Kathleen C. Arrowsmith *(Tom)*

Contact Information

University of Texas at Austin
Department of Integrative Biology
Austin, TX 78712

kcarrows@utexas.edu
https://kcarrowsmith.github.io

Research Overview

I study **interactions across scales of biological organization** to answer key questions about community structure, ecosystem function, and biodiversity conservation. My research explores **how dynamic biotic and abiotic environments yield key patterns in interactions** among individuals, populations, communities, and species across their entire geographic ranges.

Academic Appointments

NSF Postdoctoral Fellow – University of Texas at Austin, Integrative Biology
Advisor: Dr. Shalene Jha
Course Instructor – Rocky Mountain Biological Laboratory

Education

Doctor of Philosophy – University of Washington, Department of Biology (2023)
Biotic and Abiotic Drivers of Plant-Pollinator Interaction Rewiring.
Advisor: Dr. Berry Brosi.
Master of Public Administration – Columbia University (2014)
Bachelor of Science – University of California, Berkeley (2013)
Quantifying Hedgerow Effects on Native Bee Movement.
Advisor: Dr. Claire Kremen.

Peer Reviewed Publications

[3] **Arrowsmith, K.C.**, M.D. Strait, A. Schiffer, M. Chandar, & B.J. Brosi. Temperature influences pollinators' choice of floral partners independently of community composition. *Journal of Animal Ecology* in press.

[2] **Arrowsmith, K.C.**, V.A. Reynolds, H.M. Briggs, & B.J. Brosi. 2023. Community context mediates effects of pollinator loss on seed production. *Ecosphere* 14(6):e4569. http://doi.org/10.1002/ecs2.4569

[1] Sardiñas, H., **K.C. Tom**, L. Ponisio, A. Rominger, & C. Kremen. 2016. Sunflower (*Helianthus annuus*) pollination in California's Central Valley is limited by native bee nest site location. *Ecological Applications* 26(2):438-447. http://doi.org/10.1890/15-0033.

Papers In Review

[1] Stone, M.* & **K.C. Arrowsmith**. Competitive interactions and seasonal patterns influence niche-based foraging patterns of *Bombus* spp. in the Rocky Mountains. *Ecological Entomology.*

[2] Schenker, O.J.*, **K.C. Arrowsmith**, & J.L. Fitzgerald. Allometric scaling and variation in proboscis length in Rocky Mountain bumble bees (*Bombus* spp.). *Journal of Pollination Ecology.*

Papers In Preparation

[1] **Arrowsmith, K.C.**, M.D. Strait, M. Chandar, B.J. Brosi, & S. Jha. Pollen loads vary across species, populations, and individuals of three bumble bee (Apidae:*Bombus*) species.

[2] **Arrowsmith, K.C.**, J.K. Combs, R.G. Hatfield, & B.J. Brosi. Plant-pollinator interactions exhibit distinct fundamental and realized niches in the Pacific Northwest.

[3] **Arrowsmith, K.C.**, V.A. Reynolds, M.D. Strait, M. Chandar, A. Schiffer, & B.J. Brosi. Environmental variation drives patterns of plant-pollinator interaction rewiring.

* indicates undergraduate co-author

Teaching

Rocky Mountain Biological Laboratory – Course Instructor
BIOL 397: Rocky Mountain Ecosystems (2025)
University of Washington – Graduate Teaching Assistant
BIOL 472A: Community Ecology (2021, 2022)
BIOL 200: Introductory Cell Biology (2022)
Emory University – Graduate Teaching Assistant
ENVS 260: Quantitative Methods in Environmental Science (2019)

Presentations

Invited Talks

- **Arrowsmith, K.C.**. 2023. *Examining drivers of plant-pollinator interaction rewiring.* Western Forest Insect Working Conference. Seattle, WA.

Contributed Talks (selected)

- **Arrowsmith, K.C.**, M.D. Strait, M. Chandar, B.J. Brosi, & S. Jha. 2025. *Tax the rich (bees): niche dynamics of bumble bee pollen loads.* Society for Integrative and Comparative Biology, Atlanta, GA.
- **Arrowsmith, K.C.**, M.D. Strait, M. Chandar, B.J. Brosi, & S. Jha. 2024. *Genetic, morphological, and environmental drivers of intra-specific variation in* Bombus *foraging niches.* Ecological Society of America, Long Beach, CA.
- **Arrowsmith, K.C.** & B.J. Brosi. 2022. *Temperature drives patterns of plant-pollinator interaction occurrence.* Ecological Society of America. Montreal, QC.
- **Arrowsmith, K.C.** & B.J. Brosi. 2022. *Temperature drives spatial patterns of plant-pollinator interaction rewiring.* International Biogeography Society. Vancouver, BC.
- **Arrowsmith, K.C.** & B.J. Brosi. 2021. *Environmental and biological drivers of plant-pollinator interaction rewiring.* Ecological Society of America. Virtual.
- **Arrowsmith, K.C.** & B.J. Brosi. 2021. *Identifying drivers of plant-pollinator interaction rewiring.* Entomological Society of America, Pacific Branch Meeting. Virtual.

