Tad Dallas

about

Assistant professor
University of South Carolina
Dept of Biological Sciences

tad.a.dallas@gmail.com
taddallas.github.io
taddallas

programming

Proficient
R
Matlab/Octave
SQL

Familiar
C++
julia
Python

Markup
LaTeX
Markdown
HTML/XML/XPath

Version control
git

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*
2019	Visiting researcher *Dept. of Mathematics*	International University of Rijeka, *Croatia*
2019	Visiting researcher *Lab of Pedro Jordano*	CSIC, *Estación Biológica de Doñana*, Spain
2018 - 2019	Postdoctoral fellow *Advised by Otso Ovaskainen*	University of Helsinki - *Centre for Ecological Change*
2016 - 2018	Postdoctoral fellow *Advised by Alan Hastings*	University of California–Davis - *Center for Population Biology*
2015	Distributed *R* Analytics Intern *Software development for analysis of large data*	HP Vertica - Big Data Platform Dev Team
2010-2011	Biological Science Technician *Subtropical Plant Pathology Lab*	USDA - Agricultural Research Service
2008	Mathematical Biology Program *Mathematical estimation of host range using mark-recapture data*	NSF Research Experience for Undergraduates (REU)

education

2011 - 2016	Ph.D. Ecology *Advised by John Drake*	U Georgia - Odum School of Ecology
2009 - 2010	M.S. Biology *Ecology of small mammal-tick interactions* advised by Stephanie Foré	Truman State University
2005 - 2009	B.S. Biology Majoring in Biology *Minor in Mathematical Biology*	Truman State University

publications

2022

- 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* doi: 10.1093/gigascience/giab097

- Dallas, TA & P Jordano 2022. Parasite species richness and host range are not spatially conserved. *Global Ecology and Biogeography.* doi: 10.1111/geb.13452
- C Ten Caten, LA Holian, & Dallas, TA 2022. Weak but consistent abundance-occupancy relationships across taxa, space, and time. *Global Ecology and Biogeography.* doi:
- Becker,D, GF Albery, AR Sjodin, T Poisot, TA 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* doi: 10.1016/S2666-5247(21)00245-7

2021

- Albery, GF. et al. 2021. The science of the host–virus network. *Nature Microbiology* doi: 10.1038/s41564-021-00999-5
- Dallas, TA & D Kramer 2021. Temporal variability in population and community dynamics. *Ecology.* doi: 10.1002/ecy.3577
- Dallas, TA & P Jordano 2021. Spatial variation in species roles in host-helminth networks. *Philosophical Transactions B* doi: 10.1098/rstb.2020.0361
- MJ Farrell, AW Park, C Cressler, TA 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* doi: 10.1098/rstb.2020.0351
- I Morales-Castilla, P Pappalardo, MJ Farrell, AA Aguirre, S Huang, ALM Gehman, TA Dallas, D Gravel & TJ Davies 2021. Forecasting parasite sharing under climate change. *Philosophical Transactions B* doi: 10.1098/rstb.2020.0360
- Carlson et al. 2021. Zoonotic Risk Technology Enters the Viral Emergence Toolkit. *Philosophical Transactions B* doi: 10.1098/rstb.2020.0360
- R Gibb, GF Albery, DJ Becker, L Brierley, R Connor, TA Dallas, EA Eskew, MJ Farrell, AL Rasmussen, SJ Ryan, A Sweeny, CJ Carlson, and T Poisot 2021. Data proliferation, reconciliation, and synthesis in viral ecology. *BioScience.* doi:
- Dallas, TA & P Jordano 2021. Species-area and network-area relationships in host-helminth interactions. *Proceedings of the Royal Society B.* doi:10.1098/rspb.2020.3143
- Dallas, TA, B Melbourne, G Legault, & A Hastings 2021. Initial abundance and stochasticity influence competitive outcome in communities. *Journal of Animal Ecology* doi:10.1111/1365-2656.13485
- T Poisot, G Bergeron, K Cazelles, TA Dallas, D Gravel, A MacDonald, B Mercier, C Violet & S Vissault 2021. Global knowledge gaps in species interaction networks data. *Journal of Biogeography* doi:10.1111/jbi.14127
- Dallas, TA, M Saastamoinen, & O Ovaskainen 2021. Exploring the dimensions of metapopulation persistence: a comparison of structural and temporal measures. *Theoretical Ecology* doi: 10.1007/s12080-020-00497-0
- Dallas, TA & D Becker 2021. Taxonomic resolution affects host-parasite association model performance. *Parasitology* doi: 10.1017/S0031182020002371

