

LISA I COUPER

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EDUCATION

Biology, Stanford University	2018 - 2023, Ph.D.
Biology, San Francisco State University	2016 - 2018, M.S.
Environmental Science, University of North Carolina	2010 - 2014, B.S.

PROFESSIONAL APPOINTMENTS

UC Berkeley Environmental Health Sciences NSF PRFB. Ecology, evolution, and epidemiology of emerging fungal diseases	2024 - present
UC Berkeley Environmental Health Sciences Postdoctoral Fellow. Ecology, evolution, and epidemiology of emerging fungal diseases	2023 - 2024
Stanford University Biology Graduate Student Researcher. Vector-borne disease dynamics under global change	2018 - 2023
SFSU Biology Graduate Research Assistant. Molecular ecology of Lyme disease	2016 - 2018
WestEd Science & Engineering Research Assistant. Tangible molecular models for high school biology learning	2014 - 2016
UNC Environmental Science Research Assistant. Biochemical ecology of coastal phytoplankton	2012 - 2014

GRANTS & FELLOWSHIPS

National Science Foundation Postdoctoral Research Fellow in Biology (\$240,000)	2024 - 2027
Predocctoral Fellow, Center for Computational, Evolutionary and Human Genomics, Stanford University (\$17,000)	2022 - 2023
Philippe Cohen Graduate Fellowship (2 year stipend and tuition)	2021 - 2023
Stanford Graduate Fellowship (3 year stipend and tuition)	2018 - 2021
Pacific Southwest Center of Excellence in Vector-Borne Diseases Training Grant (\$25,000)	2021
A.W. Mellon Foundation grant (\$14,000)	2018, 2020
Lewis and Clark Field Fund for Exploration and Research (\$3,300)	2021

PUBLICATIONS

Peer-Reviewed Publications

- Couper LI**, Dodge TO, Jemker JA, Kim BY, Exposito-Alonso M, Brem RA, Mordecai EA, Bitter MC. Evolutionary adaptation under climate change: *Aedes* sp. demonstrates potential to adapt to warming *PNAS*. 2025.
- Couper LI**, Uwera Nalukwago D Lyberger KP, Farner JE, Mordecai EA. How much warming can mosquito vectors tolerate? *Global Change Biology*. 2024.
- Lyberger KP, Farner JE, **Couper LI**, Mordecai EA. A mosquito parasite is locally adapted to its host but not temperature. *The American Naturalist*. 2024.

