

Tad Dallas

Assistant professor, U of South Carolina, Biological Sciences

Experience

- 2022– : **Assistant Professor**, *Dept of Biological Sciences*, University of South Carolina, Columbia, SC
- 2019–2021: **Assistant Professor**, *Dept of Biological Sciences*, Louisiana State University, Baton Rouge, LA
- 2018 **Visiting Researcher**, *Department of Mathematics*, International University of Rijeka
- 2015: **Analytics intern**, HP Vertica - Big Data Platform Dev Team. Boston, MA.

Education

Institution	Location	Degree or Position	Completion Date
Truman State University	Kirkville, MO.	Biology. B.Sc.	2009
Truman State University	Kirkville, MO.	Biology. M.Sc.	2010
University of Georgia	Athens, GA	Ecology Ph.D	2016
University of California	Davis	Postdoctoral Researcher	2018
University of Helsinki	Finland	Postdoctoral Researcher	2019

Publications

1. Tad Dallas, Bret Elder. **2023**. Mean-variance scaling and stability in commercial sex work networks. *Social Network Analysis and Mining*
2. CA Cleveland, T Dallas, S Vigil, DG Mead, JL Corn, AW Park. **2023**. Vector communities under global change may exacerbate and redistribute infectious disease risk. *Parasitology Research*
3. T Dallas, C Carlson, P Stephens, SJ Ryan, D Onstad. **2022**. insectDisease: programmatic access to the Ecological Database of the World's Insect Pathogens. *Ecography*
4. T Dallas, D Kramer. **2022**. A latitudinal signal in the relationship between species geographic range size and climatic niche area. *Ecography*
5. G Foster, BD Elder, RL Richards, T Dallas. **2022**. Estimating R0 from early exponential growth: Parallels between 1918 influenza and 2020 SARS-CoV-2 pandemics. *PNAS Nexus*
6. T Dallas, G Foster, RL Richards, BD Elder. **2022**. Epidemic time series similarity is related to geographic distance and age structure. *Infectious Disease Modeling*
7. C Ten Caten, L Holian, T Dallas. **2022**. Effects of occupancy estimation on abundance-occupancy relationships. *Biology Letters*
8. Laura H Antão, Benjamin Weigel, Giovanni Strona, Maria Hällfors, Elina Kaarlejärvi, T Dallas, et al.. **2022**. Climate change reshuffles northern species within their niches. *Nature Climate Change*
9. C Ten Caten, LA Holian, T Dallas. **2022**. Weak but consistent abundance-occupancy relationships across taxa, space, and time. *Global Ecology and Biogeography*
10. RL Richards, LA Holian. **2022**. Infectious disease: Dog diets may drive transmission cycles in human Guinea worm disease. *Current Biology*

