


Dr. JING JIAO

Postdoctoral Research Associate

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EDUCATION

Ph.D. University of Florida, Gainesville, FL Major: Zoology Minor: Statistics	2011-2017
M.S. East China Normal University, Shanghai, China Major: Ecology	2008-2011
B.S. East China Normal University, Shanghai, China Major: Statistics	2004-2008

ACADEMIC POSITIONS

1. Assistant Professor, Department of Biology, Texas Christian University, Fort Worth, TX, 8/2023~
2. Postdoctoral Research Associate, Department of Biological Science, Florida State University 10/2020~8/2023
3. Lecturer, Department of Ecology and Evolutionary Biology, University of Tennessee, Knoxville, 1/2023~5/2023
4. NIMBioS Postdoctoral Research Associate, University of Tennessee, Knoxville, 9/2018-10/2020
5. Research Associate, Quantitative Fisheries Center, Michigan State University, 9/2017-9/2018

RESEARCH INTERESTS AND SKILLS

- Applying mathematical models and statistical tools to understand how movement ecology impacts environmental conservation, and the epidemiological and evolutionary dynamics of populations.
- Proficient in R language, Stan and Matlab.

GRANT PREPARATION AND EXPERIENCE

1. **Collaborative Research: Understanding disease spreading and marine conservation in Marine Protected Areas:** PIs: Jing Jiao, Michael H. Cortez (FSU) and Nina H. Fefferman (UTK). Submitted to National Science Foundation, Mathematical Biology in Fall 2022.
2. **RAPID: Estimating the Impact of Behavioral and Etiological Confounders in Real-time Surveillance for Outbreaks of Novel Pathogens:** participated in the preparation of this funding application. 3/5/2020-10/2020

PUBLICATIONS (mentored undergraduate/graduate students are underlined)

1. **Jiao, J** and MH. Cortez (2022). Exploring how a generalist pathogen and within-host priority effects alter the risk of being infected by a specialist pathogen. *The American Naturalist*, 200(6).

2. Grandison, B., H. Yin, A. Kilgore, J. Jiao and N. Fefferman (2022). A model to study host evolutionary rescue under the framework of evolutionary game theory. In press. *Letters in Biomathematics*.
3. Nguyen, D., T. Wakhare, J. Jiao, K. Myers, O. Udiani, and N. Fefferman (2022). Seasonality in multi-host disease systems. *Ecological Modelling*, 470:109973.
4. **Jiao, J.**, G. Suarez, N Fefferman (2021). How public reaction to disease information across scales and the impacts of vector control methods influence disease prevalence and control efficacy. *PLOS Computational Biology*, 17(6): e1008762.
5. **Jiao, J.**, N. Fefferman (2021) The dynamics of evolutionary rescue from a novel pathogen threat in a host metapopulation, *Scientific Reports*, 11(1): 1-13.
6. Tong, X, SG Compton, **J Jiao**, Y Chen Y, YY Ding, R Wang, XY Chen (2021). Dual effects of insect fecundity overdispersion on the Wolbachia establishment and the implications for epidemic biocontrol. *Journal of Pest Science*: 1-11.
7. **Jiao, J.**, L. Riotte-Lambert, SS. Pilyugin, MA. Gil and CW. Osenberg (2020) Mobility and its sensitivity to fitness differences determine consumer-resource distributions. *Royal Society Open Science*: 200247.
8. **Jiao, J.**, M. Gilchrist, N. Fefferman (2020). The Impact of Host Metapopulation structure on short-term evolutionary rescue in the face of a novel pathogenic threat. *Global Ecology and Conservation*: e01174.
9. Marino Jr, J.A., SD. Peacor, DB. Bunnell, HA. Vanderploeg, SA. Pothoven, AK. Elgin, JR. Bence, **J. Jiao** and EL. Ionides (2019). Evaluating consumptive and nonconsumptive predator effects on prey density using field time-series data. *Ecology*, 100(3): e02583.
10. **Jiao, J.**, SS. Pilyugin, L. Riotte-Lambert and CW. Osenberg (2018). Habitat-dependent movement rate can determine the efficacy of marine protected areas. *Ecology*, 99(11): 2485-2495.
11. **Jiao, J.**, SS. Pilyugin and CW. Osenberg (2016). Random movement of predators can eliminate trophic cascades in marine protected areas. *Ecosphere*, 7(8): e01421.
12. Gil, MA., **J. Jiao** and CW. Osenberg (2015). Enrichment scale determines herbivore control of primary producers. *Oecologia*, 180:833-840.
13. Wang, XY., DW Shen, **J. Jiao**, NN. Xu, S. Yu, XF. Zhou, MM. Shi and XY. Chen (2012). Genotypic diversity enhances invasive ability of *Spartina alterniflora*. *Molecular Ecology*, 21:2542-2551.
14. Chen, XY, **J Jiao** and X. Tong (2011). A generalized model of island biogeography. *Science China: Life Science*, 54: 1055-1061.
15. Li, JH, **J. Jiao**, K. Jiang and YY. Li (2011). Development and characterization of microsatellites in *Torreya JackII* (Taxaceae), an endangered species in China. *American Journal of Botany*, 98:e349-e351.
16. **Jiao, J.**, JJ. Guan and YH. Xie (2010). Conference Review: The 2nd Chinese R Conference. *The R Journal*, 2: 60-61.
17. Yang, SZ, Y. Ma, P. Jiang, **J. Jiao**, YF Zhu, MS Zhao and XY Chen (2009). Soil physical and chemical properties along altitudes of Western Tianmushan. *Journal of East China Normal University*, 6:101-107.