2020

- Dallas, TA, L Santini, R Decker, & A Hastings 2020. Weighing the evidence for the abundant-centre hypothesis. *Biodiversity Informatics.* doi: 10.17161/bi.v15i3.11989
- Carlson, CJ, Phillips, AJ, Dallas, TA, Alexander, LW, Phelan, A, & Bansal, S. 2020. What would it take to describe the global diversity of parasites?. *Proceedings of the Royal Society B.* doi: 10.1098/rspb.2020.1841

- Dallas, TA, B Melbourne, & A Hastings. 2020. Community context and dispersal stochasticity drive variation in spatial spread. *Journal of Animal Ecology*. doi: 10.1111/1365-2656.13331
- Dallas, TA, L Holian, G Foster. 2020. What determines parasite species richness across host species? *Journal of Animal Ecology*. doi: 10.1111/1365-2656.13276
- Dallas, TA and L Santini. 2020. The influence of stochasticity, landscape structure, and species traits on abundant-centre relationships. *Ecography* doi:10.1111/ecog.05164
- Dallas, TA, 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*. doi: 10.1098/rspb.2020.0684
- van Bergen, E, Dallas, TA, DiLeo, MF, Kahilainen, A, Mattila, AL, Luoto, M, & Saastamoinen, M. 2020. The effect of summer drought on the predictability of local extinctions in a butterfly metapopulation. Conservation Biology. doi: 10.1111/cobi.13515
- 🔓 Dallas, TA, S Pironon, and L Santini. 2020. Weak support for the abundant niche-centre hypothesis in North American birds. *bioRxiv*. doi:10.1101/2020.02.27.968586
- 🔓 Poisot, T, Bergeron, G, Cazelles, K, Dallas, TA, Gravel, D, MacDonald, A, ... & Vissault, S. 2020. Environmental biases in the study of ecological networks at the planetary scale. *bioRxiv*. doi:10.1101/2020.01.27.921429

2019

- Dallas, TA, M Saastamoinen, T Schulz, O Ovaskainen. 2019. The relative importance of local and regional processes to metapopulation dynamics. *Journal of Animal Ecology*. doi: 10.1111/1365-2656.13141
- 🔓 Dallas, TA, CJ Carlson, T Poisot. 2019. Testing predictability of disease outbreaks with a simple model of pathogen biogeography. *Royal Society Open Science*. doi: 10.1098/rsos.190883
- Dallas, TA, Laine A-L, and Ovaskainen O. 2019. Detecting parasite associations within multi-species host and parasite communities. *Proceedings of the Royal Society B* doi: 10.1098/rspb.2019.1109
- Dallas, TA, Pöyry J, Leinonen R, Ovaskainen O. 2019. Temporal sampling and abundance measurement influences support for occupancy–abundance relationships. *Journal of Biogeography* doi:10.1111/jbi.13718
- Norberg,A, N Abrego Antia, F Guillaume Blanchet, FR Adler, BJ Anderson, J Anttila, MB Araújo, TA 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 Lehikoinen, M Luoto, HK Mod, G Newell, I Renner, TV Roslin, J Soininen, W Thuiller, JP Vanhatalo, D Warton, M White, NE Zimmermann, D Gravel, and OT Ovaskainen. 2019. A comprehensive evaluation of predictive performance of 33 species distribution models at species and community levels. *Ecological Monographs* doi:10.1002/ecm.1370
- Cornelius Ruhs, E, Borden, DM, TA Dallas, Pitman, E 2019. Do feather traits convey information about bird condition during fall migration? *Wilson Journal of Ornithology* doi:10.1676/18-174
- Dallas, TA, AL Gehman, AA Aguirre, SA Budischak, JM Drake, MJ Farrell, R Ghai, S Huang, and I Morales-Castilla. 2019. Contrasting latitudinal gradients of body size in helminth parasites and their hosts. *Global Ecology and Biogeography* doi: 10.1111/geb.12894
- Dallas, TA, BA Han, CL Nunn, AW Park, PR Stephens, and JM Drake. 2018. Host traits associated with species roles in parasite sharing networks. *Oikos* doi: 10.1111/oik.05602

2018

- Dallas, TA, BA Melbourne, and A Hastings. 2018. When can competition and dispersal lead to checkerboard distributions? *Journal of Animal Ecology* doi: 10.1111/1365-2656.12913

