

David H. Klinges



• Email: dklinges9@gmail.com • Site: natureinparadise.github.io/ • Code: github.com/dklinges9 • [Google Scholar](#)

EDUCATION

Aug 2024 **Ph.D. Interdisciplinary Ecology**, University of Florida, Gainesville, FL. Advisor: Brett Scheffers

2017 **A.B. Biology (High Honors)**; Dartmouth College, Hanover, NH

PROFESSIONAL EXPERIENCE

2026 – **Assistant Professor**, Dept. of Ecology, Evolution and Natural Resources, Rutgers University, New Brunswick, NJ

2024 – 26 **Postdoctoral Associate**, Yale University, New Haven, CT. Advisor: David Skelly

2018 – 19 **GIS and Data Technician**, Smithsonian Institution, Edgewater, MD & Front Royal, VA

2017 **Resident Naturalist**, Alliance for a Sustainable Amazon, Madre de Dios, Peru

RESEARCH INTERESTS

I am a global change biologist interested in **how climate change and land use change jointly impact biodiversity, from microhabitat to global scales**. I use a combination of mathematical models, empirical observations (especially in tropical systems), simulations, and experiments to understand how **organismal physiology and biogeography respond to dynamic environments**, integrating biological and meteorological theory and data. Throughout my work, I have also promoted diversity, equity, and inclusivity, and prioritized applying basic research to inform practical decision-making as we face global change.

Key topics: *Climate Change Ecology, Microclimate, Biodiversity across Scales, Tropical Ecology and Conservation, Remote Sensing*

RECENT GRANTS AND AWARDS *(total awarded to date: \$369,438)*

2024	Wildlife Ecology and Conservation Outstanding Graduate Research Award (<i>one per year</i>)
2023	Smithsonian Climate Change Postdoctoral Fellowship: \$134,000 (<i>awarded, but declined offer</i>)
2023	GoFundMe Crowdfunding Campaign: Randriambololona Memorial Film Fellowship: \$4,076
2023	James Davidson Graduate Travel Scholarship: \$300
2022	Tropical Conservation and Development Practitioner Grant: \$1,000
2022	Robin E. Nadeau Graduate Research Award: \$4,000
2022	Wildlife Ecology and Conservation Travel Grant: \$400
2022	SE Climate Adaptation Science Center Research Mini-Grant: \$1,000
2021	University of Florida International Center Research Abroad for Doctoral Students: \$4,182
2021	School of Natural Resources and Environment Travel Grant: \$250
2020	Explorers Club Fjällräven Field Grant: \$5,000
2020	Tropical Conservation and Development Field Research Grant: \$2,000
2020	GoFundMe Crowdfunding Campaign “Support Forest Climate Research in Madagascar”: \$5,230
2019	Thad Owens Memorial Fund: \$3,000
2019	National Science Foundation Graduate Research Fellowship: \$141,000
2019	University of Florida Research Assistantship: \$64,000
2019	University of Miami Dean’s Fellowship (<i>awarded, but declined offer</i>)
2019	University of British Columbia Four-Year Fellowship (<i>awarded, but declined offer</i>)
2019	Northwestern Medill School of Journalism Merit Scholarship (<i>awarded, but declined offer</i>)

PEER-REVIEWED PUBLICATIONS

*Corresponding/senior author; †Available upon request; **Indicates Undergraduate mentee**; **Graduate mentee**

Summary: *H-index: 12; Total Citations: 1,568 (Google Scholar); 24 total papers; 7 first-author papers; 15 papers in journals with Impact Factor > 5; 8 papers in journals with Impact Factor > 10*

(26) [Soifer, L.](#), **Klinges, D.H.***, Randriamiharisoa, L., Scheffers, B.R. Quantifying the values of community-based biodiversity monitoring in Madagascar using structured-decision analysis.

Accepted at *Biological Conservation*^ψ [Preprint available](#)

(25) Fredston, A.L., Tingley, M.W., Neate-Clegg, M.H.C., Evans, L.J., Antão, L.H., Ban, N.C., Chen, I.C., Chen, Y.W., Comte, L., Edwards, D.P., Evengard, B., Fadrique, B., Falkeis, S.H., Guralnick, R., **Klinges, D.H.**, Lembrechts, J.J., Lenoir, J., Palacios-Abrantes, J., Pauchard, A., Pecl, G., Pinsky, M.L., Senior, R.A., Smith, J.E., Soifer, L.D., Sunday, J.M., Tape, K.D., Washam, P., Scheffers, B.R. Reimagining species on the move across space and time.

