

# EVAN C. FRICKE

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## EDUCATION

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- 2011 – 2015 Ph.D., Department of Biology, University of Washington  
Thesis: *Benefits of seed dispersal for plant populations and species diversity*  
Advisor: Joshua Tewksbury
- 2007 – 2011 A.B. in Biology with Spanish minor, *magna cum laude*, Bowdoin College  
Advisors: Nathaniel Wheelwright and Damon Gannon  
School for Field Studies, Spring 2010, Kenya and Tanzania

## PROFESSIONAL APPOINTMENTS

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- 2022 – Research Scientist, Department of Civil and Environmental Engineering,  
Massachusetts Institute of Technology
- 2022 – Visiting Assistant Research Scientist, Department of Biology, University of Maryland
- 2020 – 2021 Faculty Fellow in Ecology and Evolutionary Biology, Department of BioSciences,  
Rice University
- 2018 – 2020 Postdoctoral Fellow, National Socio-Environmental Synthesis Center. Collaborating  
mentor: Jens-Christian Svenning (Aarhus University)
- 2015 – 2018 Postdoctoral Researcher, Department of Ecology, Evolution, and Organismal  
Biology, Iowa State University & Department of BioSciences, Rice University.  
Advisor: Haldre Rogers

## PUBLICATIONS

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29. Evan Fricke, Chia Hsieh, Owen Middleton, Daniel Gorczynski, Caroline Cappello, Oscar Sanisidro, John Rowan, Jens-Christian Svenning, Lydia Beaudrot. Collapse of terrestrial mammal food webs since the Late Pleistocene (2022). **Science**. *In press*.
28. Isabel Donoso, Evan Fricke, Sandra Hervías-Parejo, Haldre Rogers, Anna Traveset. Drivers of ecological and evolutionary disruption in the seed dispersal process: research trends and biases (2022). **Frontiers in Ecology and Evolution**. 10, 794481.
27. Evan Fricke, Alejandro Ordonez, Haldre Rogers, Jens-Christian Svenning. The effects of defaunation on plants' capacity to track climate change (2022). **Science**. 375, 210-214.
26. Haldre Rogers, Isabel Donoso, Anna Traveset, Evan Fricke. Cascading impacts of seed disperser loss on plant communities and ecosystems (2021). **Annual Review of Ecology, Evolution, and Systematics**. 52, 641-666.
25. James Knighton, Evan Fricke, Jaivime Evaristo, Hugo Van de Boer, Martin Wassen (2021). The phylogenetic underpinnings of groundwater use by trees. **Geophysical Research Letters**. 48, e2021GL093858.

24. Martin Kastner, Henry Pollock, Julie Savidge, Evan Fricke, Haldre Rogers (2021) Functional robustness of seed dispersal by a remnant frugivore population on a defaunated tropical island. **Biotropica**. 53, 359-366.
23. Evan Fricke, Jens-Christian Svenning (2020) Accelerating homogenization of the global plant-frugivore meta-network. **Nature**. 585, 74-78.
22. Ethan Linck\*, Evan Fricke, Haldre Rogers (2020) Varied abundance and functional diversity across the bird communities of the Mariana Islands. **The Wilson Journal of Ornithology**. 132, 22-28. \**Graduate student mentee*.
21. Henry Pollock, Evan Fricke, Evan Rehm, Martin Kastner, Nicole Suckow, Julie Savidge, Haldre Rogers (2020) Sâli (Micronesian starling – *Aplonis opaca*) as a key seed dispersal agent across a tropical archipelago. **Journal of Tropical Ecology**. 32, 56-64.
20. Noelle Beckman, Clare Aslan, Haldre Rogers, Oleg Kogan, Judith Bronstein, James Bullock, Florian Hartig, Janneke HilleRisLambers, Ying Zhou, Damaris Zurell, Jedediah Brodie, Emilio Bruna, Stephen Cantrell, Robin Decker, Edu Effiom, Evan Fricke, and 17 other authors (2020) Advancing an interdisciplinary framework to study seed dispersal ecology. **AoB Plants**. 11, plz048.
19. Evan Fricke, Joshua Tewksbury, Haldre Rogers (2019) Linking intra-specific trait variation and plant function: seed size mediates performance trade-offs within species. **Oikos**. 128, 1716-1725.
18. Eugene Schupp, Rafal Zwolak, Landon Jones, Rebecca Snell, Noelle Beckman, Clare Aslan, Brittany Cavazos, Edu Effiom, Evan Fricke, Flavia Montaño-Centellas, John Poulsen, Onja Razafindratsima, Manette Sandor, Katriona Shea (2019) Intrinsic and extrinsic drivers of intraspecific variation in seed dispersal are diverse and pervasive. **AoB Plants**. 11, plz067.
17. Haldre Rogers, Evan Fricke (2019) Maternal microbes complicate coexistence for tropical trees. *Commentary in* **Proceedings of the National Academy of Sciences**. 117, 7166-7168.
16. Evan Fricke\*, John Bender\*, Evan Rehm, Haldre Rogers (2019) Functional outcomes of mutualistic network interactions: a community-scale study of frugivore gut passage on germination. **Journal of Ecology**. 107, 757-767. \**Shared lead authorship with graduate student mentee*.
15. Evan Rehm, Evan Fricke, John Bender, Julie Savidge, Haldre Rogers (2019) Animal movement drives variation in seed dispersal distance in a plant-animal network. **Proceedings of the Royal Society B**. 286, 20182007.
14. Rebecca Snell, Noelle Beckman, Evan Fricke, Bette Loiselle, Carolina Carvalho, Landon Jones, Nathanael Lichti, Nicky Lustenhouwer, Sebastian Schreiber, Christopher Strickland, Lauren Sullivan, and 12 other authors (2019) The consequences of intraspecific variation in seed dispersal for recruitment, populations and communities. **AoB Plants**. 11, plz016.
13. Clare Aslan, Noelle Beckman, Haldre Rogers, Judith Bronstein, Damaris Zurell, Florian Hartig, Katriona Shea, Liba Pejchar, Mike Neubert, John Poulsen, Janneke HilleRisLambers ... Evan Fricke, and 22 other authors (2019) Employing plant functional groups to advance seed dispersal ecology and conservation. **AoB Plants**. 11, plz006.

