

AIYU ZHENG

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Postdoctoral Associate, Department of Environmental Studies, New York University

Education

Princeton University , Princeton, NJ	2020–2024
Ph.D. in Ecology and Evolutionary Biology (Advisor: Dr. Stephen W. Pacala)	
Princeton University , Princeton, NJ	2018–2020
M.A. in Ecology and Evolutionary Biology	
Colorado College , Colorado Springs, CO	2015–2018
B.A., Integrated Environmental Science, <i>Magna Cum Laude</i> (GPA 3.91), Distinction in Environmental Science	

Awards and Distinctions

Sino-Ecologists Association Overseas Best Student Paper Award	2024
Predictive Ecology Early-Career Award, Gordon Research Conference	2023
Outstanding Senior Academic Award in Environmental Science, Colorado College	2018

Fellowships and Scholarships

Graduate Fellowship in EEB (fully funded 5-year package), Princeton University	2018–2023
EEB Seed Grant (\$2,000), Princeton University	2019
Leadership Scholarship (\$30,000), Colorado College	2015–2018
Gaylord Prize for Independent Study Research in Asian Studies (\$2,000), Colorado College	2017
Keller Family Venture Grant (\$1,500), Colorado College	2017

Grant Applications & Awards

NYU Arts & Science Fund for Research on China (science-PI, \$50,000)	Awarded
“Boom or bust: accessibility tipping point underlying divergent urban transitions in China”	2026–2028
Belmont Forum Collaborative Research Action (science-PI, \$1,060,000)	Pending
“Grassy Trees for Resilient Tropical Forest Ecosystems and Economic Networks”	2026–2029
NASA ROSES A5 (science-PI, \$752,659)	Pending
“Refining Carbon Estimates by Mapping Grassy Trees in Disturbed Tropical Forests”	2025–2028

Publications (*corresponding author)

- Zheng, A.***, Yin, Y., & Lu, M. (2025). Carbon bias from grassy tree misclassification: revealing forest structural heterogeneity by integrating GEDI and Sentinel-2. *bioRxiv*. doi:10.64898/2025.12.25.696531
- Zheng, A.*** & Lu, M. (2025). Grassy trees: the neglected hybrids for sustainability. *Trends in Ecology and Evolution*.
- Zheng, A.*** & Pacala, S.W. (2025). Unveiling the mysteries of bamboo: the grass that rises to forest dominance. *Bulletin of the Ecological Society of America* 106(1): 1–5.
- Teng, Q.*, Fang, T., Zhang, Q., Gunina, A., **Zheng, A.**, Song, Z., Zhou, J., Chang, S.X., & Li, Y. (2025). Successional transition from broadleaf to bamboo forests promotes fungal communities and soil carbon mineralization. *Applied Soil Ecology* 209: 106006.
- Zheng, A.*** & Pacala, S.W. (2024). The enigmatic life history of the bamboo explained as a strategy to arrest succession. *Ecological Monographs* 94(4): e1621.
- Zheng, A.*** & Lv, J. (2023). Spatial patterns of bamboo expansion across scales: how does Moso bamboo interact with competing trees? *Landscape Ecology* 38(12): 3925–3943.
- Zhou, Y.*, Chen, A., Ouyang, J.Q., Liu, Y., **Zheng, A.**, Yang, Z., Zhang, Y., et al. (2020). Comparing community birdwatching and professional bird monitoring with implications for avian diversity research. *Avian Research* 11: 1–11.

Manuscripts in Progress

- Zheng, A.*** & Pacala, S.W. A spatial model explains changing bamboo dominance as landscape-level consequences of arresting succession mechanisms. (*In revision*)
- Zheng, A.***, Caron, S., Pacala, S.W., Emilio, T., Luan, J., de Deurwaerder, H., Garcia, J.C.C., Lodono, X., & Lu, M. The global biogeography of plant clonality. (*In prep*)
- Zheng, A.***, Lu, M., & Pacala, S.W. The Paradox of Being Clonal: A Model on Evolutionary Stable Strategies of Crown Arrangement and Carbon Allocation in Trees. (*In prep*)