Accepted at *Trends in Ecology and Evolution*^ψ [Preprint available](#)

(24) **Klinges, D.H.***, Maclean, I.M.D, Scheffers, B.R. Redrawing Köppen-Geiger classes with microclimate: implications for nature and society. *Frontiers in Ecology and the Environment* e2831 DOI: [10.1002/fee.2831](https://doi.org/10.1002/fee.2831)

(23) **Klinges, D. H.**, Martin, C. W., & Roberts, B. J. Ecological associations of the coastal marsh periwinkle snail *Littoraria irrorata*: Field and laboratory evidence of vegetation habitat preferences. *PeerJ*, 13, e19071. DOI: [10.7717/peerj.19071](https://doi.org/10.7717/peerj.19071)

(22) **Klinges, D.H.***, [Randriambololona, T.](#), Lange, Z., Laterza-Barbosa, J., [Randrianandrasana, H.](#), Scheffers, B.R. Vertical and diel niches modulate thermal selection by rainforest frogs. *Proceedings of the Royal Society of London B: Biological Sciences*, 291: 20241497. DOI: [10.1098/rspb.2024.1497](https://doi.org/10.1098/rspb.2024.1497) Chosen for [cover photo of issue 2035](#)

(21) De Frenne, P., Beugnon, R., **Klinges, D.H.**, Lenoir, J....*et al.*, 26 total co-authors. Ten practical guidelines for microclimate monitoring in terrestrial ecosystems. *Methods in Ecology and the Environment*. DOI: [10.1111/2041-210X.14476](https://doi.org/10.1111/2041-210X.14476)

(20) Randriamiharisoa, L., **Klinges, D.H.**, Razafindranaivo, S. Scheffers, B.R Community-sourced knowledge improves biodiversity monitoring in Madagascar's National Parks. *Discover Conservation* 1, 1-14. DOI: [10.1007/s44353-024-00015-x](https://doi.org/10.1007/s44353-024-00015-x)

(19) **Klinges, D.H.*** Microclimate regulates when autumn leaves fall. *Nature Climate Change*, 14, 1226-1227 *Invited perspective* DOI: [10.1038/s41558-024-02154-4](https://doi.org/10.1038/s41558-024-02154-4)

(18) **Klinges, D.H.***, Baecher, J.A., Lembrechts, J.J., Maclean, I.M.D., Lenoir, J., Greiser, C., Ashcroft, M., Evans, L.J.... Scheffers, B.R. 30 total co-authors. Proximal microclimate: Moving beyond spatiotemporal resolution improves ecological predictions. *Global Ecology and Biogeography*, 33, e13884. DOI: [10.1111/geb.13884](https://doi.org/10.1111/geb.13884)

(17) Trew, B.T., Edwards, D.P., Lees, A.C., **Klinges, D.H.**, Early, R., Svátek, M., Plichta, R., Matula, R., Okello, J., Niessner, A., Barthel, M., Six, J., Maclean, I. M. D. Novel climates are already widespread beneath the world's tropical forest canopies. *Nature Climate Change*, 14, 753–759. DOI: [10.1038/s41558-024-02031-0](https://doi.org/10.1038/s41558-024-02031-0)

(16) Malmborg, C., Willson, A.M., Beatty, M., Bradley, L. M., **Klinges, D.H.**, Lewis, A.S.L., Oshinubi, K., Woelmer, W., Koren, G. Defining Model Complexity: An Ecological Perspective. *Meteorological Applications* 31, e2202 DOI: [10.1002/met.2202](https://doi.org/10.1002/met.2202)

(15) Kemppinen, Julia... **Klinges, D.H.**... et al., 98 total co-authors. Microclimate, an inseparable part of ecology and biogeography. *Global Ecology and Biogeography* e13834 DOI: [10.1111/geb.13834](https://doi.org/10.1111/geb.13834)

(14) Holmquist, J.R., **Klinges, D.H.**...Megonigal, J.P. 20 total co-authors. The Coastal Carbon Library and Atlas: Open Source Soil Data and Tools Supporting Blue Carbon Research and Policy. *Global Change Biology* 30:e17098. DOI: [10.1111/gcb.17098](https://doi.org/10.1111/gcb.17098)

