

KARI E. NORMAN

Rocky Mountain Research Station
United States Forest Service
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EDUCATION

University of California, Berkeley 8/2016–12/2021

Ph.D., Environmental, Science, Policy, and Management

Dissertation: *Synthesis approaches to quantifying biodiversity change, tools and applications*

Advisor: Dr. Carl Boettiger

Utah State University 8/2012–5/2016

B.S. Statistics, B.S. Conservation and Restoration Ecology with Honors

Minor in Biomathematics, *Magna cum Laude*

Thesis: *Biodiversity Prioritization: A Comparison of Data Types*

Advisor: Dr. Ethan White

PROFESSIONAL APPOINTMENTS

Biological Scientist (Research Data Scientist) 9/2023 – Present

USDA Forest Service

Rocky Mountain Research Station

Visiting Scholar 9/2023 – Present

Center for Fire Resilient Ecosystems & Society

University of New Mexico

BIOS² Postdoctoral Fellow, University of Montreal 4/2022 – 9/2023

Department of Biological Sciences

Mentor: Dr. Timothée Poisot

Developer, GEO BON 4/2022 – 9/2023

Developed pipelines for translating species observation data into monitoring networks, including implementing algorithms for site selection.

SCHOLARSHIP

Career interruption: My productivity reflects a total of 8 months of maternity leave and 9 months of full-time caretaking responsibility during the COVID-19 pandemic.

Total number of citations: 271 | h-index: 8
 Accessed from Google Scholar 7 Nov 2025

Peer-Reviewed Publications

1. **Norman, KE**, C Boettiger, T Poisot, GM Jones. *In press*. The role of AI in ecology's computational carbon footprint. *Frontiers in Ecology and Evolution* *Contribution: conceptual development, writing*
 *** Submitted manuscript attached to application materials
2. **Norman, KE**, A Stillman, S Parks, C Davis, GM Jones. *In press*. Exposure of western United States bird communities to predicted high severity fire. *Nature Communications* *Contribution: conceptual development, data curation, analysis, writing*
 *** Submitted manuscript attached to application materials
3. Sanderlin, J, GM Jones, BE Strohmeier, CM Wood, VS foster, R Guaderrama, A Chavez, P Handley, S Kahl, R Kirby, **KE Norman**, J Williams. 2025. Expanding biodiversity monitoring in the southwestern United States with passive acoustic monitoring. *Southwest Naturalist*, 69(4):1-11, doi.org/ 10.1894/0038-4909-69.4.14. *Contribution: conceptual development, figures*
4. **Norman, KE**, T Poisot. Site selection algorithm for optimal ecological monitoring design. 2025. *Ecological Indicators*, 178: 114104, doi.org/10.32942/X2XC96. *Contribution: conceptual development, analysis, writing*
5. Banville, F, T Strydom, P Blyth, C Brimacombe, MD Catchen, G Danseareau, G Higino, T Malpas, H Mayall, **KE Norman**, D Gravel, T Poisot. Deciphering probabilistic species interaction networks. 2025. *Ecology Letters*, 28(6): e70161, doi.org/10.32942/X28G8Z. *Contribution: conceptual development*
6. Jones, GM, C Thompson, SC Sawyer, **KE Norman**, SA Parks, TM Hayes, DL Hankins. Conserving landscape dynamics, not just landscapes. 2025. *BioScience*, 75(5): 409–415, <https://doi.org/10.1093/biosci/biaf023> *Contribution: Conceptual development, writing*
7. Miller-ter Kuille, A, JS Sanderlin, J Ayars, HE Chmura, M Dressen, JD Golding, GM Jones, R Kirby, KE Norman, Z Steel, VS Foster. 2025. Functionalizing ecological integrity: using functional ecology to monitor animal communities. *Frontiers in Ecology and the Environment* e2852. *Contribution: conceptual development, writing*