11. CJ Carlson, RJ Gibb, GF Albery, L Brierley, RP Connor, T Dallas, EA Eskew, AC Fagre, MJ Farrell, HK Frank, RL Muylaert, T Poisot, AL Rasmussen, SJ Ryan, SN Seifert. **2022**. The Global Virome in One Network (VIRION): an Atlas of Vertebrate-Virus Associations. *mBio*
12. L Fuzessy, G Sobral, D Carreira, DC Rother, G Barbosa, M Landis, M Galetti, T Dallas, VC Cláudio, L Culot, P Jordano. **2022**. Functional roles of frugivores and plants shape hyper-diverse mutualistic interactions under two antagonistic conservation scenarios. *BioTropica*
13. T Dallas, P Jordano. **2022**. Parasite species richness and host range are not spatially conserved. *Global Ecology and Biogeography*
14. O-P Smolander et al.. **2022**. Improved chromosome-level genome assembly of the Glanville fritillary butterfly (*Melitaea cinxia*) integrating Pacific Biosciences long reads and a high-density linkage map. *GigaScience*
15. D Becker, GF Albery, AR Sjodin, T Poisot, T Dallas, EA Eskew, MJ Farrell, S Guth, BA Han, NB Simmons, CJ Carlson. **2022**. Optimising predictive models to prioritise viral discovery in zoonotic reservoirs. *Lancet Microbe*
16. GF Albery, DJ Becker, L Brierley, CE Brook, R Christofferson, L Cohen, T Dallas, EA Eskew, A Fagre, MJ Farrell, E Glennon, AL Rasmussen, SJ Ryan, S Seifert, AR Sjodin, EM Sorrell, CJ Carlson. **2021**. The science of the host–virus network. *Nature Microbiology*
17. T Dallas, A Kramer. **2021**. Temporal variability in population and community dynamics. *Ecology*
18. T Dallas, P Jordano. **2021**. Spatial variation in species roles in host-helminth networks. *Philosophical Transactions B*
19. MJ Farrell, AW Park, C Cressler, T Dallas, S Huang, N Mideo, I Morales-Castilla, TJ Davies, P Stephens. **2021**. The ghost of hosts past: impacts of host extinction on parasite specificity. *Philosophical Transactions B*
20. I Morales-Castilla, P Pappalardo, MJ Farrell, AA Aguirre, S Huang, ALM Gehman, T Dallas, D Gravel, TJ Davies. **2021**. Forecasting parasite sharing under climate change. *Philosophical Transactions B*
21. CJ Carlson, et. al.. **2021**. The future of zoonotic risk prediction. *Philosophical Transactions B*
22. R Gibb, GF Albery, DJ Becker, L Brierley, R Connor, T Dallas, EA Eskew, MJ Farrell, AL Rasmussen, SJ Ryan, A Sweeny, CJ Carlson, T Poisot. **2021**. Data proliferation, reconciliation, and synthesis in viral ecology. *BioScience*
23. T Dallas, BA Melbourne, G Legault, A Hastings. **2021**. Initial abundance and stochasticity influence competitive outcome in communities. *Journal of Animal Ecology*
24. T Poisot, G Bergeron, K Cazelles, T Dallas, D Gravel, A MacDonald, B Mercier, S Vissault. **2021**. Global knowledge gaps in species interaction networks data. *Journal of Biogeography*
25. T Dallas, P Jordano. **2021**. Species-area and network-area relationships in host-helminth interactions. *Proceedings of the Royal Society B*
26. T Dallas, M Saastamoinen, O Ovaskainen. **2020**. Exploring the dimensions of metapopulation persistence: a comparison of structural and temporal measures. *Theoretical Ecology*
27. T Dallas, D Becker. **2020**. Taxonomic resolution affects host-parasite association model performance. *Parasitology*
28. T Dallas, L Santini, R Decker, A Hastings. **2020**. Weighing the evidence for the abundant-centre hypothesis. *Biodiversity Informatics*
29. C Carlson, AJ Phillips, T Dallas, LW Alexander, A Phelan, S Bansal. **2020**. What would it