2023

(13) Price, F., Randriamiharisoa, L., **Klinges, D.H.*** Enhancing demographic diversity of scientist-community collaborations improves wildlife monitoring in Madagascar. *Biological Conservation* 288:110377. DOI: [10.1016/j.biocon.2023.110377](https://doi.org/10.1016/j.biocon.2023.110377). *Klinges senior author.*

(12) Basham, E.W., Baecher, J.A., **Klinges, D.H.**, Scheffers, B.R. Vertical stratification patterns of tropical forest vertebrates: a meta-analysis. *Biological Reviews* 98:99-114. DOI: [10.1111/brv.12896](https://doi.org/10.1111/brv.12896)

2022

(11) **Klinges, D.H.***, Duffy, J., Kearney, M.R., Maclean, I.M.D. mcera5: driving microclimate models with ERA5 global gridded climate data. *Methods in Ecology and Evolution* 13:1402–1411 DOI: [10.1111/2041-210X.13877](https://doi.org/10.1111/2041-210X.13877)

(10) Rixen, C... **Klinges, D.H.**... et al., 68 total co-authors. Winters are changing: snow effects on Arctic and alpine tundra. *Arctic Science*, 8:572–608. DOI: [10.1139/as-2020-0058](https://doi.org/10.1139/as-2020-0058)

(9) Lembrechts, J. J., van den Hoogen, J., Aalto, J., Ashcroft, M. B., De Frenne, P., Kemppinen, J., Kopecký, M., Luoto, M., Maclean, I. M. D., Crowther, T. W., Bailey, J. J., Haesen, S., **Klinges, D. H.**...Nijs, I. 272 total co-authors Global maps of soil temperature. *Global Change Biology* 00:1-35. DOI: [10.1111/gcb.16060](https://doi.org/10.1111/gcb.16060)

(8) Todd-Brown, K.E.O., Abromoff, R.Z., Beem-Miller, J., Blair, H.K., Earl, S., Frederick, K.J., Fuka, D.R., Santamaria, M.G., Harden, J.W., Heckman, K., Heran, L.J., Holmquist, J.R., Hoyt, A.M., **Klinges, D.H.**, LeBauer, D.S., Malhotra, A., McClelland, S.C., Nave, L.E., Rocci, K.S., Schaeffer, S.M., Stoner, S., Nvan Gestel, N., von Fromm, S.F., and Younger, M.L. Reviews and syntheses: The promise of big diverse soil data, moving current practices towards future potential. *Biogeosciences* 19:3505–3522. DOI: [10.5194/bg-19-3505-2022](https://doi.org/10.5194/bg-19-3505-2022)

(7) De Lombaerde, E., Vangansbeke, P., Lenoir, J., Van Meerbeek, K., Lembrechts, J., Rodríguez-Sánchez, F., Luoto, M., Scheffers, B., Haesen, S., Aalto, J., Christiansen, D.M., De Pauw, K., Depauw, L., Govaert, S., Greiser, C., Hampe, A., Hylander, K., **Klinges, D. H.**, Koelemeijer, I., Meeussen, C., Ogée, J., Sanczuk, P., Vanneste, T., Zellweger, F., Baeten, L. & De Frenne, P. Maintaining forest cover to enhance temperature buffering under future climate change. *Science of The Total Environment* 151338. DOI: [10.1016/j.scitotenv.2021.151338](https://doi.org/10.1016/j.scitotenv.2021.151338)

2021

(6) Maclean, I.M.D., **Klinges, D.H.** Microclimc: an R package for estimating above, below and within-canopy microclimate. *Ecological Modelling* 451:109567. DOI: [10.1016/j.ecolmodel.2021.109567](https://doi.org/10.1016/j.ecolmodel.2021.109567)

(5) Woelmer, W.M., Bradley, L.M., Haber, L.T., **Klinges, D.H.**, Lewis, A.S.L., Mohr, E.J., Torrens, C.L., Wheeler, K.I. & Willson, A.M. Ten simple rules for training yourself in an emerging field. *PLOS Computational Biology*, 17:e1009440. DOI: [10.1371/journal.pcbi.1009440](https://doi.org/10.1371/journal.pcbi.1009440)

