Wentao Song

PhD Candidate
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I am a final-year PhD candidate at Mississippi State University, majoring in Natural Resources, with an anticipated graduation date of December 2024. With 13 years of training as a wildlife ecologist, my educational background includes comprehensive training in biology and ecology for wildlife management. My master's research focused on how global changes affect the behavioral responses and population dynamics of small mammals. My doctoral research centers on using statistical models and machine learning to analyze the spatiotemporal dynamics of North American breeding bird populations. I have participated in various projects involving birds, rodents, deer, and primates. My interest lies in using statistical models and machine learning methods to analyze, model, and predict population dynamics, thereby contributing to wildlife management and conservation.

EDUCATION

Mississippi State University Mississippi, US
PhD. Natural Resources, Wildlife, Fishery and aquaculture concentration 2019 - 2024
Supervisor: Dr. Guiming Wang

Capital Normal University Beijing, China
MSc. Zoology 2015 - 2018
Supervisor: Dr. Zihui Zhang

Institute of Zoology, Chinese Academy of Sciences Beijing, China
Joint Master Program. Population ecology of small mammals 2015 - 2018
Supervisor: Dr. Xinrong Wan

China Agricultural University Beijing, China
BSc(Agr). Aquaculture 2011 - 2015

EMPLOYMENT EXPERIENCE

Mississippi State University Mississippi, US
Teaching assistant 2019.08-2024.12
Assisted instructors in preparing lectures and labs for undergraduate students.

Northwestern University Xi'an, China
Research assistant in Golden Snub-nosed monkey project 2018.09-2019.05
Assisted the lab PI and postdoctoral researchers in coordinating government staff, stakeholders, and workers, as well as in data collection (tracking monkeys, monitoring behaviors, and 3D-reconstructing habitats), data analysis, and manuscript writing.

SKILLS

QUANTITATIVE SKILLS

- Time series analysis
- Spatial modeling
- Bayesian hierarchical modeling
- Structured decision making
- Coding with R, Python, Julia, and SAS
- Bayesian analysis with PyMC3, WinBUGS, JAGS, and Stan

TEACHING

- High school teaching certification (biology and physics) in China

Ecology, Population Ecology, and Community Ecology
Ornithology and Mammalogy
Ecological Modeling

FIELDWORK & LABWORK

Small mammal trapping
Primate movement tracking
Deer spotlight survey and distance sampling
Bird banding
Polymerase Chain Reaction and Electrophoresis

LANGUAGES

Advanced speaker of Mandarin and English
Intermediate speaker of Japanese and French

COURSES ASSISTED

Applied Aquatic and Terrestrial Ecology (WFA3133, Dr. Sandra Correa). Fall 2023.
Mammalogy (WFA 4433, Dr. Christopher Ayers). Fall 2022.
Ornithology (WFA 4443, Dr. Christopher Ayers). Spring 2021.
Wildlife and Fishery Practice (WFA4473, Dr. John Davis). Spring 2020.

INVITED LECTURES

Responses of bird populations to climatic changes. Applied Ecology. MSU, Fall 2023.
Series Lectures of Conservation Biology:
(1)The IUCN red list of threatened species: How it's being used.
(2)Habitat destruction: Death by a thousand cuts.
(3)Reintroduction and rewilding as conservation strategies.
(4)Climate change: Implications for biodiversity.
Current Topics in Conservation Biology. MSU, Fall 2021.
Clustering Methods. Quantitative and Statistical Ecology. MSU, Spring 2021.
Plotting with Matplotlib. Python Club. MSU, Fall 2020.

CONFERENCE PRESENTATIONS

Variations in the responses of North American breeding bird populations to climatic changes. The Wildlife Society's 30th Annual Conference, Louisville, KY, 2023.
Variations in the responses of North American breeding bird populations to climatic changes. The Wildlife Society Mississippi Chapter Annual Meeting, Jackson, MS, 2023.
Population dynamic patterns of North American breeding birds under global changes. The Wildlife Society's 29th Annual Conference, Spokane, WA, 2022.
Machine Learning for Identifying Population Dynamic Patterns of North American Breeding Birds. The Wildlife Society Mississippi Chapter Annual Meeting (online), 2022.

Publications

Song, W., Kouba A.J., Burger L.M., et al. Interactions of life history traits, density dependence and responses to climate changes on long-term dynamic patterns of North American breeding bird populations. (In prep for Global Change Biology)
Yang, H. T., Li, S., Hou, R., **Song, W. T.**, Fu, Y. W., Li, Y. B., ... & Li, B. G. (2023). Three-dimensional assessment of movement patterns of Sichuan snub-nosed monkeys affected by habitat structure in temperate forests. Zoological Research, 44(2), 361.
Song, W., Wang, Y., Zhang, X., Zhang, W., . . . & Wan, X. (2017). Influence of Group Size and Foraging Distance on Vigilance Frequency of Brandt's Vole (*Lasiopodomys brandtii*) in Food Storing Period. Chinese Journal of Zoology, 52(5): 754-760.
Song, W., Wang, Y., Sai, N., . . . & Zhang, Z. (2016). Numerical Response of Hawks Density to the Rodents Density in Typical Steppe. Chinese Journal of Zoology, 51(4): 529-535.

REFEREES

Dr. Guiming Wang (PhD supervisor)
Professor, Department of Wildlife, Fisheries and Aquaculture, Mississippi State University
guiming.wang@msstate.edu
Dr. Xinrong Wan (Master supervisor)
Associate Professor, Institute of Zoology, Chinese Academy of Sciences
wanxr@ioz.ac.cn
Dr. Ryo Ogawa (lab colleague)
Postdoc, Chair of Computational Landscape Ecology, Technische Universität Dresden, Germany
ryo.ogawa@tu-dresden.de