

Heng-Xing Zou

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Education

Rice University <i>Ph.D. in Ecology and Evolutionary Biology, Rice University</i> • Advisor: Dr. Volker H.W. Rudolf	Aug 2019 – May 2024 Houston, TX
The University of Chicago <i>B.Sc. in Biological Sciences, Specialization in Ecology and Evolution</i> • Advisors: Dr. Catherine A. Pfister and Dr. Alison E. Anastasio	Sep 2015 – Jun 2019 Chicago, IL

Employment

USGS Postdoctoral Fellow in Quantitative Ecology <i>Department of Wildland Resources, Utah State University</i>	Aug 2026– Atlanta, GA (remote)
IGCB Fellow <i>Institute for Global Change Biology (IGCB), University of Michigan</i>	May 2024–Aug 2026 Ann Arbor, MI

Grants and Fellowships

Michigan Institute for Data, AI, and Society <i>Postdoctoral Affiliate Program</i>	\$5,000 Aug 2025
Institute for Global Change Biology, University of Michigan <i>Postdoctoral Fellowship</i>	\$120,000 May 2024
British Ecological Society <i>Small Research Grant</i>	£3,920 May 2023
American Society of Naturalists <i>Student Research Award</i>	\$2,000 Apr 2023
Department of BioSciences, Rice University <i>Inquiry-Based Learning (IBL) Teaching Fellowship</i>	\$6,000 Total Aug 2020, Aug 2021
Department of BioSciences, Rice University <i>East-DeMarco Fellowship for Natural Science</i>	\$2,500 Sep 2019
China Soong Ching Ling Foundation <i>CSCLF Scholarship for Undergraduates</i>	\$12,500 Jun 2019
Department of Ecology and Evolution, The University of Chicago <i>Ecology and Evolution Fellowship</i>	\$4,000 Apr 2018

* Corresponding author(s). † Undergraduate mentee.

10 publicly available first-author publications, including three preprints in review/in revision.

Submitted, In Review, and In prep

Zou, H.-X.*, K. Zhu, and B.C. Weeks. Functional divergence and convergence of North American birds driven by a few species. *In prep*.

T. Hoffman, M. Januario, **H.-X. Zou***, L. Laborieux, and A. Swain*. Functional bioregions of the world's birds reveal axes of foraging diversity decoupled from evolutionary history and species richness. *In prep*.

Zou, H.-X.*, Y. Zhu, and A. Swain*. High Fecundity predicts faster latitudinal but slower elevational range shifts in birds.

- In review, *Global Ecology and Biogeography*

Zou, H.-X.*, X. Feng, and J. Tan*. Resource levels and presence of microbiomes mediate duckweed coexistence.

- In review, *Proceedings of Royal Society B: Biological Sciences*

2026

13. **Zou, H.-X.***, X. Yang, T.H. Hajamaideen[†], O.J. Stein[†], R.S. Beltran, B.G. Freeman, M. Lindquist, S. Mengarelli, E.T. Miller, C.M. Probst, F.S. Valdovinos, D.B. Van Berkel, P.L. Zarnetske, B.C. Weeks*, and K. Zhu*. 2026. Large language models unlock the ecology of species interactions. Accepted, *PNAS*.

- Preprint available at <https://doi.org/10.64898/2026.02.06.704115>.

12. **Zou, H.-X.***, and V.H.W. Rudolf. 2026. Consequences of phenological shifts are determined by the number of generations per season. *Ecology*. <https://doi.org/10.1002/ecy.70454>.

11. Weeks, B.C., J.S. Berv, Y. Cho, I. Clark, M. Cole, A. M. Ferentinos, J. Fuller, M. Guza, T. Hammond, C. Hetrick, Z. Li, C.M. Probst, S.W. Yanco, M. Ziebell, **H.-X. Zou**, and M. Zimova. 2026. Exploring the data demands and global opportunities for reconstructing morphological responses to climate change. *Evolutionary Ecology*. 40(1): 11

- In Special Issue: Morphological responses to climate change.

2025

10. **Zou, H.-X.***, C. Hsieh, P.L. Zarnetske, K. Zhu, and B.C. Weeks. 2025. Abundance redistribution increases predator-prey interaction potentials among North American birds. In review; available on *bioRxiv*: <https://doi.org/10.64898/2025.12.19.695589>.

- In revision, *Global Change Biology*.

9. **Zou, H.-X.***. 2025. Temporal niche partitioning: mechanism of coexistence or competitive exclusion via priority effects? *Journal of Animal Ecology*. 94(10), 1896-1899.

- Invited Research Highlight article.

8. **Zou, H.-X.***, A.C. Smith, Y. Song, K. Zhu, and B.C. Weeks. 2025. Hyper-dominant species drive unexpected functional shifts in North American birds. In review; available on *bioRxiv*: <https://doi.org/10.1101/2025.07.23.666479>.