- take to describe the global diversity of parasites?. *Proceedings of the Royal Society B*
30. T Dallas, B Melbourne, A Hastings. **2020**. Community context and dispersal stochasticity drive variation in spatial spread. *J Animal Ecology*
 31. T Dallas, L Holian, G Foster. **2020**. What determines parasite species richness across host species?. *J Animal Ecology*
 32. T Dallas, L Santini. **2020**. The influence of stochasticity, landscape structure, and species traits on abundant-centre relationships. *Ecography*
 33. T Dallas, L Santini. **2020**. The abundant-centre is not all that abundant: a comment to Osorio-Olvera et al. 2020. *bioRxiv*
 34. T Dallas, LH Antao, J Pöyry, R Leinonen, O Ovaskainen. **2020**. Spatial synchrony is related to the rate of environmental change in Finnish moth communities. *Proceedings of the Royal Society B*
 35. E Van Bergen, T Dallas, M Dileo, AO Kahilainen, A Mattila, MS Luoto, M Saastamoinen. **2020**. Summer drought decreases the predictability of local extinctions in a butterfly metapopulation. *Conservation Biology*
 36. T Dallas, M Saastamoinen, T Schulz, O Ovaskainen. **2019**. The relative importance of local and regional processes to metapopulation dynamics. *Journal of Animal Ecology*
 37. T Dallas, CJ Carlson, T Poisot. **2019**. Testing predictability of disease outbreaks with a simple model of pathogen biogeography. *Royal Society Open Science*
 38. T Dallas, A-L Laine, O Ovaskainen. **2019**. Detecting parasite associations within multi-species host and parasite communities. *Proceedings of the Royal Society B*
 39. T Dallas, J Pöyry, R Leinonen, O Ovaskainen. **2019**. Temporal sampling and abundance measurement influences support for occupancy–abundance relationships. *Journal of Biogeography*
 40. A Norberg, N Abrego Antia, F Guillaume Blanchet, FR Adler, BJ Anderson, J Anttila, MB Araújo, T Dallas, D Dunson, J Elith, S Foster, R Fox, J Franklin, W Godsoe, A Guisan, B O'Hara, NA Hill, RD Holt, FKC Hui, M Husby, JA Kålås, A Lehtikoinen, M Luoto, HK Mod, G Newell, I Renner, TV Roslin, J Soininen, W Thuiller, JP Vanhatalo, D Warton, M White, NE Zimmermann, D Gravel, OT Ovaskainen. **2019**. A comprehensive evaluation of predictive performance of 33 species distribution models at species and community levels. *Ecological Monographs*
 41. Cornelius Ruhs, E, Borden, DM, T Dallas, Pitman, E. **2019**. Do feather traits convey information about bird condition during fall migration?. *Wilson Journal of Ornithology*
 42. T Dallas, Gehman, AL, Aguirre, AA, Budischak, SA, Drake, JM, Farrell, MJ, Ghai, R, Huang, S, Morales-Castilla, I. **2019**. Contrasting latitudinal gradients of body size in helminth parasites and their hosts. *Global Ecology and Biogeography*
 43. T Dallas, Han, BA, Nunn, CL, Park, AW, Stevens, PR, Drake, JM. **2019**. Host traits associated with species roles in parasite sharing networks. *Oikos*
 44. T Dallas, Melbourne, BA, Hastings, A. **2018**. When can competition and dispersal lead to checkerboard distributions?. *Journal of Animal Ecology*
 45. T Dallas, Hastings, A. **2018**. Habitat suitability estimated by niche models is largely unrelated to species abundance. *Global Ecology and Biogeography*
 46. T Dallas, Aguirre, AA, Budischak, S, Carlson, C, Ezenwa, VO, Han, BA, Huang, S, Stevens, PR. **2018**. Gauging support for macroecological patterns in helminth parasites. *Global Ecology and Biogeography*
 47. T Dallas, Decker, R, Hastings, A. **2018**. Multiple data sources and freely available code is