MANUSCRIPTS IN PREPARATION

18. **Jiao, J.**, O. Udiani, N. Fefferman. The evolution of division of labor in a changing world.

19. **Jiao, J**, MH. Cortez. Exploring how generalist pathogens and priority effects influence disease risk.
20. **Jiao, J**. A Bayesian hierarchical model to detect the existence of disease coinfection.

TEACHING AND MENTORING EXPERIENCES

1. **Class designer**, University of Tennessee, TN: I participated in the design and test of a teaching activity about honeycreeper conservation for young children and pre-K students. 10/2020~present
2. **Sole Instructor of Record**, University of Tennessee, Knoxville, TN: I designed and lectured one 3-credit undergraduate class—Evolution, Disease and Medicine. 2/2019-7/2019
3. **Co-Mentor**, NIMBioS Summer Research Experiences (SRE) program: I co-guided three undergraduate students in developing project hypothesis and provided methodological support. One related manuscript is under active preparation. 6/4/2019-7/26/2019
4. **Teaching Assistant**, University of Florida, Gainesville, FL: I designed, organized and lectured one general biology lab (> 300 undergraduate students across multiple disciplines). 8/2012-12/2016

OUTREACH ACTIVITIES

1. **Consulting facilitator**, The Mathematical Modeling Consulting Center: I worked as a facilitator for a NIMBioS seminar series entitled “A Tasting Menu of Mathematical Models”. 10/2018
2. **Statistic Consultant**, The Mathematical Modeling Consulting Center: I provide help with, and advice on, statistical analyses to students and faculty at the University of Tennessee 2/2020~

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AWARDS AND GRANTED SCHOLARSHIP

1. Charles Vincent and Heidi Cole McLaughlin Endowment Dissertation Fellowships, Department of Biology, University of Florida 1/15/2017-5/25/2017
2. QSE3 IGERT¹ interdisciplinary research funding, Department of Mathematics, University of Florida 10/1/2015-5/31/2016
3. QSE3 IGERT¹ interdisciplinary research funding, Department of Biology, University of Florida 8/1/2011-5/31/2012
4. Outstanding Achievement Certificate, University of Florida International Center (UFIC), University of Florida 12/10/2012

PRESENTATIONS

¹ **QSE3 IGERT** (DGE-0801544) is Quantitative Spatial Ecology, Evolution, and Environment Integrative Graduate Education Research Traineeship NSF (QSE3 IGERT/NSF).

