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PROFESSIONAL PREPARATION AND APPOINTMENTS

Professional Preparation

Ph.D. Ecology, University of Wyoming, May 2021

Dissertation: Behavioral and demographic responses to environmental change in a pond-breeding amphibian
This dissertation received the Outstanding Dissertation Award for 2023 at the University of Wyoming

B.S. Environmental Biology, Bloomsburg University, December 2013

Graduated Summa Cum Laude and Top Student in the College of Science and Technology

Thesis: Comparative studies of island dwarfism in amphibians on several Atlantic Coast barrier islands

Appointments

- 2022–*present* **Senior Research Scientist (Postdoctoral Associate)**
Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming
- 2021–2022 **Postdoctoral Research Associate in Quantitative Ecology**
Colorado Natural Heritage Program, Colorado State University
- 2021 **Statistician Technician-Data Scientist (Quantitative Ecology)**
Western EcoSystems Technology, Inc. Environmental & Statistical Consultants
- 2021–*present* **Instructor**
Department of Zoology and Physiology, University of Wyoming
- 2015–2021 **Graduate Research Assistant (Ph.D. Candidate)**
Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming
- 2019–2020 **Graduate Teaching Assistant**
Department of Zoology and Physiology, University of Wyoming
- 2014 **Educator**
Chincoteague Bay Field Station of the Marine Science Consortium

SELECTED PUBLICATIONS (*indicates mentored co-author)

Barrile, G. M., Chalfoun, A. D., and Walters, A. W. (2021). Infection status as the basis for habitat choices in a wild amphibian. *The American Naturalist*, 197(1), 128–137. <https://doi.org/10.1086/711927>

Barrile, G. M., Walters, A. W., Webster, M. E.*, and Chalfoun, A. D. (2021). Informed breeding dispersal following stochastic changes to patch quality in a pond-breeding amphibian. *Journal of Animal Ecology*, 90(8), 1878–1890. <https://doi.org/10.1111/1365-2656.13503>

- LeCheminant, A. G., **Barrile, G. M.**, Albeke, S. E., and Walters, A. W. (2021). Movement dynamics and survival of stocked Colorado River Cutthroat Trout (*Oncorhynchus clarkii pleuriticus*). *Transactions of the American Fisheries Society*, 150(6), 679–693. <https://doi.org/10.1002/tafs.10322>
- Barrile, G. M.**, Chalfoun, A. D., and Walters, A. W. (2021). Livestock grazing, climatic variation, and breeding phenology jointly shape the disease dynamics and survival in a wild amphibian. *Biological Conservation*, 261:109247. <https://doi.org/10.1016/j.biocon.2021.109247>
- Barrile, G. M.**, Chalfoun, A. D., Estes-Zumpf, W., and Walters, A. W. (2022). Wildfire influences individual growth and breeding dispersal, but not survival and recruitment in a montane amphibian. *Ecosphere*, 13(8), e4212. <https://doi.org/10.1002/ecs2.4212>
- Barrile, G. M.**, Walters, A. W., and Chalfoun, A. D. (2022). Stage-specific environmental correlates of reproductive success in Boreal Toads (*Anaxyrus boreas boreas*). *Journal of Herpetology*, 56(1), 34–44. <https://doi.org/10.1670/21-023>
- Barrile, G. M.**, Augustine, D. J., Porensky, L. M., Duchardt, C. J., Shoemaker, K. T., Hartway, C. R., Derner, J. D., Hunter, E., and Davidson, A. D. (2023). A big data–model integration approach for predicting epizootics and population recovery in a keystone species. *Ecological Applications*, 33(4), e2827. <https://doi.org/10.1002/eap.2827>
- Barrile, G. M.**, Bernard, R. F., Wilcox, R. C., Becker, J. A., Dillon, M. E., Thomas-Kuzilik, R. R., Bombaci, S. P., and Merkle, B. G. (2023). Equity, community, and accountability: leveraging a department-level climate survey as a tool for action. *PLoS ONE*, 18(8): e0290065. <https://doi.org/10.1371/journal.pone.0290065>
- Barrile, G. M.**, Cross, P., Stewart, C., Malmberg, J., Jakopak, R., Binfet, J., Monteith, K., Werner, B., Jennings-Gaines, J., and Merkle, J. A. (*In Review*). Chronic wasting disease alters the movement behavior and habitat use of mule deer during clinical stages of infection.
- Sergeyev, M., **Barrile, G. M.**, Augustine, D. J., Porensky, L. M., Duchardt, C. J., Shoemaker, K. T., Hartway, C. R., and Davidson, A. D. (*In Review*). PDOG MAPR: A decision support tool to inform management of prairie dog ecosystems. moped.shinyapps.io/PDOGMAPR/
- Magruder, A. C., **Barrile, G. M.**, Siddons, S., Walrath, J., and Walters, A. W. (*In Review*). Seasonal movements between mainstem and tributary habitats may facilitate the persistence of Roundtail Chub and Flannelmouth Sucker within an altered stream system
- Brown, C. W., **Barrile, G. M.**, Rosenberger, N., Gerow, K., and Chalfoun, A. D. (*In Prep*). Alpine songbird habitat associations amidst a changing climate.
- Barrile, G. M.**, Hall, E., Kauffman, M., Monteith, K., and Merkle, J. A. (*In Prep*). Is ecology a predictive science? Testing the transferability of resource selection functions.