- Submitted, *Ecology Letters*.

2024

7. **Zou, H.-X.***, X. Yan, and V.H.W. Rudolf. 2024. Time-dependent interaction modification generated from plant-soil feedback. *Ecology Letters*. 27(5):e14432.

6. Simha, A., A. James, J.D. Monk, **H.-X. Zou**, P.-J. Ke, A. Wright, M.D. Bimler, C.M. Moore, S. Pierre, L.N. Carley, and G.S. Kandlikar. When the window is a mirror: how do dominant theories limit our understanding of nature? (ESA2023 INS23). *Bulletin of the Ecological Society of America*, e02145.

2023

5. **Zou, H.-X.***, S.J. Schreiber, and V.H.W. Rudolf. 2023. Stage-mediated priority effects and species life history shape long-term competition dynamics. *Proceedings of Royal Society B: Biological Sciences*, 290(2007):20231217.

4. **Zou, H.-X.***, and V.H.W. Rudolf. 2023. Bridging theory and experiments of priority effects. *Trends in Ecology and Evolution*. 38(12):1203-1216.

3. **Zou, H.-X.***, and V.H.W. Rudolf. 2023. Priority effects determine how dispersal affects biodiversity in seasonal metacommunities. *The American Naturalist*, 202(2):140-151.

- Best Student Paper Award, Sino-Ecologists Association Overseas (Sino-Eco), 2023.

2022 and Earlier

2. Liu, J., **H.-X. Zou**, B. Bachelot, T. Dong, Z. Zhu, Y. Liao, A. Plenković-Moraj, and Y. Wu. 2021. Predicting the responses of subalpine forest landscape dynamics to climate change on the southeastern Tibetan Plateau. *Global Change Biology*, 18:4352-4366.

1. **Zou, H.-X.**, A.E. Anastasio, and C.A. Pfister. 2019. Early succession on slag compared to urban soil: A slower recovery. *PLoS ONE*, 14(12):e0224214.

- Featured in PLoS Collections: Urban Ecosystems.

Peer Review Duties

Subject Matter Editor, *Ecosphere*

Aug 2026-

Served as a peer reviewer for (alphabetical order):

American Naturalist, *Avian Research*, *Ecology*, *Ecology Letters*, *Ecological Monographs*, *Functional Ecology*, *Journal of Animal Ecology*, *Journal of Ecology*, *Journal of the Royal Society Interface*, *New Phytologist*, *Oikos*, *Ornithology*, *Proceedings of Royal Society B: Biological Sciences*, *Scientific Report*, *Theoretical Population Biology*, *Trends in Ecology and Evolution*, *Urban Ecosystems*.

Invited Seminars

Department of Ecology and Evolutionary Biology, Yale University. New Haven, CT. Jan 2026.

School of Biological Sciences, Washington State University. Pullman, WA. Oct 2025.

Institute of Ecology, Peking University. Beijing, China. Dec 2023.

School of Ecological and Environmental Sciences, East China Normal University. Shanghai, China. Dec 2023.

Department of Integrative Biology, University of Texas, Austin (Virtual). April 2022.

Selected Conference Presentations

Zou, H.-X., C. Hsieh, P.L. Zarnetske, K. Zhu, and B.C. Weeks. 2026 (upcoming). Abundance redistribution increases predator-prey interaction potentials among North American birds. *2026 Annual Meeting, Ecological Society of America*. Salt Lake City, UT.

Zou, H.-X., 2026 (upcoming). Abundance redistribution increases predator-prey interaction potentials among North American birds. *2026 Unifying Ecology Across Scales, Gordon Research Seminar*. Easton, MA.

- Invited. In Session: Biological patterns and processes across spatial scales.

Zou, H.-X., K. Zhu, and B.C. Weeks. 2025. Non-adaptive functional shifts in North American avian communities dominated by just a few species. *2025 Annual Meeting, Ecological Society of America*. Baltimore, MD.

Zou, H.-X., K. Zhu, and B.C. Weeks. 2025. Functional shifts of North American avian communities over half a century. *ASN Asilomar 2025, American Society of Naturalists*. Pacific Grove, CA.

Zou, H.-X., 2024. Consequences of priority effects change with the number of generations. *2024 Annual Meeting, Ecological Society of America*. Long Beach, CA.

Zou, H.-X., and V.H.W. Rudolf. 2024. Bridging theory and practice of priority effects [Poster]. *2024 Unifying Ecology Across Scales, Gordon Research Conference*. Manchester, NH.

Zou, H.-X., and V.H.W. Rudolf. 2023. Bridging theory and practice of priority effects. *2023 Annual Meeting, Ecological Society of America*. Portland, OR.

- Invited. In Inspire Session: When the window is a mirror: How do dominant theories limit our understanding of nature?

