

Heng-Xing Zou

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Education

Rice University

Ph.D. in Ecology and Evolutionary Biology, Rice University

Aug 2019 – May 2024

Houston, TX

- Advisor: Dr. Volker H.W. Rudolf

The University of Chicago

B.Sc. in Biological Sciences, Specialization in Ecology and Evolution

Sep 2015 – Jun 2019

Chicago, IL

- Advisors: Dr. Catherine A. Pfister and Dr. Alison E. Anastasio

Employment

USGS Postdoctoral Fellow in Quantitative Ecology

Department of Wildland Resources, Utah State University

Aug 2026–

Atlanta, GA (remote)

IGCB Fellow

Institute for Global Change Biology (IGCB), University of Michigan

May 2024–Aug 2026

Ann Arbor, MI

Publications

* 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.*

Zou, H.-X.*, T. Hoffman, M. Januario, 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.

- Submitted, *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.***, 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>.

12. **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. *bioRxiv*. <https://doi.org/10.64898/2026.02.06.704115>.

- In revision, *PNAS*.

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>.
- In review, *PNAS*.

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.

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 Asillomar 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.

Grants and Fellowships

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

Mentorship

Thabassum Hashmi Hajamaideen <i>Undergraduate student, Computer Science and Engineering, University of Michigan</i>	May 2025-
Configured large language models (LLMs) to collect species interactions from community science data	
Samantha Luke, Olivia Stein, Sophia Thomas, Yuyao "Michelle" Fan, Jesse Perraut <i>Undergraduate students, University of Michigan</i>	Sep 2024-
- Admitted through the <u>Undergraduate Research Opportunity Program (UROP)</u> - Assisted with extracting bird interaction data from community science submissions - Conducted independent research on bird interactions	
Ziyin "Jasmine" Xiong <i>Undergraduate student, Rice University</i>	Dec 2022-May 2023
Assisted with the maintenance of flour beetle colonies	
Yu-Wen "Sophia" Huang <i>Undergraduate student, National Chung Hsing University and Rice University</i>	Feb 2023-Mar 2023
- Matched through the <u>TOMODACHI/MACHI exchange program</u> 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

Chicago, IL

Department of Ecology and Evolution, The University of Chicago

Nov 2016 – Oct 2018

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

Research Assistant

Beijing, China

Paulson Institute

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