

Joshua C. Fowler

Curriculum vitae

Department of Environmental Studies
University of Colorado Boulder
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(he/him/his)

Education

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|---|------------------|
| Ph.D in Ecology and Evolutionary Biology | 2018–2023 |
| – Rice University , Houston, TX | |
| – Advisor: Dr. Tom Miller | |
| BS in Ecology and Evolutionary Biology and BA in French | 2013–2017 |
| – University of Arizona , Tucson, AZ | |
| National Student Exchange Program | 2015–2015 |
| – Université de Montréal , Montréal, Québec, Canada | |

Academic appointments

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|---|-----------------------------|
| NSF Postdoctoral Research Fellow | April 2025 – present |
| – Department of Environmental Studies, University of Colorado Boulder | |
| – Mentors: Dr. Dan Doak (CU), Dr. Anne Pringle (Univ. of Wisc.) | |
| Postdoctoral Research Associate | 2023–2025 |
| – Department of Biology, University of Miami | |
| – Mentors: Dr. Michelle Afkhami, Dr. Chris Searcy | |

Peer-reviewed Publications

5. **Fowler JC**, Ziegler S, Whitney KD, Rudgers JA, Miller TEX (2024). Microbial symbionts buffer hosts from the demographic costs of environmental stochasticity. *Ecology Letters*, 27,e14438. <https://doi.org/10.1111/ele.14438>
4. **Fowler JC**, Donald ML, Bronstein JL, Miller TEX (2023). The geographic footprint of mutualism: How mutualists influence species' range limits. *Ecological Monographs*: e1558. <https://doi.org/10.1002/ecm.1558>
3. Dong T, Zhang R, Liu J, **Fowler JC**, Miller TEX, Xu X (2021). Warming alters sex-specific responses in leaf defense against insect herbivory in *Populus cathayana*. *Environmental and Experimental Botany*, 104557. <https://doi.org/10.1016/j.envexpbot.2021.104557>
2. Liu J, Zhang R, Xu X, **Fowler JC**, Miller TEX, Dong T (2020). Effect of summer warming on growth, photosynthesis and water status in female and male *Populus cathayana*: implications for sex-specific drought and heat tolerances. *Tree Physiology*, 40(9), 1178-1191. <https://doi.org/10.1093/treephys/tpaa069>
1. Evans MEK, Gugger PF, Lynch AM, Guiterman CH, **Fowler JC**, Klesse S, Riordin EC (2018) Dendroecology meets genomics in the common garden: new insights into climate adaptation. *New Phytologist*, 218(2):401–403. <https://doi.org/10.1111/nph.15094>

Submitted Manuscripts

† indicates undergraduate mentee

Fowler JC, Moutouama J, Miller TEX. Increasing prevalence of plant-fungal symbiosis across two centuries of environmental change. (in revision at *Global Change Biology*).

Available from: <https://doi.org/10.1101/2024.09.05.611506>

Tucker MN[†], Miller TEX, **Fowler JC**. Atmospheric nitrogen deposition and anthropogenic land use linked to changing fungal endophyte prevalence in cool-season grasses. (in review at *Annals of Botany*).

Li VW, **Fowler JC**, David AS, Strauss, SY, Searcy CA, Afkhami ME. Climate variability undermines mutualism-driven increases in population persistence. (in revision at *Nature Ecol. & Evol.*)

Williams JL, Angert AL, Compagnoni A, Campbell A, DeMarche ML, Evans MEK, **Fowler JC**, González EJ, Iler AM, Loesberg JA, Louthan AM, Martin, AB, Moutouama JK, Nordstrom SW, Petry WK, Sen B, Sheth SN, Miller TEX. Linking climate and demography to predict population dynamics and persistence under global change. (in review at *Ecology Letters*).

Ellner SP, Snyder RE, Blumstein DT, Childs DZ, **Fowler JC**, Hernández CM, Martin JAG, Paniw M, Vindenes, Y. Challenging and diagnosing structured population models by testing predictions from stochastic demography. (in review at *Ecology Letters*).