SELECTED PRESENTATIONS (*indicates mentored presenter)

Barrile, G. M., Sergeyev, M., Augustine, D. J., Porensky, L. M., Duchardt, C. J., Shoemaker, K. T., Hartway, C. R., and Davidson, A. D. PDOG MAPR: A decision support tool to inform the management of prairie dog ecosystems. 1st Wyoming Computing Symposium. Laramie, Wyoming. September 2023.

Barrile, G. M., Stewart, C., Cross, P., Malmberg, J., Jakopak, R. P., Binfet, J., Werner, B., Monteith, K. L., Edwards, W. H., and Merkle, J. A. Chronic wasting disease alters the movement behavior and habitat use of mule deer during clinical stages of infection. 4th International Chronic Wasting Disease Conference. Denver, Colorado. June 2023.

Barrile, G. M., Stewart, C., Cross, P., Malmberg, J., Jakopak, R. P., Binfet, J., Werner, B., Monteith, K. L., Edwards, W. H., and Merkle, J. A. Inferring disease status from movement data. Wyoming Chapter Meeting of The Wildlife Society. Laramie, Wyoming. March 2023.

Barrile, G. M., Augustine, D. J., Porensky, L. M., Duchardt, C. J., Shoemaker, K. T., Hartway, C. R., Derner, J. D., Hunter, E. A., and Davidson, A. D. A big data–model integration approach for predicting epizootics and population recovery in a keystone species. North American Congress for Conservation Biology. Reno, Nevada. July 2022.

Barrile, G. M., Chalfoun, A. D., Estes-Zumpf, W., and Walters, A. W. Wildfire influences individual growth and breeding dispersal, but not survival and recruitment in a montane amphibian. Wyoming/Colorado Chapter Meeting of the American Fisheries Society. March 2022.

Barrile, G. M. Shoemaker, K., Augustine, D., Hunter, E., Porensky, L., Hartway, C., Duchardt, C., and Davidson, A. Modeling Colony Growth and Plague Epizootics in Black-Tailed Prairie Dogs Across Eleven National Grasslands. Thunder Basin Research Initiative Annual Symposium. February 2022.

Barrile, G. M. Becker, J., Bernard, R., Dillon, M., Merkle, B., and Wilcox, R. Enhancing our department together: reporting on the 2021 departmental climate survey. University of Wyoming. November 2021.

Barrile, G. M. Lessons from five years of studying boreal toads. Bridger-Teton National Forest Leadership Team Meeting. October 2021. *Invited seminar*.

Barrile, G. M. Behavioral and demographic responses to environmental change in a pond-breeding amphibian. University of Wyoming. December 2020. *Dissertation defense*.

Webster, M. E.*, **Barrile, G. M.**, Chalfoun, A. D., and Walters, A. W. Temporal variation in the number and area of beaver ponds in the Bridger-Teton National Forest, USA during 2006–2018. Wyoming/Colorado Chapter Meeting of the American Fisheries Society. Laramie, Wyoming. February 2020.

Barrile, G. M., Walters, A. W, and Chalfoun, A. D. Buy high, sell low: an ecological investment strategy reduces temporal variability in amphibian abundance. Wyoming Chapter Meeting of The Wildlife Society. Sheridan, Wyoming. November 2019.

Barrile, G. M., Chalfoun, A. D., and Walters, A. W. Host habitat choices provide behavioral immunity in a natural population. Wyoming/Colorado/Utah Chapter Meeting of the American Fisheries Society. Laramie, Wyoming. February 2018. *Best student talk award*

Barrile, G. M., Walters, A. W., and Chalfoun, A. D. Host behavior influences infection risk in a wild amphibian. Wyoming Chapter of The Wildlife Society. Jackson, WY. Nov 2017. *Best student talk award*

Barrile, G. M., and Leach, A. L. Time-budgeting behavior in captive versus free-ranging black-handed spider monkeys (*Ateles geoffroyi*). Society for Applied Anthropology. Denver, Colorado. March 2013.