Selected Presentations

Invited Seminars & Talks

Grassy trees: a new angle of forest structure and function. Wangjiang Forum-Cutting-edge Science Lectures (no.200), Sichuan University, Chengdu, China Sep 2025

Conference Presentations & Symposium

Carbon cycle implications of large monocots in tropical forests. Association for Tropical Biology and Conservation (ATBC) Annual Meeting, Xishuangbanna, China expected Jun 2026
Beyond trees: a more inclusive growth-form perspective on ecology and society in tropical landscapes. Symposium at ATBC Annual Meeting (organizer), Xishuangbanna, China expected Jun 2026
Revealing structural differences in forest canopies with texture and LiDAR. NYU GIS Day, New York, NY Nov 2025
Finding nature-based solutions in nature and practice: seeing beyond the obvious. NYU Postdoctoral Symposium, New York, NY Oct 2025
Improving tropical forest carbon assessments by integrating GEDI LiDAR with Sentinel-2-based bamboo classification in Xishuangbanna (poster). ATBC Annual Meeting, Oaxaca, Mexico Jun 2025
Decipher the enigma of bamboo biology through the lens of arresting succession. Ecological Society America and Canadian Society of Ecology and Evolution Joint Annual Meeting, Montreal, Canada Jul 2023
Arrested succession by bamboo: determining factors, reversibility, and ecological implications (poster). Gordon Research Conference, Easton, MA Jun 2023
Competition and colonization in ecotones: abrupt treeline and its implication. Columbia-Rutgers-Princeton-Penn-Yale Conference, Princeton, NJ May 2019
The impact of fire on energy balance in tundra soils: implications for permafrost thaw (poster). American Geophysical Union Fall Meeting, Washington D.C. Dec 2018

Research Experience

Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi, China

Field Assistant (Summer 2019). PI: Wenting Feng. Monitored soil carbon cycle and conducted vegetation surveys in Tianshan, Urumqi.

The Polaris Project, Woods Hole Research Center, Woods Hole, MA

Independent Student Researcher (Summer 2018). PI: Sue Natali. Designed field experiments analyzing energy balance of tundra ecosystems after wildfire in Yukon-Kuskokwim River Delta, Alaska.

Environmental Program, Colorado College, Colorado Springs, CO

Student Researcher (Summer 2017). PI: Miroslav Kummel. Mapped tree seedlings via drone along 400 meters of treeline on Pikes Peak; processed drone imagery and digital 3D models.

Awarded Independent Research, Colorado College, Colorado Springs, CO

Honor Thesis Research (2017–2018). Research Advisor: Howard Drossman. Interviewed and evaluated four environmental organizations in China; applied grounded theory to write industry report on Chinese Environmental Education.

Teaching Certifications and Experience

Graduate Teaching Transcript Certificate, McGraw Center for Teaching and Learning, Princeton University 2023
Colorado Alliance of Environmental Education Master Level Certification accredited by the North American Association for Environmental Education 2018

Course Instructor & Curriculum Designer

Scientist in Residence Program, The New York Academy of Sciences, New York Jan-May 2026
The Conversation between Plants and Us (in Chinese), Veritas China, Shanghai, China Jul-Aug 2025
Introduction to Ecological Thinking (online, in Chinese), Veritas China Jul-Sep 2024
Introduction to Environmental Science, Prison Teaching Initiative (PTI), Princeton 2024–2025
Topics in Justice Studies: Climate, Environment, and Justice, PTI, New Jersey 2022–2023
Fifth-grade Ecology in Outdoor Classrooms, Columbine Elementary School, Colorado Oct–Dec 2018

Assistant in Instruction, Princeton University

Biology of Coral Reefs (Field Course in Panama) Mar 2023
Life on Earth: Mechanisms of Change in Nature (Lab-based) 2018, 2022
The Environmental Nexus 2020

Professional Activities

Journal Reviewer: *Ecology, Landscape Ecology, Global Change Biology, Ecological Monographs*

Memberships: Ecological Society of America (2021–); Sino-Ecologists Association Overseas (2022–); Association for Tropical Biology and Conservation (2022–); American Society of Naturalists (2022–); British Ecological Society (2022–)

Last updated: April 23, 2026