Zou, H.-X., X. Yan, and V.H.W. Rudolf. 2023. Time-dependent interaction modifications: Insights from plant-soil feedback. *2023 Annual Meeting, Ecological Society of America*. Portland, OR.

Zou, H.-X., S.J. Schreiber, and V.H.W. Rudolf. 2023. Stage-mediated priority effects and species life history shape long-term competition dynamics. *ASN Asilomar 2023, American Society of Naturalists*. Pacific Grove, CA.

Zou, H.-X., and V.H.W. Rudolf. 2022. Priority effects determine how dispersal affects biodiversity in metacommunities. *2022 Annual Meeting, Ecological Society of America*. Montréal, Canada.

Zou, H.-X., and A.E., Anastasio. 2019. Primary succession on slag and uncontaminated soil: A slower recovery [Poster]. *2019 Annual Meeting, Ecological Society of America*. Louisville, KY.

Mentorship

Tony Lett

May 2026-Aug 2026

Master student, Data Science, University of Michigan

- Constructed data management pipelines for using large language models (LLMs) to collect species interactions from participatory science data

Thabassum Hashmi Hajamaideen

May 2025-Aug 2026

Undergraduate student, Computer Science and Engineering, University of Michigan

- Configured large language models (LLMs) to collect species interactions from participatory science data

Samantha Luke, Olivia Stein, Sophia Thomas, Yuyao "Michelle" Fan, Jesse Perraut Sep 2024-
Undergraduate students, University of Michigan

- Admitted through the Undergraduate Research Opportunity Program (UROP)
- Assisted with extracting bird interaction data from community science submissions
- Conducted independent research on bird interactions

Ziyin "Jasmine" Xiong Dec 2022-May 2023
Undergraduate student, Rice University

- Assisted with the maintenance of flour beetle colonies

Yu-Wen "Sophia" Huang Feb 2023-Mar 2023
Undergraduate student, National Chung Hsing University and Rice University

- Matched through the TOMODACHI/MACHI exchange program at Rice University
- Conducted competition experiments using duckweed

Awards and Honors

Elected Member, Sigma Xi
Jan 2026

Outstanding Graduate Student Publication
Department of BioSciences, Rice University Apr 2024

Outstanding PhD Thesis
Department of BioSciences, Rice University Apr 2024

Outstanding Research Presentation
Department of BioSciences, Rice University Dec 2023

Leadership Award
Department of BioSciences, Rice University Aug 2023

Joe Davies Prize for Excellence in Teaching
Department of BioSciences, Rice University Aug 2021

Phi Beta Kappa
University of Chicago Beta Chapter May 2018, May 2019

Teaching and Employment

Teaching Assistant Houston, TX
Department of BioSciences, Rice University

- BIOS 431: Biology of Infectious Diseases; Aug 2020 – Nov 2020, Aug 2021 – Nov 2021, Jan 2024 – Apr 2024
- BIOS 341: Cell Biology; Aug 2023 – Nov 2023
- EBIO 338/538: Analysis and Visualization of Biological Data; Jan 2020 – Apr 2020

Lab Teaching Assistant Chicago, IL
The University of Chicago Oct 2018 – Jun 2019

- BIOS 201: Core Biology

Research Assistant

Department of Ecology and Evolution, The University of Chicago

Chicago, IL
Nov 2016 – Oct 2018

- Advisors: Dr. Xuan Zhuang and Dr. Martin Kreitman

Research Assistant

Paulson Institute

Beijing, China
Jun 2017 – Aug 2017

- Climate and Sustainable Urbanization Team; Advisors: Cindy Jiang and Dr. Kevin Mo

Community Service**Institute for Global Change Biology (IGCB)**

University of Michigan

Ann Arbor, MI
May 2024 –

- Assisted the planning of seminars and symposiums
- Served on IGCB Graduate Fellowship panels (2025, 2026)

Michigan Institute for Data and AI in Society (MIDAS)

University of Michigan

Ann Arbor, MI
Aug 2025 –

- Assisted the planning of training events such as the Summer Academies
- Served on selection panels of several MIDAS-sponsored awards

Rice Student Birding Club

Member of Governing Board

Houston, TX
Sep 2023 – May 2024

Theoretical Ecology Section

Ecological Society of America

- Secretary; Aug 2022 – Aug 2023
- Student Liaison; Aug 2021 – Aug 2022

Graduate Student Association

Program of Ecology and Evolutionary Biology, Rice University

Houston, TX

- Co-President, May 2022 – May 2023
- Treasurer; May 2021 – May 2022

EEB Outreach Program

Program of Ecology and Evolutionary Biology, Rice University

Houston, TX
Jan 2021 – May 2021, Jan 2022 – May 2022

- Part of BIOS 589: EEB Outreach Development