- Dallas, TA and A Hastings. 2018. Habitat suitability estimated by niche models is largely unrelated to species abundance. *Global Ecology and Biogeography* doi: 10.1111/geb.12820
- Dallas, TA, S Budischak, C Carlson, V Ezenwa, B Han, S Huang, AA Aguirre, and PR Stephens. 2018. Gauging support for macroecological patterns in helminth parasites. *Global Ecology and Biogeography* doi: 10.1111/geb.12819
- Dallas, TA, R Decker, AM Hastings. 2018. Multiple data sources and freely available code is critical when investigating species distributions and diversity: a response to Knouft (2018). *Ecology Letters* doi: 10.1111/ele.13105
- Dallas, TA, A Gehman, MJ Farrell. 2018. Variable bibliographic database access could limit reproducibility. *BioScience* doi:10.1093/biosci/biy074
- Park, AW, MJ Farrell, JP Schmidt, S Huang, TA Dallas, P Pappalardo, JM Drake, PR Stephens, R Poulin, CL Nunn, and TJ Davies. 2018. Characterizing the phylogenetic specialism-generalism spectrum of mammal parasites. *Proceedings of the Royal Society B* doi: 10.1098/rspb.2017.2613
- 🔓 Dallas, TA, JM Drake, and M Krkosek. Experimental evidence of a pathogen invasion threshold. *Royal Society Open Science* doi: 10.1098/rsos.171975
- Dallas, TA and T Poisot. 2018. Compositional turnover in host and parasite communities does not change network structure. *Ecography* doi: 10.1111/ecog.03514

2017

- Dallas, TA, R Decker, AM Hastings. 2017. Species are not most abundant in the center of their geographic range or climatic niche. *Ecology Letters* doi: 10.1111/ele.12860
- Carlson, CJ, KR Burgio, TA Dallas, and WM Getz. The Mathematics of Extinction Across Scales: From Populations to the Biosphere. In *Mathematics of Planet Earth. Mathematics of Planet Earth*, vol 5. Springer.
- 🔓 Carlson,CJ, KR Burgio, ER Dougherty, AJ Phillips, VM Bueno, CF Clements, G Castaldo, TA Dallas, CA Cizauska, GS Cumming, J Doña, NC Harris, R Jovani, S Mironov, O Muellerklein, HC Proctor, WM Getz. 2017. Parasite biodiversity faces extinction and redistribution in a changing climate. *Science Advances* doi: 10.1126/sciadv.1602422
- Dallas, TA, S Huang, C Nunn, AW Park, JM Drake. 2017. Estimating parasite host range. *Proceedings of the Royal Society B.* 284:1861. doi:10.1098/rspb.2017.1250.
- 🔓 Dallas, TA, AW Park, and JM Drake. 2017. Predicting cryptic links in host-parasite networks. *PLoS Computational Biology.* 13(5): e1005557 doi:10.1371/journal.pcbi.1005557
- 🔓 Evans, MV, TA Dallas, BA Han, CC Murdock, JM Drake. 2017. Data-driven identification of potential Zika virus vectors. *eLife.* e22053. doi:10.7554/eLife.22053

2016

- 🔓 Dallas, TA, A Kramer, M Zokan, and JM Drake. 2016. Ordination obscures the influence of environment on plankton metacommunity structure. *Limnology and Oceanography Letters.* 54-61. doi:10.1002/lol2.10028
- Dallas, TA, AW Park, and JM Drake. 2016. Predictability of helminth parasite host range using information on geography, host traits and parasite community structure. *Parasitology.* doi:10.1017/S0031182016001608
- 🔓 Dallas, TA and JM Drake. 2016. Fluctuating temperatures alter environmental pathogen transmission in a *Daphnia*-pathogen system. *Ecology and Evolution* 00: 1-8. doi:10.1002/ece3.2539
- 🔓 Stephens, P, Altizer, S, Smith, K, Aguirre, A, Brown, J, Budischak, S, Byers, J, Dallas, TA, 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, and Poulin, R. 2016.