Fellowships & Grants

NSF Postdoctoral Research Fellowship in Biology (2023), $240,000
Northwest Climate Adaptation Science Center Research Fellowship (2022), $32,000
NSF Graduate Research Fellowship (2018), $138,000
Emory University Woodruff Fellowship (2018), $25,000

Western North American Naturalist Natural History Research Grant (2024), $2,500
North American Pollinator Protection Campaign Imperiled *Bombus* Grant (2024), $5,000
Hoag Award (2023), $3,400
Robin M. Harris Award (2022), $3,715
Colorado Mountain Club Foundation (2021), $1,000
AMNH Theodore Roosevelt Memorial Fund (2020), $1,700
Emory Office of Sustainability Initiatives General Incentives Fund (2019), $1,035
Berkeley Center for Diversified Farming Systems Small Grant (2012), $1,500
UC Berkeley SPUR Grant (2012), $2,000

Undergraduate Mentorship

I have mentored 13 undergraduate students from eight different universities. One of those students is currently a PhD student at the University of New Mexico and one is currently in veterinary school. Recent mentees include:

Emory Wheeler (RMBL Undergraduate Education Program)
Outcomes: Final presentation and report following the guidelines of the concurrent NSF REU program (2025), Poster presentation at Society for Integrative and Comparative Biology Annual Meeting (2026)
Willa Pabst (University of Texas, Hook Fellow)
Outcomes: $7,233.05 fellowship to fund summer research project (2024), Peace Corps volunteer for environmental stewardship in Panama (2025)
Makenna Stone (RMBL Undergraduate Education Program)

Outcomes: Co-authored manuscript in review (2025), Poster presentation at Entomological Society of America Annual Meeting (2025)

Manogya Chandar (Northeastern University, Cooperative Education)
Outcomes: Senior thesis, Oral presentation at National Council for Undergraduate Research (2022), One co-authored manuscript published and two in prep (2025), PhD student at UNM (2025)

Outreach

Crockett Early College High School – Research Internship Mentor (Austin, TX; 2024–2025)
Lady Bird Johnson Wildflower Center – Jean Andrews Science Fair (Austin, TX; 2024)
Gabriel E. Gallardo Research Symposium – Grad Student Panel (Seattle, WA; 2023)
Bryant Elementary School – Science Fair Mentor (Seattle, WA; 2023)
Sias International School – Skype a Scientist (Zhengzhou, China; 2023)
Pinhead Institute – Punk Science (Telluride, CO; 2022)
Atlanta Science Festival – Imagine a Scientist (Decatur, GA; 2019)
Fernbank Museum – Adventures in Science (Decatur, GA; 2018 & 2019)

Equity Activities

Rocky Mountain Biological Laboratory

- DEI committee chair (beginning summer 2026)
- Provided a bi-weekly open space to discuss mental health struggles in the field (2025).
- Co-created and led an annual workshop focused on identity-based field safety (2022–2025).
- Facilitated a weekly safe space meeting for BIPOC undergraduates (2022–2025).

University of Washington:

- Collaborated in the evaluation and improvement of graduate admissions framework to increase transparency and accessibility for diverse applicants (2022).
- Co-developed a planning framework to increase equity in fieldwork (2021).

Emory University

- Co-founded a DEI committee for our graduate program to address hostility from department faculty and staff toward BIPOC and disabled students (2019).
- Co-facilitated a DEI ethics workshop to raise student concerns and open dialogue regarding hostilities and microaggressions (2020).

Academic Service

Reviewer for The American Naturalist (2020, 2024), Oecologia (2024), Urban Ecosystems (2024), Ecology and Evolution (2023), Journal of Animal Ecology (2021, 2022).

Ecological Society of America (ESA) Annual Meeting Abstract Review Committee (2024 – present)
RMBL Community Diversity Committee (2021 – present)
UW Graduate and Postdoctoral Program Committee (2021 – 2023)
UW Biology Equity in Field Research Task Force (2021)
Emory University PBEE Seminar Committee (2019 – 2020)
Emory University 1915 Scholars Program (2019 – 2020)
Emory University PBEE Diversity Committee (2019 – 2020)
Emory University PBEE Recruitment Committee (2018 – 2019)

Professional Memberships

Ecological Society of America (2020, 2022 – 2025)
The Society for Integrative and Comparative Biology (2024 – 2025)
Entomological Society of America (2020, 2023, 2025)
International Biogeography Society (2022)

Complementary Education

2025, Computer Vision for Pollination Ecology Workshop, SICB. Atlanta, GA
2023, Actionable Science Seminar Series, Northwest CASC. Seattle, WA
2019, Mentor Training Certificate, Atlanta Society of Mentors. Atlanta, GA

2017, The Bee Course, American Museum of Natural History. Portal, AZ
2016, Software Carpentry Workshop, Berkeley Institute for Data Science. Berkeley, CA

Software Skills

Proficient: R, TEX (LATEX, BIBTEX).
Familiar: Python, ArcGIS
Operating Systems: Microsoft Windows, Mac OS, Linux.

References

Dr. Shalene Jha (sjha@austin.utexas.edu) – postdoc advisor
Dr. Berry Brosi (bbrosi@uw.edu) – PhD advisor
Dr. Elli Theobald (ellij@uw.edu) – PhD committee member
Dr. Jennifer Reithel (jennifer@rmbl.org) – RMBL Science Director
Manogya Chandar (mchandar@uw.edu) – undergraduate mentee, Brosi lab manager