Invited talks:

1. **Jiao, J.** and MH. Cortez. *How within-host priority effects influence disease prevalence in a multiple-host-multiple-pathogen system.* Seminar Talk at Virginia Commonwealth University. 4/2022
2. **Jiao, J.**, M. Gilchrist and N. Fefferman. *The impact of host metapopulation structure on short-term evolutionary rescue in the face of a novel pathogenic threat.* AMS Southeastern Sectional Meeting, Charlottesville, VA (canceled due to COVID-19)
3. **Jiao, J.** and N. Fefferman. *A transient disease cycles in host-pathogen interactions when host migrate among patches.* Biology Seminar in Florida State University, Tallahassee, FL (canceled due to COVID-19)
4. **Jiao, J.** and N. Fefferman. *A disease cycle pattern in a spatial-structured host population.* Dr. Joshua Weitz's lab Seminar in Georgia Tech, Atlanta, Georgia 2/2020
5. **Jiao, J.** and N. Fefferman. *Host metapopulation, disease epidemiology and host evolution.* Georgia Tech Biomath Seminar, Atlanta, Georgia 10/2018

Contributed Presentations:

6. **Jiao, J.**, MH. Cortez. *How within-host priority effects between specialist and generalist pathogens affect disease risk.* **Symposium on Biomathematics and Ecology Education and Research**, virtual meeting 11/2021
7. **Jiao, J.**, MH. Cortez. *Exploring how generalist pathogens and priority effects alter the risk of being infected by specialist pathogens.* **Annual Meeting of Ecology Society of America**, virtual meeting 8/2021
8. **Jiao, J.**, M. Gilchrist, N. Fefferman. *The Impact of Host Metapopulation structure on short-term evolutionary rescue in the face of a novel pathogenic threat.* **Annual Meeting of Ecology Society of America, virtual meeting**, virtual meeting 8/2020
9. **Jiao, J.**, M. Gilchrist, N. Fefferman. *The influences of host evolution on host-pathogen interactions across space.* **Annual Meeting and Conference of the Society for Mathematical Biology**, Montreal, CA 7/2019
10. **Jiao, J.**, SD. Peacor, JA Marino, Jr., J. Bence, DB. Bunnell, HA. Vanderploeg, SA. Pothoven, AK. Elgin and EL. Ionides. *Temperature influences the consumptive and non-consumptive effects of predators on zooplankton production in the Great Lakes.* **Annual Meeting of the Ecological Society of America**, New Orleans, Louisiana 8/2018
11. **Jiao, J.**, L. Riotte-Lambert, SS. Pilyugin, MA. Gil and CW. Osenberg. *Mobility determines consumer resource interactions across space and time.* **Annual Meeting of the Ecological Society of America**, Fort Lauderdale, Florida 8/2016
12. **Jiao, J.**, L. Riotte-Lambert, SS. Pilyugin, MA. Gil and CW. Osenberg. *Mobility determines consumer resource interactions across space and time.* **Gordon Research Conference "Unifying Ecology Across Scales"**, Biddeford, Maine 7/2016
13. **Jiao, J.**, SS. Pilyugin, and CW. Osenberg. *Movement reverses trophic cascades in marine reserves.* **North Florida Marine Science Symposium**, St. Augustine, Jacksonville, Florida 1/2014
14. **Jiao, J.**, SS. Pilyugin, and CW. Osenberg. *Movement reverses trophic cascades in marine reserves.* **Gordon Research Conference "Predator-Prey Interactions"**, Ventura, California 1/2014
15. **Jiao, J.**, J. Langebrake, L. Riotte-Lambert and CW. Osenberg *Differential movement of harvested organisms affects predicted responses to Marine Protected Areas.* **42th benthic conference**, Savanna, Georgia. 3/2013