12. Phillip Dugger, Pedro Blendinger, Katrin Böning-Gaese, Lackson Chama, Marta Correia, D. Matthias Dehling, Carine Emer, Nina Farwig, Evan Fricke, Mauro Galetti, Daniel García, and 22 other authors (2019) Seed-dispersal networks are more specialized in the Neotropics than in the Afrotropics. **Global Ecology and Biogeography**. 28, 248-261.
11. Monika Egerer\*, Evan Fricke, Haldre Rogers (2018) Seed dispersal as an ecosystem service: Frugivore loss leads to decline of a socially valued plant, *Capsicum frutescens*. **Ecological Applications**, 28, 655-667. \*Graduate student mentee
10. Evan Fricke, Joshua Tewksbury, Haldre Rogers (2018) Defaunation leads to interactions deficits, not interaction compensation, in an island seed dispersal network. **Global Change Biology**, 24, e190-e200.
9. Sofia Gripenberg, Jadranka Rota, Jorma Kim, S. Joseph Wright, Nancy Garwood, Evan Fricke, J. P. Salminen (2018) Seed polyphenols in a diverse tropical plant community. **Journal of Ecology**, 106, 87-100.
8. Evan Fricke, Joshua Tewksbury, Elizabeth Wandrag, Haldre Rogers (2017) Mutualistic strategies minimize coextinction in plant-disperser networks. **Proceedings of the Royal Society B** 284, 20162302.
7. Evan Fricke, S. Joseph Wright (2017) Measuring the demographic impact of conspecific negative density dependence. **Oecologia** 184, 259-266.
6. Haldre Rogers, Eric Buhle, Janneke HilleRisLambers, Evan Fricke, Ross Miller, Joshua Tewksbury (2017) Effects of an invasive predator cascade to plants via mutualism disruption. **Nature Communications** 8, 14557.
5. Evan Fricke, S. Joseph Wright (2016) The mechanical defense advantage of small seeds. **Ecology Letters** 19, 987-991.
4. Evan Fricke, David Haak, Douglas Levey, Joshua Tewksbury (2016) Gut passage and secondary metabolites alter the source of predation for bird-dispersed chili seeds. **Oecologia** 181, 905-910.
3. Evan Fricke, Katherine Blizzard, Damon Gannon, Robert Mauck (2015) Model of burrow selection predicts pattern of burrow switching by Leach's Storm-Petrels. **Journal of Field Ornithology** 86, 326-336.
2. Evan Fricke, Joshua Tewksbury, Haldre Rogers (2014) Multiple natural enemies cause distance-dependent mortality at the seed-to-seedling transition. **Ecology Letters** 17, 539-598.
1. Evan Fricke, Melissa Simon, Karen Reagan, Douglas Levey, Jeffrey Riffell, Tomás Carlo, Joshua Tewksbury (2013) When condition trumps location: seed consumption by fruit-eating birds removes pathogens and predator attractants. **Ecology Letters** 17, 1031-1036.