8. **Norman, KE**, P de Valpine, C Boettiger. 2025. No general trend in functional diversity in bird and mammal communities despite compositional change. *Global Ecology and Biogeography* 34 (1), e13950. Contribution: conceptual development, analysis, writing
9. Chapman, Melissa, B Goldstein, C Schell, J Brashares, N Carter, D Ellis-Soto, H Faxon, J Goldstein, B Halpern, J Longdon, **KE Norman**, D O'rourke, C Schell, C Scoville, L Xu C Boettiger. 2024. Biodiversity monitoring for a just planetary future. *Science* 383 (6678): 34-36. Contribution: conceptual, writing
10. Halpern, BS, C Boettiger, MC Dietze, JA Gephart, P Gonzalez, NB Grimm, PM Groffan, J Gurevitch, SE Hobbie, KJ Komatsu, KJ Kroeker, HJ Lahr, D Lodge, CJ Lortie, JSS Lowndes, F Micheli, HP Possingham, MH Ruckelshaus, C Scarborough, CL Wood GC Wu and NCEAS Future of Synthesis Summit Participants (including **KE Norman**). 2023. Priorities for synthesis in ecology and environmental science. *Ecosphere* 14 (1): e4342. Contribution: conceptual development, writing
11. Lapeyrolerie, M, MS Chapman, **KE Norman**, C Boettiger. 2022. Deep Reinforcement Learning for Conservation Decisions. *Methods in Ecology and Evolution* 00:1-14. Contribution: writing
12. Li, D, S Record, ER Sokol, ME Bitters, MY Chen, YA Chung, MR Helmus, R Jaimes, L Jansen, MA Jarzyna, MG Just, JM LaMontagne, B Melbourne, W Moss, **KE Norman**, S Parker, N Robinson, B Seyednasrollah, C Smith, S Spaulding, T Surasinghe, S Thomsen, P Zarnetske. 2022. Tidy NEON organismal data for biodiversity research. *Ecosphere* 13 (7): e4141 Contribution: conceptual development, analysis, writing
13. Jarzyna, MA., **KE Norman**, JM LaMontagne, MR Helmus, D Li, SM Parker, M Perez Rocha, S Record, ER Sokol, PL Zarnetske, and TD Surasinghe. 2022. Ecosystem stability is related to animal diversity dynamics at a continental scale. *Ecosphere* 13 (3): e3970. Contribution: conceptual development, analysis, writing
14. Nagy, RC, JK Balch, EK Bissell, ME Cattau, NF Glenn, BS Halpern, N Ilangakoon, B Johnson, MB Joseph, S Marconi, C O'Riordan, J Sanovia, TL Swetnam, WR Travis, LA Wasse, PL Zarnetske and 2019 NEON Science Summit Participants (including **KE Norman**; 118 authors). 2021. Harnessing the NEON data revolution to advance open environmental science with a diverse and data-capable community. *Ecosphere* 12 (12): e03833. Contribution: conceptual development
15. **Norman, KE**, S Chamberlain, and C Boettiger. 2020. Taxadb: A High-Performance Local Taxonomic Database Interface. *Methods in Ecology and Evolution* 11 (9): 1153-9. Contribution: conceptual development, software development, writing

In Review and In Prep

16. Chmura, HE, M Ditmer, GM Jones, MK Schwartz, JM Tucker, RB Hart, **KE Norman**, AM Townsend, SL Stock, RE Green. *In review*. Divergent Activity Patterns of Male and

Female Fishers in a Human-Influenced Landscape. *Canadian Journal of Zoology*
Contribution: conceptual development, writing

17. Griffith, J, JM Lord, MD Catchen and 43 others (including **KE Norman**). 2024. BON in a Box: An Open and Collaborative Platform for Biodiversity Monitoring, Indicator Calculation, and Reporting. *EcoEvoRxiv*. doi.org/10.32942/X2M320. *In review at Bioscience* *Contribution: conceptual development, writing*
18. **Norman, KE** & EP White. 2019. *Preprint*. Implications of data type for biodiversity prioritization. *bioRxiv*. : <https://doi.org/10.1101/685735> *Contribution: conceptual development, analysis, writing*
19. **Norman, KE**, J Sanderlin, C Wood, GM Jones. *In prep*. Power analysis for monitoring of a federally threatened species: a case study for the Mexican Spotted Owl. *Contribution: conceptual development, data curation, analysis, writing*
20. Stillman, AN, M Stimas-Mackey, G Duran, **KE Norman**, Z Steel, S Sawyer, MW Tingley, D Fink, S Ligocki, T Auer, V Ruiz-Gutierrez, GM Jones. *In prep*. Bird responses to fire and pyrodiversity differ across the western US. *Contribution: conceptual development, figures, writing*
21. Catchen, M, **KE Norman**, T Poisot. *In prep*. BiodiversityObservationNetwork.jl: a Julia package for monitoring network design. *Contribution: conceptual development, software development, writing*

Book Chapters

22. Jones, GM, E Ng, **KE Norman**, L Schaefer, Z Steel, A Stillman. *In prep*. "Landscape fire and wildlife: patterns, processes, and feedbacks", *The Landscape Ecology of Fire* (2nd Edition). Springer.

