

yguo@agcenter.lsu.edu
yaolinguo22@gmail.com
+1 225-200-8595

Louisiana State University Agricultural Center
School of Renewable Natural Resources
Baton Rouge, LA 70803

[ORCID](#) | [Google Scholar](#) | [Website](#) | [ResearchGate](#)

Yaolin Guo Ph.D.

APPOINTMENTS

- 2024–present **Postdoctoral Researcher**
Louisiana State University Agricultural Center, Baton Rouge, LA
- 2024–present **Adjunct Scientist**
Louisiana Universities Marine Consortium, Chauvin, LA

EDUCATION

- 2017–2024 **Ph.D.** in Ecology (cotutelle program, joint supervision)
Fudan University, Shanghai, China (home institution)
University of Tübingen, Tübingen, Germany (partner institution)
- 2012–2016 **B.Eng.** in Applied Chemistry
Shanxi University, Taiyuan, China

RESEARCH INTERESTS

- plant ecology
- community ecology
- coastal ecology
- global change
- quantitative ecology
- biogeography

RESEARCH & PROFESSIONAL EXPERIENCE

- 2024–present **Postdoc**, *Phragmites* expansion and impact in Louisiana Gulf Coast. Assessing the spatiotemporal dynamics and ecological impacts of the expansion of the invasive *Phragmites australis*, using nearly two decades of data from the Coastwide Reference Monitoring System (CRMS). I also use this long-term dataset to test post-invasion species coexistence and to evaluate community stability, using inviability, species synchrony, and turnover metrics, in order to identify management thresholds.
- 2024–present **Postdoc**, Extreme events and invasions shape coastal community stability. This

- project integrates time series from NEON and the LTER program to evaluate how extreme climatic events and biological invasions shape community coexistence and stability. Using metrics relevant to management (temporal invariability, species synchrony, and turnover), we translate long term dynamics into defensible thresholds for monitoring and intervention.
- 2024–present **Postdoc**, Sea-level rise influences ribbed mussel and smooth cordgrass interactions affecting coastal stability. We use a Marsh Organ experimental setup to quantify how sea-level rise affects the interaction between smooth cordgrass (*Spartina alterniflora*) and ribbed mussels (*Geukensia demissa*), and how those changes influence coastal stability.
- 2024–present **Postdoc**, Lineage specific competition under sea-level rise between *Phragmites australis* and *Spartina patens*. We run a fully crossed lineage × sea level rise experiment pairing multiple *Phragmites australis* lineages with *Spartina patens* across controlled sea-level and salinity treatments. We quantify growth, functional traits, and above and belowground allocation to estimate lineage specific competitive ability and ecological strategies that can guide salt marsh management and restoration.
- 2024–present **Co-leader**, Spatiotemporal patterns of chemical defenses in invasive Japanese knotweed. Coordinated leaf-sample acquisition from botanical gardens and herbaria across China, North America, and Europe; curated provenance and collection-year metadata, and standardized assays for plant chemical defenses. Built reproducible R workflows to test spatial and temporal gradients and their climate and introduction-history correlates, producing maps and trend visualizations.
- 2022–present **Co-contributor**, Latitudinal variation in palatability, induced defenses, and phenotypic plasticity of invasive Japanese knotweed. Mentored undergraduate students in evaluating plant palatability using generalist insects and measuring induced chemical defense traits such as tannins and flavonoids. Harvested invasive knotweed in European common gardens (Turin, Tübingen, Uppsala) and measured multiple plant functional traits.
- 2019–2023 **PhD candidate**, Latitudinal patterns in plant interactions with herbivores and detritivores: comparison of invasive and native plants. Revealed latitudinal variation in herbivory and detritivory between invasive *Spartina alterniflora* and native *Phragmites australis* through a combination of field surveys, common garden experiments, laboratory analyses and ecological modeling, integrating continental-scale evidence to inform niche dynamics and potential range shifts under climate change.
- 2021 **Project leader**, Global *Phragmites* experiment (collaboration with Shandong University). Conducted two common gardens (Shanghai & Qingdao) with *Phragmites* populations from around the world, measuring various plant functional traits to explore intraspecific variation in phenotypic plasticity and

CSR ecological strategies.