Bachelot B, Compagnoni A, Brandão-Diaz PFP, Carter SK, Donald ML, **Fowler JC**, Gorczynski D, Grupstra CGB, Neale ZR, Zhang L, Rudgers JA, Zhu K, Miller TEX (in review at *Nature Communications*). Sensitivity to climate variability in North American plant and animal populations.

Invited Seminars

2025	February	Duke University, Dept. of Biology
2024	October	University of Miami, Dept. of Biology
2022	August	for Org. Oral Session on <i>Theory and Big Data for Species on the Move</i> Annual meeting of the Ecological Society of America, Montreal.

Contributed Presentations and Posters

Forthcoming Presentations

Fowler JC, Moutouama, JK, Miller TEX (2025, September) Soil microbial effects underlie the metapopulation capacity of a rare and endangered plant species. Presentation at the 2025 Evolutionary Demography Society Conference, Oxford, UK

2025

Fowler JC, Moutouama, JK, Miller TEX (2025, July) Increasing prevalence of plant-fungal symbiosis over two centuries of climate change. Upcoming presentation at the annual meeting of Mycological Society of America, Madison

2024

Fowler JC, Ziegler S, Whitney KD, Rudgers JA, Miller TEX (2024, April) Microbial symbionts buffer hosts from the demographic costs of environmental stochasticity. Presentation at the 12th annual Yosemite Symbiosis Workshop, Wawona, Yosemite National Park

2023

Fowler JC, Moutouama, JK, Miller TEX (2023, August) Increasing prevalence of plant-fungal symbiosis over two centuries of climate change. Presentation at the annual meeting of Ecological Society of America, Portland

Fowler JC, Moutouama, JK, Miller TEX (2023, June) Increasing prevalence of plant-fungal symbiosis over two centuries of climate change. Presentation at Seed Microbiome Working Group bi-monthly meeting.

2021

Fowler JC, Dufresne LR, Segal EC, Miller TEX (2021, January) Using museum specimens to assess the response of grass-fungal endophytes to climate change. Presentation at 2021 Houston Regional Ecology and Evolution Symposium.

Fowler JC, Dufresne LR, Segal EC, Miller TEX (2021, January) Using museum specimens to assess the response of grass-fungal endophytes to climate change. Presentation at American Society of Naturalists 2021 Virtual Asilomar Meeting.

2020

Fowler JC, Ziegler S, Whitney KD, Rudgers JA, Miller TEX (2020, August) Demographic buffering by context-dependent host-microbe interactions in stochastic environments. Poster session presented at Ecological Society of America 2020 Virtual Annual Meeting.

2019

Fowler JC, Whitney KD, Rudgers JA, Miller TEX (2019, January) Vertically transmitted symbionts buffer host demographic variability. Poster session presented at the Sixth Annual Evolutionary Demography Society Meeting, University of Miami, Coral Gables, FL.

Academic Awards, Grants and Scholarships

Total Funding = \$281,984

2025	Postdoctoral Excellence Award in Plant Population Ecology	Ecological Society of America (\$500)
2025-2028	Postdoctoral Research Fellowship in Biology (mentored by Dr. Dan Doak and Dr. Anne Pringle)	Nat. Sci. Foundation (\$240,000)
2024	David S. Maehr Florida Wildlife Corridor Applied Science Fellowship	Archbold Biological Station (\$25,000)
2023	2023 Annual Meeting Registration Grant	Ecological Society of America (\$242)
2023	Outstanding EEB PhD Thesis Award	Rice, Dept. of BioSciences
2022	PPE Student Travel Award	Plant Pop. Ecology Section, ESA (\$600)
2022	Graduate Student Travel Award	Rice, Dept. of BioSciences (\$300)
2022	Texas Ecolab Program Grant	(\$2000)
2021	Texas Ecolab Program Grant	(\$4855)
2020	NSF Graduate Research Fellowship	Honorable Mention
2020	Texas Ecolab Program Grant	(\$6147)
2019	Student Travel Award	EvoDemo Society Meeting (\$150)
2018	East-DeMarco Graduate Student Academic Scholarship	Rice, Dean of Natural Sciences (\$2000)
2018	First Year Graduate Student Scholarship	Rice, Dean of Graduate Studies (\$2000)
2013–2017	National Merit Finalist Scholarship, Dean's List	University of Arizona