SOFTWARE

Taxadb R Package (<https://github.com/ropensci/taxadb>)
 BiodiversityObservationNetwork.jl Julia package
 (<https://github.com/EcoJulia/BiodiversityObservationNetworks.jl>)

GRANTS

BIOS² Postdoctoral Fellowship for Persistence	2022-2023
Project: Large-scale ecosystem modeling for biodiversity monitoring, \$35,000	
Department of Energy Computational Science Graduate Fellowship	2017-2021
Project: Development of multi-taxa joint species distribution models, \$150,000	

National Science Foundation Graduate Fellowship 2016 (deferred)	2016
Project: Development of multi-taxa joint species distribution models \$96,000	
NSF NRT Fellowship, Data Science for the 21st Century , \$20,000	2016-2017
Undergraduate Research and Creative Opportunities Grant	2014
Project: Climate change impacts on the Uinta Ground Squirrel, \$2,000	
Undergraduate Research Fellowship , \$4000	2012-2016
Quinney Scholar Fellowship , \$16,000	2012-2016
Utah State University Presidential Scholar , \$12,000	2012-2016
State of Utah Regents Scholar , \$6,000	2012-2014

AWARDS

Utah State University College Honors	2016
Outstanding Statistics Undergraduate	2016

TEACHING EXPERIENCE

Teaching Assistant

Reproducible and Collaborative Data Science (ESPM 288) 2017

Led weekly lab sessions, developed teaching resources for a class with varied coding background

Python Tutor

Self Employed (Utah State University) 2014-2016

Developed exercises for teaching basic to intermediate Python concepts

Training

Professional Preparation: Teaching in Environmental Science, Policy, and Management, Semester-long course 2016

SEMINARS & CONFERENCE PRESENTATIONS

Invited Seminars

“Yesterday’s and tomorrow’s data: Synthesis approaches for the biodiversity crisis” 2025
Department of Organismal Biology & Ecology, Colorado College

“Synthesis approaches to assessing biodiversity change: yesterday and tomorrow’s data” 2023
Department of Biology, University of Montreal

“A computational approach to biodiversity change: does function follow richness?” 2018
Oakridge National Lab

Invited Symposia

- “Exposure of southwestern avian biodiversity to future high severity fire” 2026
Fire on the Rise: Climate, Land Use, and Ecological Shifts in the Southwest
 Ecological Society of America, Salt Lake City, UT
- “Broad-scale assessment of bird biodiversity exposure to future high severity fire: a management prioritization tool” 2025
Leveraging large ecological datasets for data-informed decision-making
 Biennial Conference of Science & Management: Colorado Plateau & Southwest Region
- “Evaluating the evidence of widespread maintenance of functional diversity in vertebrate communities” 2022
Functional Traits Across Scales
 Unifying Ecology Across Scales Gordon Research Seminar
- “A computational approach to biodiversity change” 2021
 Computational Science Graduate Fellowship Program Review
- “Ecosystem stability is related to animal diversity dynamics at a continental scale” 2021
Leveraging FAIR data to discover new connections in ecology Symposium
 Ecological Society of America Meeting

Contributed Talks

- KE Norman, P. de Valpine, and C Boettiger, “Evaluating the evidence of widespread maintenance of functional diversity in vertebrate communities”, Ecological Society of America, Montréal, CA, August 2022.
- KE Norman and C Boettiger, “Global functional diversity trends, a lens for detecting biodiversity change”, Ecological Society of America, Salt Lake City UT, August 2020.
- KE Norman and L Aubry, “Demographic Consequences of Climate Change in a Hibernator, the Uinta Ground Squirrel”, Utah State Student Research Symposium, Utah State University, April 2015.
- KE Norman and S Null, “Modeling Streamflow in the Wasatch Mountain Region with Climate Change”, iUtah Cohort Session, Salt Lake City, August 2013.

