

# Heng-Xing Zou

Email: [hxzou.ecology@gmail.com](mailto:hxzou.ecology@gmail.com)  
Website: [hengxingzou.github.io](https://hengxingzou.github.io)

## *Education*

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<b>Rice University</b> <i>Ph.D. in Ecology and Evolutionary Biology, Rice University</i>	Aug 2019 – May 2024 <i>Houston, TX</i>
<b>The University of Chicago</b> <i>B.Sc. in Biological Sciences, Specialization in Ecology and Evolution</i>	Sep 2015 – Jun 2019 <i>Chicago, IL</i>

- Advisor: Dr. Volker H.W. Rudolf
- Advisors: Dr. Catherine A. Pfister and Dr. Alison E. Anastasio

## *Employment*

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

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\* 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 Berk, 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.

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### *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*

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- 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*

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

## *Mentorship*

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**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*

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**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*

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**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

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

### *Community Service*

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<b>Rice Student Birding Club</b> <i>Member of Governing Board</i>	Houston, TX <i>Sep 2023 – May 2024</i>
<b>Theoretical Ecology Section</b> <i>Ecological Society of America</i>	
<ul style="list-style-type: none"> <li>• Secretary; Aug 2022 – Aug 2023</li> <li>• Student Liaison; Aug 2021 – Aug 2022</li> </ul>	
<b>Graduate Student Association</b> <i>Program of Ecology and Evolutionary Biology, Rice University</i>	Houston, TX
<ul style="list-style-type: none"> <li>• Co-President, May 2022 – May 2023</li> <li>• Treasurer; May 2021 – May 2022</li> </ul>	
<b>EEB Outreach Program</b> <i>Program of Ecology and Evolutionary Biology, Rice University</i>	Houston, TX <i>Jan 2021 – May 2021, Jan 2022 – May 2022</i>
<ul style="list-style-type: none"> <li>• Part of BIOS 589: EEB Outreach Development</li> </ul>	