Teaching and Service Awards

2022	Joe Davies Prize for Outstanding Service as a TA	Rice, Dept. of BioSciences
2021	EEB Peter Savvas Nelson Award for Outstanding Community Citizenship	Rice, Dept. of BioSciences

Mentoring and Teaching Experience

Courses taught

2024	Guest Lecture (Population Ecology)	Ecology (University of Miami)
2023	Guest Lecture (Population Ecology)	Ecology (University of Miami)
2022	Teaching Assistant	Coral Reef Ecosystems (Rice University)
2020	Coordinator	BioSciences Professional Development Series (Rice University)
2019	Teaching Assistant	Advanced Communication in Biological Science (Rice University)
2018	Teaching Assistant	Ecology (Rice University)
2017	Undergraduate Preceptor	Conservation Biology (University of Arizona)

Undergraduate research mentorship

2024	Veronica Jiang (U. of Miami)	Undergrad. Ind. Res.
2024	Christian Fulmer (U. of Miami)	Undergrad. Ind. Res.
2024–2025	Gwen Pohlmann (U. of Miami)	Post-bacc research
2023–2024	Zoe Meador (U. of Miami)	Undergrad. Ind. Res.
2024	Kate Novakovic (U. of Miami)	Undergrad. Ind. Res.
2023	Lucy Xu (U. of Miami)	Undergrad. Ind. Res.
2023	Anastasia Chiarini (U. of Miami)	Undergrad. Ind. Res.
2023	Esequiel Gonzalez (U. of Miami)	Undergrad. Ind. Res.
2022–2024	Mallory Tucker (Rice U.)	Undergrad. Ind. Res.
2022	Emma Scales (Rice U.)	Undergrad. Ind. Res.
2021	Ava Johnson (Rice U.)	Undergrad. Ind. Res.
2021	Arinze Appio-Riley (Rice U.)	Rice Summer Undergraduate Research Fellow
2020–2021	Ella Segal (Rice U.)	Undergrad. Ind. Res. /Miller Lab REU
2020	Bella Gutierrez (Rice U.)	Undergrad. Ind. Res.
2019–2020	Lani Dufresne (Rice U.)	Undergrad. Ind. Res. /Miller Lab REU
2019	Kyle Dickens (Rice U.)	Miller Lab REU

Other teaching experience

2015	Tutor	Strategic Alternative Learning Techniques Center, University of Arizona
2014–2015	French Counselor	Les Voyageurs, Concordia Language Villages, Bemidji, Minnesota

Community Involvement and Service

Positions held

2024–2025	Board Member	U. of Miami Postdoc Association
2020–2021	President	EEB Graduate Student Association
2019–2020	Treasurer	EEB Graduate Student Association
2019–2021	President	Rice University Cycling and Triathlon

Scientific journal reviews

2025	<i>American Journal of Botany, Journal of Ecology, Diversity and Distributions, New Phytologist</i> - for Tansley Medal Finalist	
2024	<i>Ecography, npj Biofilms and Microbiomes, Journal of Ecology, Ecology, Ecological Modelling</i>	
2023	<i>Ecology, Ecology Letters, Proceedings B., Ecological Modelling</i>	
2020	<i>Proceedings B., Oecologia</i>	

Science outreach

- 2023-2024 Univ. of Miami BioReach Outreach Program
 - Presenting local science topics to Miami area middle school students
- 02/2022 Deakey High School Annual Scientific Symposium
 - STEM career outreach event about succeeding in college and graduate school
- 2019–2023 Rice EEB Owls Outreach Program
 - Engaging underserved Houston area middle and high school students in hands-on science learning
- 12/2018 Houston Science Olympiad Exam writer
 - Writing questions for the herpetology exam Houston's Science Olympiad competition