zombie Prom, *Raleigh, North Carolina, NC Museum of Natural Sciences, Adult Night Series Exhibitor.*
7. **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*
8. **Bradshaw M.** 2025. Novel Uses of Arboreta, Fungal Diversity in Botanical Gardens. Seattle, Washington. *University of Washington. UW Botanical Garden*.
9. **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.*
10. **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.*

11. **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*
12. **Bradshaw M.** 2024. Powdery Mildews: Biology, Disease Spread, and Fungicide Resistance. Raleigh, North Carolina. *Ornamental Workshop on Insects and Diseases*. Keynote Speaker.
13. **Bradshaw M.** 2024. Powdery mildews (Erysiphaceae) and their hosts: Co-evolution, systematics, and global biodiversity. Maastricht, Netherlands. *International Mycological Conference.* Symposium Chair (led and organized a symposium that consisted of 8 talks centered on powdery mildews).
14. **Bradshaw M.** 2024. Branching out: Exploring the diversity of powdery mildews in North America. Maastricht, Netherlands. *International Mycological Conference.* Symposium
15. **Bradshaw M.** 2024. Mapping the Global Diversity of Powdery Mildew Affecting Blueberries Using Herbarium Collections. *Duke University*, Durham, North Carolina. *Tri-I-MMPTP* Symposium
16. **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
17. **Bradshaw M.** 2024. Global diversity of blueberry powdery mildew. *Driscoll's Global Plant Health.* Watsonville, CA
18. **Bradshaw M.** 2023. Everything, everywhere, all at once: mapping powdery mildew diversity, disease severity, and global distribution. *NC State,* Raleigh, North Carolina.
19. **Bradshaw M.** 2023. The ecological effects of non-native fungal pathogens in the Pacific Northwest, City of Seattle and Recertification, Seattle, Washington
20. **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)**
21. **Bradshaw M.** 2023. Epidemiology and biology of a common plant pathogen. *USDA*, Beltsville, Maryland.
22. **Bradshaw M.** 2023. Reconstructing the worldwide spread of powdery mildew on maple trees using herbarium specimens, *North Carolina State University*, Raleigh, North Carolina
23. **Bradshaw M.** 2022. Powdery mildews on *Quercus*: North America as a hot spot of genetic diversity. *Mycological Society of America*, Gainesville, Florida
24. **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
25. **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
26. **Bradshaw M.** 2021. Molecular epidemiology of phytopathogenic fungi. *German Mycological Society*, 100th year anniversary, Berlin
27. **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
28. **Bradshaw M.** 2021. A global analysis of FRAC1 fungicide resistance in postharvest pathogens, *Plant Pathology & Microbiology Meeting*, University of Maryland, College Park, MD
29. **Bradshaw M.** 2020. Pathogenic Fungi of the Pacific Northwest: Mitigation Methods & More. *Oregon Mycological Society*. https://youtu.be/y2nMSitDk2Q
30. **Bradshaw M.** 2019. Epidemiology and Biology of the Powdery Mildews. *American Public Garden Association,* Annual Conference, Washington DC, District of Columbia
31. **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
32. **Bradshaw M.** 2018. Powdery mildew in the Landscape, Identification and IPM Strategies for Control. *University of Washington Grounds Crew Monthly Seminar Series,* Seattle, WA

33. **Bradshaw M.** 2017. Landscape Plant Identification. *University of Washington Grounds Crew Monthly Seminar Series,* Seattle, WA.
34. **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 M**, 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. Moparthi 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