## PROPOSALS, FUNDING, AND AWARDS

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- 2022 National Science Foundation Biodiversity on a Changing Planet (BoCP). Collaborative Research: BoCP-Implementation: Functional ecological networks: linking changing biodiversity to ecosystem functioning. PI: Evan Fricke. Co-PIs: Lydia Beaudrot (Rice U.),

- Sharlene Santana (U. Washington), Haldre Rogers (Iowa State U.), John Rowan (U. Albany), William Fagan (U. Maryland). \$2,468,035 (\$1,271,723 to EF). *Pending*.
- 2021 National Science Foundation Integrative Research in Biology (IntBIO). Collaborative Research: Multiplex network disassembly and reassembly along a defaunation gradient. PI: Evan Fricke. Co-PIs: Haldre Rogers (Iowa State U.), Tyler Kartzinel (Brown U.), Ross Miller (U. of Guam), Thomas Miller (Rice U.). \$2,052,126 (\$510,069 to Rice U.). *Not awarded*.
- 2018 – 2020 National Socio-Environmental Synthesis Center (SESYNC) Postdoctoral Fellowship, Immersion Program; \$170,000
- 2012 – 2015 National Science Foundation Graduate Research Fellowship; \$138,000
- 2011 – 2012 University of Washington Program on Climate Change Fellowship; \$32,000
- 2017 NSF REU Supplement; \$15,000
- 2014 Robert T. Paine Experimental Field Ecology Award; \$4960
- 2013 Organization for Tropical Studies Davidson-Cristoph Award
- 2012 University of Washington Biology Department Field Ecology Award; \$2750
- 2011 Macomber Prize (Outstanding Senior in Biology, Bowdoin College)
- 2010 NSF REU, Mountain Research Station, University of Colorado Boulder

## TEACHING

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- 2021 Instructor, Analysis and Visualization of Biological Data. BIOS 338/538. Rice University. Course on data science in biology for 25 undergraduate and graduate students.
- 2021 Co-Instructor, Core Course in Ecology and Evolution. BIOS 569. Rice University. Survey course for beginning PhD cohort.
- 2018 Co-Instructor, Tropical Ecology and Conservation in the Marianas. University of Guam. Field course with 15 undergraduate students and natural resource managers. Students designed, executed, and analyzed the results of independent field research projects.
- 2015 Co-Instructor, Tropical Ecology and Conservation in the Marianas. University of Guam. Field course with 15 undergraduate and graduate students.
- 2014 Teaching Assistant, Biology 180: Introductory Biology. University of Washington. 48 undergraduate students in two lab sections.
- 2014 Guest Lecturer, Environmental Science and Resource Management. University of Washington 150: Wildlife in the Modern World. 150 undergraduate students.
- 2012 Instructor, Intro to R. University of Washington. Short course for 15 graduate students.

## SELECTED PRESENTATIONS

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- 2022 Linking changing animal biodiversity, ecological networks, and ecosystem functioning with global trait-based models. *Invited seminar*. German Centre for Integrative Biodiversity Research (iDiv), Leipzig, Germany.

- 2020 Seed dispersal in the Anthropocene: process, pattern, and change. *Invited seminar*. Department of BioSciences, Rice University, Houston, TX.
- 2020 Observing and forecasting change in seed dispersal networks. *Invited seminar*. Appalachian Laboratory, University of Maryland Center for Environmental Science, Frostburg, MD.
- 2019 Assessing macroecological patterns in ecological networks. Ecological Society of America Meeting. Louisville, KY.
- 2019 Seeding the forest for the trees: seed dispersal networks and plant responses to global change. *Invited seminar*. University of Maryland, College Park, MD.
- 2018 Understanding the biotic and anthropogenic constraints on animal-mediated plant range shifts. *Invited seminar*. National Science Foundation, Arlington, VA.
- 2018 Consequences of defaunation and the mutualistic rewilding of Guam. *Invited seminar*. Aarhus University, Aarhus, Denmark.
- 2018 Coexistence in a forest where plants don't move. *Invited talk*. Ecological Society of America. New Orleans, LA.
- 2018 Plant enemies, mutualists, and the maintenance of forest diversity. *Invited seminar*. Smithsonian Tropical Research Institute. Ancón, Panama.
- 2017 Intraspecific trait variation and coexistence: seed size mediates trade-offs within species. *Invited talk*. Ecological Society of America. Portland, OR.
- 2017 Mutualistic networks in the Anthropocene. *Invited seminar*. University of Canberra, Institute of Applied Ecology, Canberra, ACT.
- 2017 Most resilient but hardest hit: Are large-seeded plant species most vulnerable to coextinction? Association of Tropical Biology and Conservation. Merida, Mexico.
- 2015 Mutualistic strategy tradeoffs determine seed dispersal network structure and increase robustness to coextinction. Frugivory and Seed Dispersal Meeting. South Africa.

## PROFESSIONAL SERVICE

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<i>Journal Peer-Reviewer:</i>	Ecography	Oikos
Acta Oecologia	Ecology	Nature Communications
Austral Ecology	Ecology Letters	New Phytologist
American Naturalist	Ecological Applications	Micronesica
American J. of Botany	Ecological Modelling	Microbial Ecology
Annals of Botany	Ecosphere	Pacific Science
Austral Ecology	Functional Ecology	Plant and Soil
Biotropica	Frontiers in Ecol. & Evol.	Plos One
Biological Conservation	Journal of Ecology	Proc. Roy. Soc. B
Biological Invasions	Journal of Animal Ecology	Restoration Ecology
Communications Biology	Landscape Ecology	

*Grant Reviewer:* National Science Foundation