- 2019–2021 **Program leader**, The annual monitoring of wetland ecosystem of the Yangtze estuary. Primarily responsible for the collection and measurement of plant traits and benthic animal characteristics.
- 2018 **Program leader**, Social practice team on investigation of Poyang Lake. Investigated ecological changes in Poyang Lake through a combination of historical data analysis and field surveys and represented the team in the Fudan University Winter Social Practice Contest, winning first prize.

PUBLICATIONS (*Full texts available for all items below; please email me for a PDF*)

Under review & Preprints & Preparation

- Guo, Y.**, Roberts, B. J., Nyman, J. A., Plumlee, J. D., Davenport, T. M., Hopper, G. W., & La Peyre, M. K. (2025). Expansion trends of *Phragmites australis* and its impact on the Louisiana Gulf Coast. *Submitted to Ecological Applications*.
- Guo, Y.**, Ju, R.-T., Parepa, M., Wang, H., Wang, M., Lu, J., Li, B. & Bossdorf, O. (2025). Herbivory increases towards lower latitudes in native but not introduced plants. *Submitted to Ecology Letters*.
<https://doi.org/10.1101/2024.01.24.576872>
- Guo, Y.**, Liu, L., Wu, Y., Ren, L., Guo, W.-Y., Guo, W., & Ju, R.-T. (2025). Multidimensional syndrome of phenotypic plasticity in functional traits of a worldwide plant. *Submitted to Journal of Ecology*.
- Lu, J., **Guo, Y.**, Richards, C., Li, L., Wu, J., Li, B., & Ju, R.-T. (2025). Rapid adaptive evolution of multidimensional traits in a widespread plant invader. *Submitted to Ecography*. <https://doi.org/10.22541/au.172069437.75727417/v1>
- Lu, J., **Guo, Y.**, Li, B., & Ju, R.-T. (2025). Rapid evolution promotes defense-strategy divergence in a widespread plant invader. *Submitted to Ecology*.
- Sun, K., Wang, J., Zhang, Y., Abdala-Roberts, L., & **Guo, Y.** (2025). Induced leaf tannins are common in woody plants, but evidence is limited in non-woody plants. *Submitted to Plant Diversity*.
- Liu, L., Sheng, W., Wang, Y., Lin, L., Wang, C., Song, H., **Guo, Y.**, & Guo, W. (2025). Genetic legacy unlocks cryptic native invasion in a foundational plant under climate change. *Submitted to Advanced Science*.
- Wang, M., Li, J., Chen, J., Liu, L., **Guo, Y.**, Li, J., Lu, Z., Li, X., & Zhang, S. (2025). Disentangling effects of land-use history and vegetation types on soil carbon accumulation and stability in reforested systems. *Submitted to Global Change Biology*.
- Irimia, R., Parepa, M., Giaccone, E., Sebesta, N., **Guo, Y.**, Karrenberg, S., Barni, E., Richards, C., & Bossdorf, O. (2025). Phenotypic plasticity of invasive

knotweed across Europe: a distributed common garden experiment. *Submitted to Journal of Ecology*. <https://doi.org/10.1101/2025.08.18.667133>

Guo, Y., Liner, S. R., La Peyre, M. K., & Roberts, B. J. Sea-level rise confines ribbed mussel–smooth cordgrass interactions, limiting coastal resilience. *In preparation*.

Book chapters

2025

Burns, B., Ainouche, M.L., Barni, E., Bi, J., Blossey, B., Cao, P., Cavé-Radet, A., Endriss, S., Giaccone, E., Grünert, U., **Guo, Y.**, Irimia, R. E., Ju, R., Karrenberg, S., Keefer, K., Lee, K., Liao, Z., Parepa, M., Salmon, A., Schmid, M. W., Sebesta, N., van Riemsdijk, I., Wang, S., Wu, J., Yuan, W., Zhang, L., Li, B., Bossdorf, O., & Richards, C. L. (2025). The ecological genomic processes of the iconic Japanese knotweed invasion. In *Invasion Genomics*. Eds. Dan Bock and Marc Rius. Wallingford, England: CABI Publishing. In press.

Guo, Y., Gui, X., Lu, J., Sun, K., Xian, X., Zhao, H., Zhao, Y., Ju, R.-T., & Li, B. (2025). Response strategies and control measures for biological invasions under global change. *Biological Invasions under Global Change*. Eds. Bo Li, Jihua Wu and Fanghao Wan. Beijing: Science Publishing; Jinan: Shandong Science and Technology Publishing.