17. Kirk D, Straus S, Childs LM, Harris M, **Couper LI**, Davies JT, Forbes C, Gehman AL, Groner ML, Harley C, Lafferty KD, Savage V, Skinner E, O'Connor M, Mordecai EA. Temperature impacts on dengue incidence are nonlinear and mediated by climatic and socioeconomic factors: A meta-analysis. *PLoS Climate*. 2024.
16. Ismail S, Farner JE, **Couper LI**, Mordecai EA, Lyberger KL. Temperature and intraspecific variation affect host-parasite interactions. *Oecologia*. 2023.
15. **Couper LI**, Farner JE, Lyberger KP, Lee AS, Mordecai EA, Lyberger KL. Mosquito thermal tolerance is remarkably constrained across a large climatic range. *Proceedings of the Royal Society B*. 2024.
14. Lyberger KP, Farner JE, **Couper LI**, Mordecai EA. Plasticity in mosquito size and thermal tolerance across a latitudinal climate gradient. *Journal of Animal Ecology*. 2024.
13. **Couper LI** and Mordecai EA. Ecological drivers of dog heartworm transmission in California. *Parasites and Vectors*. 2022.
12. Ring KC, **Couper LI**, Sapiro AL, Yarza F, Yang XF, Clay K, Mateusiak C, Chou S, Swei A. Host blood meal identity modifies vector gene expression and competency. *Molecular Ecology*. 2022.
11. **Couper LI**, Farner JE, Caldwell JM, Childs ML, Harris MJ, Kirk DG, Nova N, Shocket M, Skinner EB, Uricchio LH, Exposito-Alonso M, and Mordecai EA. How will mosquitoes adapt to climate warming? *eLife*. 2021
10. **Couper LI**, NJ Sanders, NE Heller, and DM Gordon. Multiyear drought exacerbates long-term effects of climate on an invasive ant species. *Ecology*. 2021.
9. **Couper LI**, MacDonald AJ, Mordecai EA. Impact of prior and projected climate change on US Lyme Disease incidence. *Global Change Biology*. 2021.
8. Childs ML*, Kain MP*, Kirk D*, Harris M, **Couper LI**, Nova N, Delwel I, Ritchie J, Mordecai EA. The impact of long-term non-pharmaceutical interventions on COVID-19 epidemic dynamics and control: the value and limitations of early models. *Proceedings of the Royal Society B*. 2021
7. Athni TS, Shocket MS, **Couper LI**, Nova N, Caldwell IR, Caldwell JM, Childress JN, Childs ML, De Leo GA, Kirk D, MacDonald AJ, Olivarius K, Pickel DG, Winokur OC, Young HS, Cheng J, Grant EA, Kurzner PM, Kyaw S, Lin BJ, López RC, Massihpour DS, Olsen EC, Roache M, Ruiz A, Schultz EA, Shafat M, Spencer RL, Bharti N, Mordecai EA How vector-borne disease shaped the course of human history. *Ecology Letters*. 2021.
6. **Couper LI**, Yang Y, Yang XF, Swei A. Comparative vector competence of North American Lyme disease vectors. *Parasites and Vectors*. 2020.
5. Swei A, **Couper LI**, Coffey LL, Kapan D, Bennett S. Patterns, drivers, and challenges of vector-borne zoonotic disease emergence. *Vector Borne Zoonotic Diseases*. 2020.
4. Swei A, O'Connor KE, **Couper LI**, Thekkiniath J, Conrad PA, Padgett KA, Burns J, Yoshimizu MH, GonzalesB, Munk B, Shirkey N, Konde L, Mamoun CB, Lane LS, Kjemtrup A. 2018. Evidence for transmission of the zoonotic apicomplexan parasite *Babesia duncani* by the tick *Dermacentor albipictus*. *International Journal of Parasitology*. 2019.
3. **Couper LI**, Kwan JY, Ma J, Swei A. Drivers and patterns of microbial community assembly in a Lyme disease vector. *Ecology and Evolution*. 2019.
2. Chicana B, **Couper LI**, Kwan JY, Tahiraj E, Swei A. Microbiome profiles of sympatric tick species in the western United States. *Insects*. 2019.
1. **Couper LI** and Swei A. Tick microbiome characterization by next-generation 16S rRNA amplicon sequencing. *Journal of Visual Experiments*. 2018.

Couper LI, Dodge TO, Hemker JA, Kim BY, Exposito-Alonso M, Brem RB, Mordecai EA, Bitter MC. Evolutionary adaptation under climate change: *Aedes* sp. demonstrates potential to adapt to warming. *Under Review*. Available now at bioRxiv: doi.org/10.1101/2024.08.23.609454.

Couper LI, Nalukwago DU, Lyberger KP, Farner JE, Mordecai EA. How much warming can mosquito vectors tolerate? *Under Review*. Available now at bioRxiv: doi.org/10.1101/2024.01.03.574109.

Head JR, Campo SK, Weaver AK, Montoya L, Lee E, Radosevich M, **Couper LI**, Jones I, Wagner R, Bhattahchan A, Campbell G, Keeney N, Collender PA, Heaney AK, Colvin KA, Larios L, Bean WT, Taylor J, Remais JV. Small mammals and their burrows shape the distribution of *Coccidioides* in soils: a long-term ecological experiment. *Under Review*.

Radosevich M, Head JR, **Couper LI**, Weaver AK, Campo SK, Montoya L, Taylor J, Remais JV. Characterizing the soil microbial community associated with the fungal pathogen *Coccidioides immitis*. *Submitted*. Available now at bioRxiv: <https://www.biorxiv.org/content/10.1101/2024.09.27.615053v1>.

Radosevich M, Dobson S, Weaver AK, Lampman P, Wallace T, **Couper LI**, Taylor J, Remais JV, Kobziar L, Markwiese J, Head JR. Detection of airborne *Coccidioides* spores in eastern San Luis Obispo County, California, using unmanned aircraft systems. *Submitted*.

Couper LI, González DJX, Camponuri SK, Weaver AK, Cooksey GS, Vugia D, Kimura AC, Jain S, Taylor J, Balmes J, Eisen EA, Remais JV, Head JR. Oil and gas well development and coccidioidomycosis risk in California: A case-crossover study. *In clearance at CDPH*.