(4) Frenne, P.D., Lenoir, J., Luoto, M., Scheffers, B.R., Zellweger, F., Aalto, J., Ashcroft, M.B., Christiansen, D.M., Decocq, G., Pauw, K.D., Govaert, S., Greiser, C., Gril, E., Hampe, A., Jucker, T., **Klinges, D.H.**, Koelemeijer, I.A., Lembrechts, J.J., Marrec, R., Meeussen, C., Ogée, J., Tyystjärvi, V., Vangansbeke, P. & Hylander, K. Forest microclimates and climate change: Importance, drivers and future research agenda. *Global Change Biology*, 27:2279-2297. DOI: [10.1111/gcb.15569](https://doi.org/10.1111/gcb.15569)

(3) **Klinges, D.H.*** & Scheffers, B.R. Microgeography, not just latitude, drives climate overlap on mountains from tropical to polar ecosystems. *The American Naturalist*, 197:75–92. Top 4 Most Read Articles of Autumn 2020. DOI: [10.1086/711873](https://doi.org/10.1086/711873)

- 2020** (2) Lembrechts, J.J., ... **Klinges, D.H.**...Lenoir, J. 179 *total co-authors*. SoilTemp: a global database of near-surface temperature. **Global Change Biology**, 00:1–14. DOI: [10.1111/gcb.15123](https://doi.org/10.1111/gcb.15123)
- 2017** (1) Reinke, B. A., **Klinges, D.H.** *Chelydra serpentina* (Snapping Turtle) behavior. **Herpetological Review** Natural History Notes 48(2):423. [Full text available here](#)
- UNDER REVIEW** **Klinges, D.H.***, Lembrechts, J.J., Van de Vondel, S., **Greenlee, E.**, Hayles-Cotton, K., Senior, R. A workflow for microclimate sensor networks: integrating geographic tools, statistics, and local knowledge. *In revision at Ecological Indicators*^ψ [Preprint available](#)
- Soifer, L.**, Lockwood, J. L., Lembrechts, J. J., Antão, L. H., **Klinges, D.H.**, Senior, R. A., Ban, N. C., Evengard, B., Fadrique, B., Falkeis, S., Fredston, A. L., Guralnick, R., Lenoir, J., Neate-Clegg, M. H. C., Palacios-Abrantes, J., Pecl, G., Pinsky, M. L., Smith, J. E., Stys, B., Tingley, M. W., Scheffers, B. R. Why extreme events matter for species redistribution. *In revision at Trends in Ecology and Evolution*^ψ [Preprint available](#)
- Baecher, J.A., **Klinges, D.H.**, Evans, L.J., Romagosa, C.M., Fletcher Jr., R.J., Scheffers, B.R. Jointly evaluating management, climate, and land use shows diffuse spread of an invading predatory snake. *In revision at Journal of Applied Ecology*^ψ [Preprint available](#)
- Greenlee, E.**, Cabral, A., **Klinges, D.H.**, Zegura, E., Hester, J. Opportunities and insights on sensor-based technology for biodiversity conservation in Madagascar. *In revision at Computer Supported Cooperative Work*^ψ
- Holmquist, J., Belshe, E. F., Boyd, B.....**Klinges, D.H.**, et al. 29 *total co-authors*. Probabilistic forecasting of coastal wetland soil carbon response to sea-level rise. *In revision at Ecological Monographs*

SOFTWARE

- 2024** **Microclimate sensor networks**: optimal selection of sensor locations for any landscape. **Klinges, D.H.**, Van de Vondel, S. <https://github.com/dklinges9/Microclimate-Sensor-Networks>
- 2023** **microclimf**: fast spatial microclimate modeling anywhere on earth. Maclean, I.M.D., **Klinges, D.H.** <https://github.com/ilyamaclean/microclimf>
- 2022** **mcera5**: driving microclimate models with ERA5 global gridded climate data. **Klinges, D.H.**, Duffy, J., Kearney, M.R., Maclean, I.M.D. <https://github.com/dklinges9/mcera5>
- 12 stars on GitHub, > 45 users assisted over email/GitHub
- 2021** **microclimc**: estimating above, below and within-canopy microclimate. Maclean, I.M.D., **Klinges, D. H.** <https://github.com/ilyamaclean/microclimc>