Published & In press

2025

Lu, J., **Guo, Y.**, Zhao, Y., Wu, J., Li, B., Richards, C. L., & Ju, R.-T. (2025) Silicon mediates geographic variation of herbivory-related traits in a widespread plant invader. *Journal of Plant Ecology*. In press.

Cao, P., Liao, Z., Zhang, L., Wang, S., Bi, J., Zhao, Y., Parepa, M., Lin, T., **Guo, Y.**, Bossdorf, O., Richards, C. L., Endriss, S. B., Wu, J., Ju, R.-T., & Li, B. (2025). Cross-continental variation of herbivore resistance in a global plant invader. *Ecography*, e07569.

Liu, L., Yin, M., **Guo, Y.**, Song, H., Guo, X., & Guo, W. (2025). Climatic adaptation and phylogenetic history shape the intra-specific variation of CSR strategies in a widespread grass. *Plant Diversity*. In press.

Wei, W., Wen, Q., Zhu, H., Song, H., Zhang, X., Sheng, W., Xie, L., Guo, X., **Guo, Y.**, Ye, S., Wang, Y., Liu, L., & Guo, W. (2025). Effects of phenotypic plasticity and genetic variation on plant growth and litter decomposition in a widespread wetland grass. *Diversity*, 17(4), 282.

Liu, L., Du, N., Ye, S., Li, X., Wei, J., **Guo, Y.**, Brix, H., Guo, W. (2025). Ecological mechanisms of carbon sequestration in vegetated coastal wetland ecosystem: exploring the roles of biodiversity and environmental changes. *Journal of Marine Environmental Engineering*, 12(1).

2024

Liu, L.*, **Guo, Y.***, Wu, Y., Yin, M., Guo, X., Eller, F., Richards, C. L., Brix, H., Ju, R.-T., & Guo, W. (2024). Revealing biogeographic patterns in genetic

diversity of native and invasive plants and their association with soil community diversity in the Chinese coast. *Oikos*, e10116. (*equal contribution)

Zhang, Y.*., **Guo, Y.***, Wang, H., Xu, H., Zhang, D., Qian, J., Hu, Y. (2024) Divergence in spatial patterns of leaf stoichiometry ratios between native and non-native plants across coastal wetland. *Frontiers in Marine Science*, 11, 1425587. (*equal contribution)

Hao, Y., Wang, X.-F., **Guo, Y.**, Li, T.-Y., Yang, J., Ainouche, M. L., Salmon, A., Ju, R.-T., Wu, J., Li, L.-F., & Li, B. (2024). Genomic and phenotypic signatures associated with the adaptation of invasive species *Spartina alterniflora* Loisel. *Plant Communications*.

Jiang, J.-J., Zhao, Y.-J., **Guo, Y.**, Gao, L., Richards, C. L., Siemann, E., Wu, J., & Ju, R.-T. (2022). Restoration of native saltmarshes can reverse arthropod assemblages and trophic interactions changed by a plant invasion. *Ecological Applications*, e2740.

Zhao, Y., Wang, S., Liao, Z., Parepa, M., Zhang, L., Cao, P., Bi, J., **Guo, Y.**, Bossdorf, O., Richards, C., Wu, J., Li, B., & Ju, R.-T. (2024). Geographic variation in leaf traits and palatability of a native invasive plant during domestic expansion. *Ecology*, e4425.

Yin, M., Zhang, X., Zhu, H., Sheng, W., Wu, Y., Jiang, D., Wen, Q., Shao, H., **Guo, Y.**, Wang, C., Yu, X., Brix, H., Liu, L., Guo, W. (2024). Distinct cadmium bioaccumulation characters and associated physiological and rhizobacterial mechanisms in two major lineages of *Phragmites australis* of China. *Journal of Environmental Management*, 371.

Zhang, Y., Jiang, P., **Guo, Y.**, Wu, M., Shao, X., Xu, H., Wu, T., Yuan, W., & Li, N. Nitrogen and phosphorus additions alter soil N transformations in a *Metasequoia glyptostroboides* plantation. *Frontiers in Plant Science*, 15, 1448356.

2023

Guo, Y.*, Zhang, Y.*., Wu, J., Richards, C. L., Bossdorf, O., Li, B., & Ju, R.-T. (2023). Geographic variation of litter chemistry and palatability in an invasive plant versus its native competitor. *Journal of Biogeography*, 50, 1139–1150.

