

Joshua C. Fowler

Curriculum vitae

Department of Environmental Studies
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(he/him/his)

Education

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

Academic appointments

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

Peer-reviewed Publications

- Li VW, **Fowler JC**, David AS, Strauss, SY, Searcy CA, Afkhami ME (2026). Climate variability disrupts microbial mutualism-driven population persistence. *Nature Ecol. & Evol.* <https://doi.org/10.1038/s41559-025-02943-w>
- 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 (2025). Linking climate and demography to predict population dynamics and persistence under global change. *Ecology Letters*, 28,e70283. <https://doi.org/10.1111/ele.70283>
- Fowler JC**, Moutouama JK, Miller TEX (2025). Increasing prevalence of plant-fungal symbiosis across two centuries of environmental change. *Global Change Biology*, 31:e70577. <https://doi.org/10.1111/gcb.70577>
- 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>
- 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 under- or post-graduate mentee

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. (accepted at *Methods in Ecology and Evolution*).

Fowler JC, Pohlmann GB[†], Hay EM, Li VW, Meadors ZM[†], Reyes AL, Searcy CA, Afkhami ME. Do microbial effects on hosts vary across life stage and vital rate?. (in review at *Ecology*.)

Scherick IC, Campbell AM, **Fowler JC**, Moutouama JK, Ziegler S, Whitney KD, Rudgers JA, Miller TEX. Fungal symbionts promote slower and steadier life histories of grass hosts (in review at *Nature Communications*.)

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

Snyder RE, Ellner SP, **Fowler JC**, Miller TEX, Ziegler S, Rudgers JA. Scope for luck: a different way for traits to influence success. (Submitted at *Philosophical Transactions B*).

Invited Seminars

2026	(upcoming) May	University of Bern, Institute of Plant Sciences
2026	February	University of Chicago, Dept. of Ecology and Evolution
2025	December	University of Michigan, IGCB Postdoc Seminar
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

2025

Fowler JC, David AS, Quintana-Ascencio P, Menges ES, Searcy CA, Afkhami ME (2025, September) Contribution of soil microbiomes to the maintenance of rare and endangered plant species. Presentation at the 10th Annual Evolutionary Demography Society Meeting, Oxford University, Oxford, UK

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

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, OR

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, Houston, TX

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 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 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.

Grants and Fellowships

Total Funding = \$278,002

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)
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)

Academic Awards and Honors

2025	Outstanding Presentation (Early Career) Award	2025 Meeting, EvoDemo Society (£250)
2025	Postdoc. Excellence Award in Plant Pop. Ecology	Ecological Society of America (\$500)
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)
2019	Student Travel Award	EvoDemo Society Meeting (\$150)
2018	East-DeMarco Grad. Student Academic Scholarship	Rice, Dean of Natural Sciences (\$2000)
2018	First Year Grad. 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)

Mentoring and Teaching Experience (Cont'd)

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

2026		<i>Journal of Evolutionary Biology</i>
2025		<i>American Journal of Botany, Journal of Ecology, Diversity and Distributions, New Phytologist - for Tansley Medal Finalist, Biological Conservation Journal of Applied Ecology, The American Naturalist</i>
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 Debakey 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