TEACHING AND MENTORING

Students Mentored

PhD students are formally under a separate primary supervisor

- 2024 – Thomas Kelly (PhD), University of Florida (*serving on PhD Committee*)
- 2024 – Eric Greenlee (PhD), Georgia Institute of Technology
- 2022 – Mikoja Rambintsoa (PhD), University of Antananarivo (*serving on PhD Committee*)
- 2022 – Lydia Soifer (PhD), University of Florida
- 2021 – 24 Fiona Price (Undergraduate), Dartmouth College ([Price et al. 2023](#), *Klinges senior author*)
- 2019 – 23 Herizo Randrianandrasana (Masters), University of Fianarantsoa
- 2019 – 22 Tsitohaina Randriambololona (PhD), University of Antananarivo (*deceased*)

Teaching Certifications

- 2023 Preparing Future Faculty Course, *University of Florida*

Teaching Assistant

- 2024 Biodiversity Conservation: Global Perspectives (WIS 2552), *University of Florida*
2024 Wildlife Issues in a Changing World (WIS 2040), *University of Florida*
2023 Natural Resource Ecology (WIS3404), *University of Florida*
2017 Peru Project Semester-Long Field Course (TA & Lecturer), *Wildlands Studies*

Workshop Designer/Leader

- 2025 Spatial Biophysics and Microclimate Tools. *International Biogeography Society*, invited
2025 Modeling physiologically-relevant microclimate variables anywhere on Earth. *ICCB 2025*, invited
2024 Data Analysis and Visualization in R for Ecologists. *Carpentries Workshop*, *University of Florida*
2023 Microclimate Data and Models for Ecological Applications. *Species on the Move 2023*, invited
2022 Analyser les Données pour la Gestion du Parc. *Madagascar National Parks*, in French
2020 – 22 Ecological Forecasting Initiative Student Association Workshop (3 consecutive years)
2020 Managing and Analyzing Geospatial Data in R. *Carpentries Workshop*, *University of Florida*
2019 Exploring Data with R Tidyverse and Git Version control. *Carpentries Workshop*, *Smithsonian*
2019 Measuring and Modeling Wetlands Soil Carbon. *Smithsonian Environmental Research Center*

Invited Lecturer

Linear Mixed Effects Models, *Coding4Conservation* (2022); *Global Change Biology*, *University of Florida* (2021); *Reptiles and Amphibians of the Southeast*, *University of Florida* (2021)

DEI, SERVICE AND OUTREACH

- 2021 – **DEI Database Manager**, *Ecological Forecasting Initiative*
 - Developed DEI database quantifying EFI's membership demographics to evaluate what initiatives increase diversity over time. Database used to inform EFI outreach
- 2021– **Steering Committee Member**, [Microclimate Ecology and Biogeography Consortium](#)
- 2021 – 22 **Early Career Steering Committee Member**, *Ecological Forecasting Initiative*
- 2019 – 23 **Student Association Co-Chair**, *Ecological Forecasting Initiative*
 - One of three inaugural chairs; organized monthly networking, training opportunities, and 3 workshops; composed Student Association's Operating Principles and Procedures
- 2019 – **Pro Bono Data Analyst**, *Madagascar National Parks (MNP)*
- 2019 – **Board Member/Scientific Advisor**, *Alliance for a Sustainable Amazon, Madre de Dios, Peru*
- 2019 – 21 **Expert Network Member**, *Constructing a Digital Environment*, *NERC, London, UK*
- 2018 **Museum Sleepover Series Volunteer and Video Producer** *Smithsonian Institution*

Invited Peer Referee: *Nature Climate Change*, *Global Change Biology*, *PNAS*, *Ecology Letters*, *Methods in Ecology and Evolution*, *Ecography*, *Global Ecology and Biogeography*, *Integrative and Comparative Biology*, *Ecosphere*, *Ecology and Evolution*, *Theoretical and Applied Climatology*, *Environmental Monitoring and Assessment*, *Forest Ecology and Management*, *Herpetology Notes* (~16 reviews per year)

NON-REFEREED PUBLICATIONS

Peters, J., Sjodin, A., Torres, R., McLachlan, J., Willson, A., **Klinges, D. H.**, Brown, C., Dalbotten, D., Bueno Watts, N., Kowalski, C. (2024) The EFI DEI Strategic Plan: What Have We Learned in 4 Years? *Ecological Forecasting Initiative Blog Post*. <https://ecoforecast.org/blog/#DEIJ>