The Macroecology of Infectious Diseases: A New Perspective on Global-scale Drivers of Pathogen Distributions and Impacts. *Ecology Letters* 19(9): 1159-1171. doi: 10.1111/ele.12644

- Dallas, TA 2016. *helminthR*: An R interface to the London Natural History Museum's Host-Parasite Database. *Ecography* 39(4): 391-393. doi: 10.1111/ecog.02131
- Dallas, TA, R Hall, and J Drake. 2016. Competition-mediated feedbacks in experimental multi-species epizootics. *Ecology* 97(3):661-670. doi:10.1890/15-0305.1
- Dallas, TA, M Holtackers, and J Drake. 2016. Costs of resistance and infection by a generalist pathogen. *Ecology and Evolution* 6(6): 1737-1744. doi: 10.1002/ece3.1889

2015

- Dallas, TA and E Cornelius. 2015. Co-extinction in a host-parasite network: identifying key hosts for network stability. *Nature Scientific Reports* doi: 10.1038/srep13185
- Park, AW, C Cleveland, TA Dallas, and J Corn. 2015. Vector species richness increases hemorrhagic disease prevalence through functional diversity modulating the duration of seasonal transmission. *Parasitology* 10: 1-6. doi: 10.1017/S0031182015000578
- Presley SJ, Dallas, TA, Klingbeil, BT, Willig, MR. 2015. Phylogenetic signals in host-parasite associations for Neotropical bats and Nearctic desert rodents. *Biological Journal of the Linnean Society* 116(2): 312-327.

2014 and prior

- Dallas, TA and JM Drake 2014. Relative importance of environmental, geographic, and spatial variables on zooplankton metacommunities. *Ecosphere* 5(9): art104 doi:10.1890/ES14-00071.1.
- Dallas, TA 2014. *metacom*: an R package for the analysis of metacommunity structure. *Ecography* 37(4):402-405. doi:10.1111/j.1600-0587.2013.00695.x
- Dallas, TA and SJ Presley. 2014. Relative importance of host environment, transmission potential, and host phylogeny to the structure of parasite metacommunities. *Oikos* 123: 866–874. doi:10.1111/oik.00707
- Dallas, TA and JM Drake 2014. Nitrate enrichment alters a Daphnia-microparasite interaction through multiple pathways. *Ecology and Evolution* 4(3):243-250. doi: 10.1002/ece3.925
- Kim, HJ, Cavanaugh, JE, Dallas, TA, and S Foré. 2013. Model selection criteria for overdispersed data and their application to the characterization of a host-parasite relationship. *Environmental and Ecological Statistics* doi:10.1007/s10651-013-0257-0
- Dallas, TA 2013. *metacom*: Analysis of the 'Elements of Metacommunity Structure'. R package version 1.2. http://CRAN.R-project.org/package=metacom
- Dallas, TA and S Foré. 2013. Chemical attraction of *Dermacentor variabilis* ticks parasitic to *Peromyscus leucopus* based on host body mass and sex. *Experimental and Applied Acarology* 61(2): 243-250. doi:10.1007/s10493-013-9690-x
- Dallas, TA, S Foré, and HJ Kim. 2012. Modeling the influence of *Peromyscus leucopus* body mass, sex and habitat on immature *Dermacentor variabilis* burdens. *Journal of Vector Ecology*. 37(2):338-341.doi:10.1111/j.1948-7134.2012.00236.x
- Dallas, TA, S Foré and HJ Kim. 2010. Factors influencing immature *Dermacentor variabilis* load on the white-footed mouse (*Peromyscus leucopus*). *Technical Report, Truman State University.*

</> software

metacom	Analysis of metacommunity structure	R package (author)
helminthR	Portal to London Natural History Museum host-helminth database	R package (author)
Hmsc	Hierarchical modeling of species communities	R package (author)
spatExtinct	Spatially interpolated extinction date estimation	R package (contributor)