- critical when investigating species distributions and diversity: a response to Knouft (2018). *Ecology Letters*
48. T Dallas, Gehman, AL, Farrell, MJ. **2018**. Variable Bibliographic Database Access Could Limit Reproducibility. *BioScience*
 49. AW Park, Farrell, MJ, Schmidt, JP, Huang, S, T Dallas, Pappalardo, P, Drake, JM, Stephens, PR, Poulin, R, Nunn, CL, Davies, TJ. **2018**. Characterizing the phylogenetic specialism-generalism spectrum of mammal parasites. *Proceedings of the Royal Society B*
 50. C Carlson, Burgio, K, Dallas, T, Bond, AL. **2018**. Spatial extinction date estimation: a novel method for reconstructing spatiotemporal patterns of extinction and identifying potential zones of rediscovery. *in review*
 51. T Dallas, Krkosek, M, Drake, J. **2018**. Experimental evidence of pathogen invasion threshold. *Royal Society Open Science*
 52. T Dallas, Poisot, T. **2017**. Compositional turnover in host and parasite communities does not change network structure. *Ecography*
 53. T Dallas, Decker, R, Hastings, A. **2017**. Species are not most abundant in the center of their geographic range or climatic niche. *Ecology Letters*
 54. C. Carlson, Muellerklein, O, Phillips, AJ, Burgio, KR, Castaldo, G, Cizauskas, CA, Cumming, GS, Dallas, T, Dona, J, Harris, N, Jovani, R, Miao, Z, Proctor, H, Yoon, HS, Getz, W. **2017**. The Parasite Extinction Assessment and Red List – an open-source, online biodiversity database for neglected symbionts.
 55. C Carlson, Burgio, K, Dallas, T, Getz, W. **2017**. The mathematics of extinction across scales – from populations to the biosphere. *Mathematics of Planet Earth – Quantitative Approaches to Issues of Current Interest*
 56. C Carlson, Burgio, KR, Dougherty, ER, Phillips, AJ, Bueno, VM, Clements, CF, Castaldo, G, Dallas, T, Cizauskas, CA, Cumming, GS, Doña, J, Harris, NC, Jovani, R, Mironov, S, Muellerklein, OC, Proctor, HC, Getz, WM. **2017**. Parasite biodiversity faces extinction and redistribution in a changing climate. *Science Advances*
 57. T Dallas, Huang, S, Nunn, CL, Park, AW, Drake, JM. **2017**. Estimating parasite host range. *Proceedings of the Royal Society B*
 58. T Dallas, Park, AW, Drake, JM. **2017**. Predicting cryptic links in host-parasite networks. *PLoS Computational Biology*
 59. T Dallas, Park, AW, Drake, JM. **2017**. Predictability of helminth parasite host range using information on geography, host traits and parasite community structure. *Parasitology*
 60. M Evans, Dallas, T, Han, B, Murdock, CC, Drake, JM. **2016**. Data-driven identification of potential Zika virus vectors. *eLife*
 61. T Dallas, Kramer, A, Zokan, M, Drake, JM. **2016**. Ordination obscures the influence of environment on plankton metacommunity structure. *Limnology and Oceanography Letters*
 62. T Dallas, Drake, JM. **2016**. Fluctuating temperatures alter environmental pathogen transmission in a Daphnia-pathogen system. *Ecology and Evolution*
 63. P. Stephens, Altizer, S, Smith, K, Aguirre, A, Brown, J, Budischak, S, Byers, J, Dallas, T, Davies, J, Drake, J, Ezenwa, V, Farrell, M, Gittleman, J, Han, B, Huang, S, Hutchinson, R, Johnson, P, Nunn, C, Onstad, D, Park, A, Vazquez-Prokopec, G, Schmidt, J, Poulin, R. **2016**. The Macroecology of Infectious Diseases: A New Perspective on Global-scale Drivers of Pathogen Distributions and Impacts. *Ecology Letters*
 64. T Dallas. **2016**. helminthR: An R interface to the London Natural History Museum's Host-Parasite Database. *Ecography*