Michonneau, J. F., Teal, T., Fournier, A., Seok, B., Obeng, A., Pawlik, A. N., Conrado, A. C., Woo, K., Lijnzaad, P., Hart, T., White, E. P., Marwick, B., Bolker, B., Jordan, K. L., Ashander, J., Dashnow H., Hertweck, K., Cuesta, S. M., Becker, E. A., Guillou, S., Shiklomanov, A., **Klinges, D. H.**, Odom, G. J. (2019) "datacarpentry/R-ecology-lesson: Data Carpentry: Data Analysis and Visualization in R for Ecologists, June 2019." <https://datacarpentry.org/R-ecology-lesson/>

SCIENCE COMMUNICATION AND MULTIMEDIA

Mongabay Environmental News, Washington, DC

2018 – 19 *Wildtech Journalism Intern, Freelancer-in-Residence*

- Reported on conservation tech to publicly communicate science; 9 published articles online: <https://goo.gl/KfHEK2>

RESET (Raising Excitement for Science, Engineering and Technology)

2018 – 19 *Volunteer Science Presenter*

- Educated hundreds of children with interactive exhibits on soil horizons, ecosystems, & adaptations.

Wildlands Studies, remote & Madre de Dios, Peru

2017 – 18 *Video Coordinator and Producer*

- Produced films on ecological field studies to be used in campus presentations (<https://goo.gl/ebsJXq>).

Amazon Conservation Association, Washington, DC

2018 *Communications and Social Media Intern*

- Managed photo archive, produced video content for social media posts, and annual report.

Dartmouth College, Hanover, NH

2015 *Digital Arts Lab Manager*

- Administered daily open hours; designed and taught workshops on film and photo editing.

INVITED SEMINARS

2025 University of Wisconsin-Madison

2025 Rutgers University

2024 Brown University

2024 Madagascar Biodiversity Center

2024 University of Florida

SELECT RECENT PRESENTATIONS

Klinges, D. H., co-authors. Climate Variability And Change Across Scales Using A Novel Global Microclimate Database. *Species on the Move 2023* (oral)

Klinges, D. H., co-authors. Spatial and temporal resolution versus incorporating microclimate: how to improve climate data for ecological models. *Microclimate Ecology and Biogeography 2022* (oral)

Klinges, D. H., Scheffers, B. Are mountain passes higher in the tropics? Revisiting the climate variability hypothesis suggests microgeography more important than latitude. *Ecological Society of America 2021* (oral)

Klinges, D.H., Holmquist, J., Megonigal, P. Modeling and mapping wetlands carbon as a community resource. *Chesapeake Sentinel Site Cooperative Marsh Resilience Summit 2018*, Williamsburg VA (oral)

Klinges, D. H., Holmquist, J., Megonigal, P. A network for coastal carbon: soil data archival as a community resource and to reduce uncertainties in modeling and mapping. *ESIP 2018*, Washington DC (oral)

HIGHLIGHTED SCIENTIFIC SKILLS

Expertise	Example Software
<i>Version Control and Program Dev</i>	Git, GitHub, Bash, SLURM
<i>Data curation & visualization</i>	tidyverse (e.g. tidy, dplyr), lubridate
<i>Spatiotemporal processing</i>	raster, terra, IDE, FRK, gstat, gDistance
<i>Statistics & Modeling</i>	RJAGS, MuMin, lme4, AICcmodavg
<i>Visualization & Web development</i>	ggplot2, RShiny

Other Software Programs: ArcGIS, Google Earth Engine, Bash, JAGS, Python, JavaScript, VBA, GitHub

Modeling: Bayesian Hierarchical Models, Spatial statistics, Structured decision making

Film: Canon DSLR cameras, Adobe Premiere Pro and Photoshop, Final Cut Pro, DJI Mavic Pro, ImageJ

Certifications: PADI scuba certified, FAA sUAS Remote Pilot License, Data Carpentries instructor

Wilderness: Navigation (compass and GPS), 4WD, manual transmission, CPR and First Aid certification

Languages: English (native), French (fluent)

Hobbies: Distance running, skiing, kayaking, scuba, backpacking