Barrile, G. M., Downs, L. K., Bower, C. D., and Hranitz, J. M. Comparative studies of island dwarfism in Fowlers Toads (*Anaxyrus fowleri*) on several Atlantic Coast barrier islands. Annual Meeting of the Society for Integrative and Comparative Biology. San Francisco, California. January 2013.

COMPETITIVE GRANTS & AWARDS

2023	\$ 3,000	Outstanding Dissertation Award for 2023 at the University of Wyoming
2023	\$ 6,500	Wyoming Governor's Big Game License Coalition
2022	\$ 250,000	Red Rocks Investments Foundation (PI: J. Merkle)
2021	\$ 1,500	Honorarium for teaching graduate-level DEI seminar (WY INBRE program)
2020	\$ 13,000	Dr. George E. Menkens Memorial Scholarship
2020	\$ 2,000	College of Arts & Sciences Dean's Graduate Scholar Award
2020	\$ 2,000	Summer Doctoral Augmentation Award, Academic Affairs
2019	\$ 4,500	Michael and Linda Tiernan Scholarship and Research Fund
2018	\$ 4,000	L Floyd Clarke Fund in Zoology & Physiology
2018	\$ 500	Wildlife Federation Dennis Jesperson Memorial Scholarship
2017	\$ 172,558	Wyoming Game and Fish Department (PIs: A. Chalfoun, A. Walters)
2017	\$ 1,000	WEST Research Award for Quantitative Analysis in Wildlife Ecology
2017	\$ 4,000	United States Forest Service Research Grant
2017	\$ 100	Best Student Talk Award WY Chapter of The Wildlife Society Meeting
2016	\$ 1,000	Biodiversity Institute Occupancy Shortcourse Tuition Remission Award
2016	\$ 500	Laramie Audubon Society Small Grants Program
2016	\$ 1,000	Clarke Greater Yellowstone Area Award
2015	\$ 159,898	Wyoming Game and Fish Department (PIs: A. Chalfoun, A. Walters)
2013	\$ 4,500	Undergraduate Research, Scholarship, and Creative Activity Award

TEACHING EXPERIENCE

- 2023 Instructor, University of Wyoming, **Topics and Discussions in Ecology** (ZOO 5890-04)
Seminar course providing graduate students with an overview of the field of ecology, including applied research approaches. The course is designed to foster bonds between newer graduate students to create a sense of community within cohorts.
- 2023 Instructor, University of Wyoming, **Population Modeling in Ecology** (ZOO 5890-09)
Developed a 3-credit graduate course on statistical modeling in population ecology. The course introduces key software packages and fundamental models used in fish and wildlife population analysis. Course content includes estimating ecological state variables (occupancy, abundance) and population vital rates (survival, recruitment, dispersal) of both marked and unmarked populations, accounting for imperfect detection. All materials hosted on GitHub: (https://github.com/gbarrile/Population_Modeling_Sp23)
- 2021 Instructor, Wyoming EPSCoR, **Statistical Methods for Estimating Abundance in Ecology**
Four-day workshop covering methods commonly used to estimate population abundance while accounting for imperfect detection: capture-mark-recapture, binomial N-mixture models, and distance sampling (<https://github.com/gbarrile/AbundanceWorkshop>).
- 2021 Instructor, Wyoming EPSCoR, Microbial Ecology Collaborative, University of Wyoming, Western EcoSystems Technology, **Population Modeling in Ecology**

Created an online course on statistical modeling in population ecology, covering the estimation of abundance, occupancy, survival, recruitment, and dispersal (instructional videos, code, and data are hosted on GitHub: <https://github.com/gbarrile/PopEcoModeling>).