65. T Dallas, Hall, R, Drake, JM. **2016**. Competition-mediated feedbacks in experimental multi-species epizootics. *Ecology*
66. T Dallas, Holtackers, M, Drake, JM. **2016**. Costs of resistance and infection by a generalist pathogen. *Ecology and Evolution*
67. AW Park, Cleveland, C, Dallas, T, Corn, J. **2015**. Vector species richness increases hemorrhagic disease prevalence through functional diversity modulating the duration of seasonal transmission. *Parasitology*
68. T Dallas, Cornelius, E. **2015**. Co-extinction in a host-parasite network: identifying key hosts for network stability. *Nature Scientific Reports*
69. SJ Presley, Dallas, T, Klingbeil, BT, Willig, MR. **2015**. Phylogenetic signals in host-parasite associations for Neotropical bats and Nearctic desert rodents. *Biological Journal of the Linnean Society*
70. T Dallas, Drake, JM. **2014**. Relative Importance of Environmental, Geographic, and Spatial Variables on Zooplankton Metacommunities. *Ecosphere*
71. T Dallas. **2014**. metacom: an R package for the analysis of metacommunity structure. *Ecography*
72. T Dallas, Presley, SJ. **2014**. Relative importance of host environment, transmission potential, and host phylogeny to the structure of parasite metacommunities. *Oikos*
73. HJ Kim, Cavanaugh, JE, Dallas, T, Fore, S. **2014**. Model selection criteria for count data with overdispersion and its application to the host-parasite relationship. *Environmental and Ecological Statistics*
74. T Dallas, Drake, JM. **2013**. Nitrate enrichment alters a Daphnia-microparasite interaction through multiple pathways. *Ecology and Evolution*
75. T Dallas, Fore, S. **2013**. Chemical attraction of Dermacentor variabilis ticks parasitic to Peromyscus leucopus based on host body mass and sex. *Experimental and Applied Acarology*
76. T Dallas, Fore, S, Kim, HJ. **2013**. Modeling the influence of Peromyscus leucopus body mass, sex and habitat on immature Dermacentor variabilis burdens. *Journal of Vector Ecology*

Software

- metacom . Analysis of metacommunity structure (CRAN)
- insectDisease . Access to the Ecological Database of the World's Insect Pathogens (CRAN)
- helminthR . Portal to London Natural History Museum host-helminth database (CRAN)
- Hmsc . Hierarchical modeling of species communities (CRAN)
- spatExtinct . Spatially interpolated extinction date estimation (GitHub)

Presentations

- 2023 Invited seminar (University of South Florida). Hosted by Andrew Kramer.
- 2022 Invited seminar to University of South Carolina's "Mathematical Foundations of Data Science" group (U of SC).
- 2022 Departmental seminar (U of SC).
- 2022 Invited seminar (Duke University). Hosted by Jean-Philippe Gibert.
- 2022 Ecological Society of America meeting (Montreal).
- 2022 British Ecological Society; Macroecology group (UK).

- 2022 Ecology and Evolution of Infectious Disease (virtual).
- 2021 Science and Spirits (invited seminar) (LSU).
- 2021 Invited seminar (U of SC). Hosted by Tammi Richardson.
- 2021 Invited seminar (Truman State University).
- 2019 Invited seminar (International University of Rijeka). Hosted by Danijel Krizmanic.
- 2018 Invited seminar (Osnabruck University). Hosted by Frank Hilker.
- 2018 Invited seminar (McGill University). Hosted by Rowan Barrett.
- 2018 Invited seminar (University of Arkansas). Hosted by John David Wilson.
- 2018 Invited seminar (Louisiana State University). Hosted by Bret Elder.
- 2018 Invited seminar (University of California – Los Angeles). Hosted by Jamie Lloyd-Smith.
- 2017 Society for Mathematical Biology (Utah).
- 2015 Ecological Society of America meeting ()
- 2014 Ecology and Evolution of Infectious Disease (Colorado).
- 2014 Ecological Society of America meeting (California).
- 2012 98th annual American Society for Microbiology (Georgia).
- 2011 Dissertation defense (Georgia). Hosted by John Drake.

Teaching

- 2024 Parasitology (biol 531/epid 661/enhs 661). students
- 2023 Ecoinformatics (biol 599). students
- 2023 Website development (graduate seminar). 20 students
- 2023 Theoretical ecology (biol 599/765). 15 students
- 2022 Reproducible research in R (biol 599). 12 students
- 2020 Vector-borne disease (graduate seminar). 10 students
- 2020 Reproducible research in R (biol 4800). 15 students
- 2019, 2021 Principles of ecology (biol 4253). 35,80 students

Funding

- 2023-2027 **Infectious Disease Translational Research Center**, \$2000000 (\$ 150000), U of SC center grant.
- 2023-2024 **NIH R25 Big Data Health Science training grant**, \$30000 (\$30000), NIH-R25 (AI164581-02).
- 2023-2024 **SEC Faculty Travel Grant** , \$1200 (\$1200).
- 2023-2024 **Belle W. Baruch Foundation Visiting Scholar Grants**, \$4990 (\$2500).

