

Xiao Huang

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My research investigates how species functional traits contribute to the maintenance of biodiversity across biogeographic contexts. I quantify patterns of functional diversity, trait variation, and inter- and intra-specific trait relationships along ecological gradients, and between native and exotic species. My work integrates trait-based theory with biogeography to inform community construction and biodiversity conservation.

EDUCATION

Visiting Ph.D. student in Ecology, ECONOVO, Aarhus University 2025-ongoing

Host: Professor Jens-Christian Svenning

- Modelling the assembly mechanisms of native and novel plant–frugivore interactions from a trait-based perspective.

Ph.D. in Macroecology, Wuhan Botanical Garden, Chinese Academy of Sciences 2022–ongoing

Supervisor: Professor Si-Chong Chen

- Integrated bird beak size and fruit size data from trait database, floras and literatures for 2,126 plant species and 1,247 bird species to reveal global trait matching patterns in frugivore networks.
- Measured seed key functional traits for more than 300 plant species across China to quantify latitudinal patterns and trade-offs of seed defences and nutrition
- Conducted field work in tropical moist forests, temperate evergreen forests and temperate mixed forests to test the captivity of plasticine models to reflect biotic interaction intensity.

Research Master in Ecology, Evolution & Conservation, Imperial College London 2020 – 2021

Supervisor: Professor Joseph Tobias; Dr. Samuel Pironon

- Quantified the global variation of insectivorous bird functional diversity along land-use gradients to reveal human impact on biodiversity.
- Integrated and imputed key functional traits for more than 60,000 plant species to construct global functional spectrum for utilised and invasive plants.

Bachelor in Ecology, Sun Yat-Sen University

2016 – 2020

- Completed systematic studies in ecology, with expertise in community succession.

SKILLS

Quantitative & Analytical Skills. Statistical modelling and analysis in R, including functional diversity metrics, trait data imputation, meta-analysis, spatial analyses, linear models, structural equation models, and network-based analyses.

Trait Databases & Data Resources. Experience with plant and animal trait databases, including TRY, GIFT, SeedArc, and AVONET etc. Skilled in extracting trait data from floras using web scraping tools.

Trait Measurement & Laboratory Skills. Measurement and analysis of seed morphological and

chemical traits.

Languages. Chinese (native); English (fluent).

PUBLICATIONS

- **Huang, X.**, Dalsgaard, B., & Chen, S.-C. (2025). Weaker plant–frugivore trait matching towards the tropics and on islands. *Ecology Letters*, **28**, e70061. <https://doi.org/10.1111/ele.70061>
- **Huang, X.**, & Chen, S.-C. (2025). Humans perceive but animals don't: Pitfalls in using plasticine models for assessing biotic interactions. *Proceedings of the Royal Society B*, **292**, 20252247. <https://doi.org/10.1098/rspb.2025.2247>
- Lin, X.*, **Huang, X.***, Xia, T.-H., Wu, L., & Chen, S.-C. (2025). Large old trees sustain avian communities and critical plant–bird interactions in highly urbanised environments. *Biological Conservation*, **313**, 111582. <https://doi.org/10.1016/j.biocon.2025.111582>
*Co-first authors
- **Huang, X.**, Zhao, Y., & Liu, Y. (2021). Using light-level geolocators to monitor incubation behaviour of a cavity-nesting bird *Apus apus pekinensis*. *Avian Research*, **12**, 9. <https://doi.org/10.1186/s40657-021-00245-w>
- Chen, S.-C., Antonelli, A., **Huang, X.**, Wei, N., Dai, C., & Wang, Q.-F. (2025). Large seeds as a defensive strategy against partial granivory in the Fagaceae. *Journal of Ecology*, **113**, 1–10. <https://doi.org/10.1111/1365-2745.14480>

UNDER REVIEW & IN PREPARATION

- **Huang, X.**, Dalsgarrd, B., Svenning, J.-S., Chen, S.-C. Integrating macroecological information into predictive model of biotic interactions. *Under review at Frontiers in Ecology and the Environment*.
- **Huang, X.**, Svenning, J.-S., Dalsgarrd, B., Chen, S.-C. Weak and plastic trait matching in novel plant–frugivore interactions. *In preparation*.
- **Huang, X.**, Ryan, P.,, Chen, S.-C. & Pironon, P. When utilisation and invasion meet across the global spectrum of plant form and function. *In preparation*.
- **Huang, X.** Chen, S.-C. Fruit-type composition and climate drive latitudinal patterns in fruiting seasons across China. *In preparation*.

AWARDS & SCHOLARSHIPS

- China Scholarship Council abroad joint Ph.D. scholarship (~80,000 RMB). 2025–2026
- 2nd Class of Di Ao scholarship (1000 RMB). 2025
- Winner at the 1st Chinese Methods in Ecology and Evolution Symposium (500 RMB). 2024
- 2nd Place Award for student at the 5th International Symposium on Plant-Animal Interactions under Global Change, Henan, China. 2024
- 3rd Place Award for oral presentation at the 2nd Optics Valley Conference for Young Researchers, Wuhan, China (1500 RMB). 2024
- Excellent Student Award at the Chinese Academy of Sciences 2023
- Chinese postgraduate academic scholarship (124,000 RMB). 2022–2026
- 3rd Class of Excellent Student Award at Sun-Yat Sen University (3000 RMB). 2018