presentations

- T Dallas and B Elderd. *Invited talk at* "Science and Spirits" at LSU. November 2021.
- T Dallas. *Invited seminar at University of South Carolina.* Hosted by Tammi Richardson. May 2021.
- T Dallas. *Invited seminar at Truman State University.* Student invited speaker. April 2021.
- T Dallas. *Invited seminar at International University of Rijeka.* Hosted by Danijel Krismanic. June 2019.
- T Dallas. *Invited seminar at Osnabrück University.* Hosted by Frank Hilker. December 2018.
- T Dallas. *Invited seminar at McGill University.* Hosted by Rowan Barrett. April 2018.
- T Dallas. *Invited seminar at University of Arkansas.* Hosted by John David Wilson. February 2018.
- T Dallas. *Invited seminar at Louisiana State University.* Hosted by Bret Elderd. January 2018.
- T Dallas. *Invited seminar at University of California - Los Angeles.* Hosted by Jamie Lloyd-Smith. January 2018.
- T Dallas, B Melbourne, G Legault, A Hastings. Initial abundance and stochasticity influence species coexistence *Society for Mathematical Biology*, July 2017.
- T Dallas and JM Drake. Using niche modeling to detect unobserved interactions in host-parasite networks. *Ecological Society of America*, August 2015.
- JE Byers, P Pappalardo, JP Schmidt, PR Stephens, S Haas, C Nunn, JM Drake, and T Dallas. What parasite and host traits best explain the geographic range of mammal parasites and diseases? *Ecological Society of America*, August 2015.
- T Dallas and JM Drake. Costs of resistance and infection in *Daphnia* species exposed to a generalist microparasite. *Ecology and Evolution of Infectious Disease Conference.* Fort Collins, CO. June 2014
- T Dallas, JM Drake, M Krkosek. Thresholds to pathogen invasion: theory + experiment. *Ecological Society of America.* Sacramento, California. August 2014
- T Dallas and JM Drake. The Influence of Nitrate on Fungal Parasitism of *Daphnia*. *98th annual American Society for Microbiology (Southeastern Branch).* October 2012.
- T Dallas. Effects of competition and selective predation in a two-host system. *Odum School of Ecology Graduate Student Symposium.* Athens GA. January 2011.
- T Dallas. Thesis defense: An examination of variation in *Dermacentor variabilis* burdens within and between host species. *Truman State University.* August 2010.

meeting participation

2020-	Ecological Forecasting Initiative	Co-designer of beetle forecast challenge
2021	Ecological Forecasting Initiative	Empowering Development of the Next Generation of Educational Materials for Ecological Forecasting
2021	BES Macroecology meeting	Panel participant on early career transitions

teaching

spring 2022	Reproducible Research in R (Biol 599)	University of South Carolina
2020	Vector-borne disease (Biol 7901)	Louisiana State University
2020	Reproducible Research in R (Biol 4800)	Louisiana State University
2019, 2021	Principles of Ecology (Biol 4253)	Louisiana State University

$ grants

2021 -	Actively engaging students in hardware and software development	LSU Foundation and LSU College of Science; $44,000 (PI)
2020-2021	RAPID: Epidemic control strategies for COVID-19 in age-structured populations: A multi-model approach	NSF RAPID; $200,000 (PI)
2020-2022	BII-Design: Exploring the ecology and evolution of the global virome with big data and machine learning	NSF Bio Institute - Design; $166,189 (co-PI)
2020-2022	MSA: Understanding spatial patterns of abundance and occupancy in terms of taxa, traits, and space	NSF Macrosystems and NEON Science; $274,542 (PI)

professional service

2020-	Ecology Letters	Editor
2020	Undergraduate Biol Welcome Week planning committee	Evanna Gleason, David Vinyard, Karen Maruska
2019-	Ecosphere	Editor - disease track
2019-	Github Education	Campus advisor
2019-	The Carpentries	Instructor
2019-	LIFEPLAN: A Planetary Inventory of Life	Sampling site

For information on my service, see my Publons page. I have served as a reviewer for the following journals:

- African Journal of Wildlife Research
- American Naturalist
- Basic and Applied Ecology
- Biological Conservation
- Ecography
- Ecology
- Ecology and Evolution
- Ecology Letters
- Ecological Complexity
- EcoHealth
- Ecosphere
- Functional Ecology
- Freshwater Biology
- Global Ecology and Biogeography
- Invertebrate Biology
- Journal of Animal Ecology
- Journal of Biogeography
- Journal of Vector Ecology
- Landscape Ecology
- Methods in Ecology and Evolution
- Nature Ecology & Evolution
- Oecologia
- Oikos
- Philosophical Transactions B
- PLoS One
- Proceedings of the Royal Society B
- Proceedings of the National Academy of Sciences
- Scientometrics
- Theoretical Ecology

awards

2021	LSU Non-Tenured Faculty Research Award	$1000

community engagement

2021	LSU podcast thing	link to podcast thing
2021-	Futures Fund coding instructor	https://www.thewallsproject.org/futuresfund
2019-	Front Yard Bikes volunteer	https://www.frontyardbikes.com/

mentoring

2021 -	Doctoral dissertation committee, LSU	Wissam Jawad
2021 -	Dissertation committee chair, LSU	Lauren Holian
2020 -	Dissertation committee chair, LSU	Grant Foster
2019 -	Doctoral dissertation committee, LSU	Jason Janeaux
2019 -	Dissertation committee chair, LSU	Cleber Ten Caten
2014	Population Biology of Infectious Disease REU	Trianna Humphries
2013	Young Dawgs Program	Mathieu Holtackers