- 2023- **Theme semester grant, \$500 (\$500)**, Sayi Sathish Kumar.
- 2022-2023 **Establishing a pigmented yeast microcosm system to understand ecological communities, \$15000 (\$15000)**, U of SC Aspire (track 1).
- 2021-2025 **Actively engaging students in hardware and software development, \$44000 (\$44000)**, LSU Foundation and LSU College of Science.
- 2020-2023 **NSF-Macrosystems MSA: Understanding spatial patterns of abundance and occupancy in terms of taxa, traits, and space, \$274542 (\$274542)**, NSF Macrosystems and NEON-enabled science.
- 2020-2022 **NSF RAPID: Epidemic control strategies for COVID-19 in age-structured populations: A multi-model approach, \$200000 (\$200000)**, NSF RAPID.
- 2020-2022 **NSF BII-Design: Exploring the ecology and evolution of the global virome with big data and machine learning, \$166189 (\$18000)**, NSF Bio Institute - Design.

Academic service

- 2024-2024 Response Diversity Working Group. invited participant
- 2023-2024 Propel Research Mentorship Program. Participant
- 2023-2023 Host of seminar speaker. David Vasseur
- 2023-2023 European Biodiversity Partnership (BIODIVMON). ad hoc reviewer
- 2023-2023 Environmental Data Science Innovation & Inclusion Lab. summit and workshop
- 2023-2023 InvaPact: Biological Invasions Working Group. invited participant
- 2023- Future hires committee. U of SC Biological Sciences
- 2023- NIH Early Career Reviewer Program. Participant
- 2022-2023 U of SC faculty senate. Member
- 2022-2022 Host of seminar speaker. Andrew Park
- 2022-2022 Letter of collaboration (NIH). Katie Kathrein
- 2022-2022 NSF. ad hoc reviewer
- 2022-2022 NSF. Panel reviewer
- 2022-2022 U of SC undergraduate research symposium. Judge
- 2020- Ecology Letters. Editor and data editor
- 2019-2020 LIFEPLAN: A planetary inventory of life. Sampling site (Baton Rouge, LA)
- 2019- Ecosphere. Editor- disease track
- 2019- GitHub Education. Campus Advisor
- 2019- The Carpentries. Instructor

Community engagement

- 2021-2022 Futures Fund. Coding instructor
- 2021-2021 LSU Science and Spirits podcast. Research talk plus associated interview/podcast
- 2019-2022 Front Yard Bikes. Volunteer

Mentoring

- 2023- Gabriel Dansereau. Doctoral Dissertation Committee (Université de Montréal)
- 2023- Laurent Duverglas. Doctoral Dissertation Committee (U of SC)
- 2022- Caitlyn Mettetal. Masters thesis committee (U of SC)
- 2022- Kayla Bramlett. Masters thesis committee (U of SC, Arnold School of Public Health)
- 2022- Alexander Barth. Doctoral Dissertation Committee (U of SC)
- 2021- Birch Lazo-Murphy. Doctoral Dissertation Committee (U of SC, SEOE)
- 2021- Wissam Jawad. Doctoral Dissertation Committee (LSU)
- 2021- Lauren Holian. Doctoral Dissertation Committee (U of SC)
- 2020- Grant Foster. Doctoral Dissertation Committee (U of SC)
- 2019- Jason Janeaux. Doctoral Dissertation Committee (LSU)
- 2019- Cleber Ten Caten. Doctoral Dissertation Committee (U of SC)