

# Tad Dallas



## about

Assistant professor  
Louisiana State University  
Dept of Biological Sciences

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💻 taddallas.github.io  
🔊 taddallas

## programming

### Proficient

R  
Matlab/Octave  
SQL

### Familiar

C++  
julia  
Python

### Markup

LaTeX  
Markdown  
HTML/XML/XPath

### Version control

git

## 🧪 experience

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

## 🎓 education

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

## 📖 publications

### 2021

- Carlson et al. 2021. Zoonotic Risk Technology Enters the Viral Emergence Toolkit. *preprint*  
doi: 10.20944/preprints202104.0200.v1
- 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
- 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. *bioRxiv*
- 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

## 2020

- Dallas, TA & D Becker 2020. Taxonomic resolution affects host-parasite association model performance. *Parasitology* doi: 10.1017/S0031182020002371
- 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
- Becker, D, GF Albery, AR Sjödin, T Poisot, TA Dallas, EA Eskew, MJ Farrell, S Guth, BA Han, NB Simmons, CJ Carlson. 2020. Predicting wildlife hosts of betacoronaviruses for SARS-CoV-2 sampling prioritization. *bioRxiv* doi: 10.1101/2020.05.22.111344
- 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 Lehtikainen, 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)

## selected presentations

- T Dallas. *Invited seminar at International University of Rijeka*. Hosted by Danijel Krismanic. June 8, 2019.
- T Dallas. *Invited seminar at Osnabrück University*. Hosted by Frank Hilker. December 5, 2018.
- T Dallas. *Invited seminar at McGill University*. Hosted by Rowan Barrett. April 4, 2018.
- T Dallas. *Invited seminar at University of Arkansas*. Hosted by John David Wilson. February 12, 2018.
- T Dallas. *Invited seminar at Louisiana State University*. Hosted by Bret Elderd. January 30, 2018.
- T Dallas. *Invited seminar at University of California - Los Angeles*. Hosted by Jamie Lloyd-Smith. January 9, 2018.
- T Dallas, B Melbourne, G Legault, A Hastings. Initial abundance and stochasticity influence species coexistence *Society for Mathematical Biology*, July 19, 2017.

- T Dallas and JM Drake. Using niche modeling to detect unobserved interactions in host-parasite networks. *Ecological Society of America*, August 11, 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 11, 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 11, 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.



## teaching

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

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)
2020-2021	Modeling coronavirus ecology for pandemic preparedness	IVADO; \$33,000 (collaborator)
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	Data Editor
2020	Undergraduate Biol Welcome Week planning committee Vinyard, Karen Maruska	Evanna Gleason, David
2019-	Ecosphere	Subject Matter Editor
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
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## community engagement

2021-	Futures Fund coding instructor	<a href="https://www.thewallsproject.org/futuresfund">https://www.thewallsproject.org/futuresfund</a>
2019-	Front Yard Bikes volunteer	<a href="https://www.frontyardbikes.com/">https://www.frontyardbikes.com/</a>

## 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