

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

Postdoctoral Fellow

Institute for Global Change Biology, University of Michigan

May 2024–

Ann Arbor, MI

Publications

* Corresponding author. † Undergraduate mentee.

In prep

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

Zou, H.-X.*, X. Feng, and J. Tan. Time-dependent effects of plant-microbe interactions.

Accepted

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. Exploring the data demands and global opportunities for reconstructing morphological responses to climate change. *Evolutionary Ecology*.

2025

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. *Submitted; available on bioRxiv*. <https://doi.org/10.64898/2025.12.19.695589>

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.

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>.

Zou, H.-X.*, and V.H.W. Rudolf. 2025. Consequences of phenological shifts are determined by the number of generations per season. *In review; available on bioRxiv*: <https://doi.org/10.1101/2025.02.17.638696>.

2024

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](#).

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

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](#).

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](#).

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

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](#).

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 Presentations

Zou, H.-X.. 2025. A bird's-eye view of ecological communities under global change. *School of Biological Sciences, Washington State University*. Pullman, WA.

Zou, H.-X.. 2023. The temporal dimension of species interactions at multiple scales. *PKU Ecology Seminar, Institute of Ecology, Peking University*. Beijing, China.

Zou, H.-X., 2023. The temporal dimension of species interactions at multiple scales. *School of Ecological and Environmental Sciences, East China Normal University*. Shanghai, China.

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.

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

Zou, H.-X., and V.H.W. Rudolf. 2022. Priority effects determine biodiversity patterns in metacommunities. *Ecolunch Seminar Series Spring 2022, University of Texas, Austin (Virtual)*.

Selected Presentations

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., 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	\$5,000
<i>Postdoctoral Affiliate Program</i>	<i>Aug 2025</i>

Institute for Global Change Biology, University of Michigan	\$120,000
<i>Postdoctoral Fellowship</i>	<i>May 2024</i>

British Ecological Society	£3,920
<i>Small Research Grant</i>	<i>May 2023</i>

American Society of Naturalists	\$2,000
<i>Student Research Award</i>	<i>Apr 2023</i>

Department of BioSciences, Rice University	\$3,000
<i>Inquiry-Based Learning (IBL) Teaching Fellowship</i>	<i>Aug 2020, Aug 2021</i>

Department of BioSciences, Rice University	\$2,500
<i>East-DeMarco Fellowship for Natural Science</i>	<i>Sep 2019</i>

China Soong Ching Ling Foundation	\$12,500
<i>CSCLF Scholarship for Undergraduates</i>	<i>Jun 2019</i>

Department of Ecology and Evolution, The University of Chicago	\$4,000
<i>Ecology and Evolution Fellowship</i>	<i>Apr 2018</i>

Mentorship

Thabassum Hashmi Hajamaideen May 2025-
Undergraduate student, Computer Science and Engineering, University of Michigan

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

Samantha Luke, Olivia, Stein, Sophia Thomas Sep 2024-Apr 2025
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

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*The University of Chicago*Chicago, IL
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

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