Book Chapters

Kirk DG, Skinner EB, Shocket MS, **Couper LI**, Nova N, Athni TS, Pourtois JD, Farner JE, Childs ML, Nyathi S, Mordecai EA. Climate Change and Disease Ecology. In: Suzán G, Aguirre AA, Mills JM, editors. *The Ecology of Infectious Diseases: Methods on Evolution, Biodiversity, and Environmental Interactions*. *Oxford University Press*. In press.

Shocket MS, Anderson CB, Caldwell JM, Childs ML, **Couper LI**, Han S, Harris MJ, Howard ME, Kain MP, MacDonald AJ, Nova N, Mordecai EA. 2020. Environmental Drivers of Vector-Borne Diseases. In: Drake JM, editor. *Ecology and Evolution of Infectious Diseases: Population Biology of Vector-borne Diseases*. *Oxford University Press*.

Conference paper

Johannes K, Powers J, **Couper LI**, Silbergliitt M, Davenport JL. 2016. Tangible Models and Haptic Representations Aid Learning of Molecular Biology Concepts. *Proceedings of the 38th Annual Meeting of the Cognitive Science Society*, 372-377

SELECT CONFERENCE PRESENTATIONS

Potential for adaptation in mosquito heat tolerance. *Gordon Research Conference 2024*.

Evidence of thermal adaptation in a widely distributed mosquito species. *Ecological Society of America Meeting 2023*.

Variation in thermal tolerance in the western tree hole mosquito, *Aedes sierrensis*. *PacVec Center of Excellence Meeting 2022*.

Climate warming likely to increase Lyme disease in the Northeastern US. *American Geophysical Union Meeting 2019*. (poster)

Tick microbiome affects competence for Lyme disease bacteria. *Ecological Society of America Meeting 2018*. (poster)

AWARDS & HONORS

Society of Integrative and Comparative Biology Student Research Award	2022
Excellence in Teaching Award, Department of Biology, Stanford	2019
Graduate award for distinguished achievement, Department of Biology, SFSU	2018
Highest Honors with Distinction, Department of Environmental Science, UNC	2014
Buckley Public Service Scholar, UNC	2014
Betsy Steele and Geo Watts Carr Award. Department of Environmental Science, UNC	2014

TEACHING & GUEST LECTURES

Climate change and vector-borne disease 5 Guest lectures across 2 courses	UC Berkeley 2023 - 2024
Statistical Programming for Biology Lead instructor and course developer	Foothill Community College 2022
Thermal biology of mosquito-borne disease Guest lecture, Biology department	Santa Clara University 2021
Introduction to Ecology Graduate Teaching Assistant	Stanford University 2019
Introduction to Problem-Solving in Biology Graduate Teaching Assistant	Stanford University 2018
Introduction to R Programming Lead instructor and course developer	San Francisco State University 2017 - 2018
Infectious Disease Ecology Graduate Teaching Assistant	San Francisco State University 2017
Introduction to Ecology Graduate Teaching Assistant	San Francisco State University 2016

MENTORING

Research Supervisor (3 Masters students, 1 undergraduate), UC Berkeley	2023 - 2024
Tutor (1 high school student), East Palo Alto Tennis and Tutoring	2021-2022
Research mentor (3 undergraduates), Biology Undergraduate Research Program, Stanford	2019-2022
Research mentor (2 high school students), Future Advancers of Science and Technology, Stanford	2020

PROFESSIONAL ACTIVITIES & SERVICE

Planning committee, Ecology and Evolution of Infectious Disease Conference	2024
Article writing chair. Scientists Speak Up, Stanford	2018-2021
Co-Organizer, Bay Area Ecology and Evolution of Infectious Disease Conference	2019
Chair, Biology Department Seminar Speaker Selection Committee, Stanford	2019
Peer reviewer for: PNAS, PLoS NTD, Global Change Biology, Journal of Thermal Biology, BMC Genomics, BMC Microbiology, Parasites & Vectors, Ticks & Tick-borne diseases, PeerJ Life & Environment, Vector-borne & Zoonotic Diseases	

REFERENCES

Justin Remais

Postdoctoral Fellowship Supervisor

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Erin Mordecai

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