- 2021 Instructor, University of Wyoming, Graduate Seminar: **JEDI in STEM** (ZOO 5890-07)
Seminar course working through literature on Justice, Equity, Diversity, and Inclusion in STEM.
- 2020 Teaching Assistant, University of Wyoming, **General Ecology** (LIFE 3400)
Guest Lectures: Behavioral Ecology, Dispersal and Metapopulation Dynamics, Biogeography
- 2019 Teaching Assistant, University of Wyoming, **General Biology** (LIFE 1010)
Instructed the laboratory portion of the course (12 labs) and supervised research projects
- 2019 Workshop Instructor, Wyoming Cooperative Research Unit, **Population Analysis**
Program R workshop introducing key packages (e.g., RMark, unmarked, rjags) and fundamental models used in fish and wildlife population analysis
- 2014 Educator, Chincoteague Bay Field Station, **Coastal Ecology**
Lecturer and lab/field instructor serving groups of all ages (high school, college, Road Scholars)

MENTORING EXPERIENCE

- 2018–2021 Matthew Webster, Research Technician, Wyoming Cooperative Research Unit
Advised the development of an independent research project, the presentation of research at scholarly conferences, and the preparation of manuscripts for publication
Project title: Temporal variation in the number and area of beaver ponds in the Bridger-Teton National Forest, USA during 2006–2018
- 2015–*present* Provided mentorship to many graduate and undergraduate students, including:
C. Brown (M.S. student) – Advised by Dr. Anna Chalfoun (analytical, statistical, writing)
A. LeCheminant (M.S. student) – Advised by Dr. Annika Walters (statistical, writing)
A. Rhea (M.S. student) – Advised by Dr. Anna Chalfoun (statistical, writing)
A. Tiemann (M.S. student) – Advised by Dr. Annika Walters (analytical, statistical, writing)
E. Quallen (Ph.D. student) – Advised by Dr. Merav Ben-David (analytical, statistical)

SUPERVISORY EXPERIENCE

- 2015–2019 Hired and supervised the following individuals as field technicians on several field crews:
Matthew Webster (2018–2019)
Laurel Downs (2016–2017)
Leah Joyce (2016)
Amanda Leach (2015–2016)
Arwyn Roe (2015)
Lucas Haralson (2015)

PROFESSIONAL & COMMUNITY SERVICE

- 2022–*present* Served on the following graduate student committees: Margot Breiner (U of Wyoming)
2021–*present* Peer reviewer for many academic journals, including *American Naturalist*, *Ecological Indicators*, *Evolution*, *Landscape Ecology*, *Animal Behaviour*, USGS internal review
- 2021–*present* Member of the DEIJ working group in Department of Zoology, University of Wyoming
2021, 2023 Judge of student presentations, Program in Ecology symposium, University of Wyoming
2020–2021 Odyssey committee member, Program in Ecology, University of Wyoming
2019–2020 President, Program in Ecology, University of Wyoming
2019, 2023 Trivia host, Wyoming Chapter Meeting of The Wildlife Society
2018–2019 Student representative to faculty, Program in Ecology, University of Wyoming
2015–2018 Seminar projectionist, Department of Zoology & Physiology, University of Wyoming
2009–*present* Volunteer at the Bloomsburg Food Cupboard and the Laramie Soup Kitchen

RELEVANT PROFESSIONAL TRAINING

- 2022 Developing interactive web-based decision support tools via Shiny Applications and RStudio
2022 Best Practices in Teaching: Inclusive Pedagogy, Colorado State University (TILT-2022SP-01)
2022 Best Practices in Teaching: Classroom Climate, Colorado State University (TILT-2022SP-01)
2021 GitLab training for project organization, reproducible research, and collaborative science
2021 GitHub training, including connecting with repositories through Program R
2020 Justice, Equity, Diversity, and Inclusion in STEM: Reading Group
2020 Green Dot Training: Sexual Violence Prevention
2020 Safe Zone Project: Gender and Sexuality Workshop
2019 Bayesian Analysis and Hierarchical Models
2018 Population Analysis (Distribution, Abundance, and Species Richness)
2017 Quantitative Modeling in Landscape Ecology
2017 Capture-Recapture Analysis and Methods
2017 Occupancy Modeling Workshop: Patterns and Dynamics of Species Occurrence
2016 Elements of GIS for Spatial Ecologists
2016 Animal Movement and Habitat Selection Modeling
2015 Techniques in Environmental Data Management
2015 R Programming for Ecologists

MEDIA & PUBLIC OUTREACH

- [Interview](#) with [UnDisciplined](#), a research-themed program on Utah Public Radio (2021)
[WyoFile](#) and [Wyoming Tribune Eagle](#): *Some Wyoming toads can clear themselves of deadly fungus* (2020)
[Cool Green Science](#): *Can Toads Heal Themselves Of Deadly Chytrid Fungus* (2020)
[WY Public Radio](#): *UW Researchers Investigate Western Toad's Ability To Fight Disease* (2019)
[WY Public Media](#): *Western Wyoming Toad Deals With A Deadly Disease In A Novel Way* (2019)
[Wyoming Wildlife Federation](#): *Science Friday: Boreal Toad Project Summary* (2018)