

Heng-Xing Zou

Email: hxzou.ecology@gmail.com
Website: hengxingzou.github.io

Education

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

Employment

Postdoctoral Fellow <i>Institute for Global Change Biology, University of Michigan</i>	May 2024– <i>Ann Arbor, MI</i>
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Publications

* Corresponding author. † Undergraduate mentee.

In prep

Zou, H.-X.*, X. Yang, T.H. Hajamaideen†, O.J. Stein†, P.L. Zarnetske, K. Zhu, and B.C. Weeks.
Unlocking the ecology of species interactions with large language models.
- Perspective article.

Zou, H.-X.*, C. Hsieh, P.L. Zarnetske, K. Zhu, and B.C. Weeks. Abundance redistribution leads to increasing predator-prey interaction potentials among birds.

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

2025

Zou, H.-X.*. 2025. Temporal niche partitioning: mechanism of coexistence or competitive exclusion via priority effects? *Journal of Animal Ecology*.
<https://doi.org/10.1111/1365-2656.70115>.
- Invited Research Highlight article.

Zou, H.-X.*, A.C. Smith, 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.

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

- Invited.

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.

- Invited.

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

Posters

- Zou, H.-X.**, and V.H.W. Rudolf. 2024. Bridging theory and practice of priority effects. *2024 Unifying Ecology Across Scales, Gordon Research Conference*. Manchester, NH.
- Zou, H.-X.**, and A. E., Anastasio. 2019. Primary succession on slag and uncontaminated soil: A slower recovery. *2019 Annual Meeting, Ecological Society of America*. Louisville, KY.

Grants and Fellowships

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-
<i>Undergraduate student, Computer Science and Engineering, University of Michigan</i>	

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

Samantha Luke, Olivia Stein, Sophia Thomas <i>Undergraduate students, University of Michigan</i>	Sep 2024-Apr 2025
<ul style="list-style-type: none"> • 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 <i>Undergraduate student, Rice University</i>	Dec 2022-May 2023
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Matched through the TOMODACHI/MACHI exchange program at Rice University • Conducted competition experiments using duckweed 	

Awards and Honors

Outstanding Graduate Student Publication <i>Department of BioSciences, Rice University</i>	Apr 2024
Outstanding PhD Thesis <i>Department of BioSciences, Rice University</i>	Apr 2024
Outstanding Research Presentation <i>Department of BioSciences, Rice University</i>	Dec 2023
Leadership Award <i>Department of BioSciences, Rice University</i>	Aug 2023
Joe Davies Prize for Excellence in Teaching <i>Department of BioSciences, Rice University</i>	Aug 2021
Phi Beta Kappa <i>University of Chicago Beta Chapter</i>	May 2018, May 2019

Teaching and Employment

Teaching Assistant <i>Department of BioSciences, Rice University</i>	Houston, TX
<ul style="list-style-type: none"> • 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 <i>The University of Chicago</i>	Chicago, IL
<ul style="list-style-type: none"> • BIOS 201: Core Biology 	Oct 2018 – Jun 2019
Research Assistant <i>Department of Ecology and Evolution, The University of Chicago</i>	Chicago, IL
<ul style="list-style-type: none"> • Advisors: Dr. Xuan Zhuang and Dr. Martin Kreitman 	Nov 2016 – Oct 2018
Research Assistant <i>Paulson Institute</i>	Beijing, China
<ul style="list-style-type: none"> • Climate and Sustainable Urbanization Team; Advisors: Cindy Jiang and Dr. Kevin Mo 	Jun 2017 – Aug 2017

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

- 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