Jiang, J. J., Zhao, Y. J., **Guo, Y.**, Gao, L., Richards, C. L., Siemann, E., ... & Ju, R. T. (2023). A Mega-Restoration Project Reverses Arthropod Diversity and Interactions Changed by the Saltmarsh Cordgrass Invasion. *Bulletin of the Ecological Society of America*, 104(1).

PROFESSIONAL SERVICE

2025–present **Secretary**, Invasion Ecology Section, Ecological Society of America

CONFERENCES & INVITED TALKS

2025	Guo, Y. Status of the invasion and management of <i>Spartina alterniflora</i> in the wetlands along the coast in China. Invited talk. University of South Florida, FL
2025	Guo, Y. Plant invasions in coastal wetlands: an integrative view across functional traits, species interactions, and biogeography. Invited talk. University of South Florida, FL
2025	Guo, Y. Herbivory increases towards lower latitudes in native but not introduced plants. Poster. ESA 2025 Annual Meeting, Baltimore, MD
2024	Guo, Y. Expansion trends of invasive <i>Phragmites australis</i> and its impact. Poster. The 2024 Meeting of the Gulf Estuarine Research Society (GERS), Fairhope, AL
2022	Guo, Y. Global heterogeneity of biogeographic patterns in herbivory between native and exotic plants: a meta-analysis. Oral presentation. The Meeting of Students in Evolution and Ecology, Tübingen, Germany
	Guo, Y. Geographic variation of litter chemistry and palatability in an invasive plant versus its native competitor. Poster. 34 th Plant Population Biology Conference, Bozen-Bolzano, Italy
2020	Guo, Y. Latitudinal gradient of plant-arthropod interactions. Oral Presentation. 4th International Conference on Global Change and Biological Invasion, Zhenjiang, China
	Guo, Y. Restoration of native saltmarshes can reverse the changes in arthropod assemblages and trophic interactions resulting from <i>Spartina alterniflora</i> invasion. Oral presentation. Young Researchers Forum, Key Laboratory of Biodiversity Sciences and Ecological Engineering (Ministry of Education), Shanghai, China
2019	Guo, Y. Latitudinal variations in traits related to plant-detritivore interactions in Chinese coastal wetlands: a comparison of invasive versus native plants. Oral presentation. 1 st Biogeography Conference of China, Peking University, Beijing, China

MENTORSHIP

2022–2023	Jenny Trapp , B.Sc. Biology, University of Tübingen, Undergraduate research <u>Thesis:</u> Latitudinal gradients in induced and constitutive chemical defenses of invasive knotweed.
2022	Robin Binder , B.Sc. Biology, University of Tübingen, Undergraduate research, Honors thesis <u>Thesis:</u> Latitudinal variations in leaf palatability and traits related to defenses of European invasive knotweed.
2021–2022	Chengjie Yao , B.Sc. Ecology, Fudan University, Undergraduate research, Honors thesis

Thesis: Biogeographic patterns in growth traits and ecological strategies of invasive *Spartina alterniflora* and native *Phragmites australis*.

2020–2021

Jie Zhao, M.Sc. Ecology, Fudan University, Graduate research

Thesis: Preference and performance of *Acanthotomicus suncei* between the exotic plant *Liquidambar styraciflua* and the native plant *L. formosana* and their underlying causation.

TEACHING EXPERIENCE

2021–2023

Co-Instructor, Fudan University

Course: Data Statistics & Quantitative Ecology (Graduate)

2021

Teaching Assistant, Fudan University

Course: Current Biology Experiment (Undergraduate)

2017–2019

Teaching Assistant, Fudan University

Course: Ecosystem Ecology (Graduate) & Soil Ecology (Undergraduate)

AWARDS

2018–2019

Academy Scholarship, School of Life Sciences, Fudan University

2017–2022

Academic Excellence Scholarship, Fudan University

2015, 2016

University Excellence Scholarship, Shanxi University

RELEVANT SKILLS

Quantitative & Analytical

Proficient in statistical analysis and mathematical modeling in R
Bayesian and frequentist statistical frameworks
Geospatial analysis
Hierarchical modeling
Non-linear modeling
Species distribution modeling
Metabolomics analysis

Programming & Tools

LaTeX, R, Stan, Git, ArcGIS, Python