Contributed Posters

- KE Norman, A Stillman, S Parks, GM Jones, “Exposure of western United States bird communities to predicted high severity fire”, Gordon Research Conference: Unifying Ecology Across Scales, Southern New Hampshire University, July 2024.
- KE Norman and A Boyer, “Measuring biodiversity change: does function follow richness?”, International Biogeography Society Conference, January 2019.
- KE Norman and E White, “Biodiversity Prioritization: A comparison of data types”, Gordon Research Conference: Unifying Ecology Across Scales, University of New England, July 2016.
- KE Norman and L Aubry, “Demographic Consequences of Climate Change in the Uinta Ground Squirrel”, Research on Capitol Hill, Salt Lake City, January 2016.

KE Norman and E White, "Biodiversity Prioritization: A comparison of data types", Ecological Society of America, Baltimore, August 2015.

KE Norman and E White, "Biodiversity Prioritization: A comparison of data types", National Conference of Undergraduate Research, Spokane, April 2015.

RESEARCH POSITIONS

Research Fellow, Oakridge National Lab, PI: Dr. Alison Boyer 2018
Synthesized and standardized functional trait databases, developed a cloud-based workflow for calculating functional diversity null models.

Botanist, US Forest Service, PI: Mike Duncan 2016
Established long-term range land quality monitoring system, completed ground-truthing for development of a state-wide vegetation map.

Undergraduate Research Fellow, Utah State University, PI: Dr. Ethan White 2014-2016
Created biodiversity maps of bird species in North America using PostgreSQL and Python programming language, code found at www.github.com/weecology/diversity-conservation

Undergraduate Research Fellow, Utah State University, PI: Dr. Lise Aubry 2014-2016
Performed surveys of Uinta Ground Squirrel populations, assessed demography using Capture-Mark-Recapture Robust Design model in RMark

DAAD Rise Research Intern, University of Göttingen, PI: Dr. Benjamin Saefken 2014
Developed model to predict forest biomass from LiDAR data using mixed effects and nonparametric modeling approaches

PROFESSIONAL SERVICE

External

Data Editor, *Ecology Letters*, 2025-Current

National Ecological Observation Network Technical Working Group, 2022-Current
Beetles and Forecasting Working Groups

Society for Open, Reliable, and Transparent Ecology and Evolutionary, 2022-2023
Awards Committee Co-Chair

Expanding Your Horizons Network, 2016 – 2020
Organizational Committee Chair

University

ESPM Student Grant Review Panel 2017

Vice President, USU Chapter, Society for Range Management, 2015-2016

Wildland Dept. Rep., Natural Resources Student Council, 2013-2016

Founding Member, Ecology Club, 2014

Mentorship

Danielle Owns, MS student University of New Mexico, 2024-2026

Elizabeth Ng, PhD student University of New Mexico, 2025-Present

Peer Review

Nature Biodiversity Reviews, Proceedings of the National Academy of Science, Diversity and Distributions, Conservation Biology, Journal of Wildlife Management, Plant Diversity, Proceedings of the Royal Society B, ROpenSci Package Review

PROFESSIONAL SOCIETIES, WORKING GROUPS, WORKSHOPS

Working Groups

Power and Peril in multi-species monitoring programs, CIEE working group	2023-2024
BON in the Box, GEO BON Initiative	2022 -2023
Identifying priority sampling locations for local food webs in Canada, BIOS ²	2021-Present
Ecological Forecasting Initiative NEON Forecasting Challenge Planning	2020-Present
Tidy NEON organismal data, pipeline and application	2019-2021

Society Membership

Ecological Society of America, International Biogeography Society

Meetings Attended

International Fire Ecology and Management Congress	2024
American Ornithological Society	2024
Gordon Research Conference: Unifying Ecology Across Scales	2016, 2022, 2024
Ecological Society of America	2011, 2020-2022
International Biogeography	2019
Society for Conservation Biology, California	2017

Training & Workshops

Future of Synthesis in Ecology Virtual Workshop	2021
NEON Science Summit	2019
Data Science for the 21 st Century NSF Research Traineeship	2016-2018