

Anna I. Spiers

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EDUCATION

- Ph.D. in Ecology & Evolutionary Biology. University of Colorado Boulder 2023
Committee: Brett Melbourne, Kendi Davies, Carol Wessman, Katherine Suding, Megan Cattau
- B.A. in Mathematics. Williams College 2015
Advisor: Julie Blackwood

PROFESSIONAL EXPERIENCE

- Postdoctoral Research Fellow.* Lawrence Berkeley National Lab 2023 - present
- Research Intern.* The Nature Conservancy Washington 2022
- Research consultant.* Forestation International 2021 - 2022
- Graduate research assistant.* Department of Ecology & Evolutionary Biology 2018 - 2021
- Graduate research assistant.* Earth Lab Analytics Hub/CIRES 2019 - 2020
- Quality assurance analyst.* Epic Health Systems, Public Health Team 2015 - 2016
- Undergraduate research fellow.* Medicinal Plants and Ethnobotany in Peru 2014
- Undergraduate researcher.* Tardigrades in the Forest Canopy 2013 - 2014

PUBLICATIONS

7. Mahood, Adam L., Maxwell B. Joseph, **Anna I. Spiers**, Michael J. Koontz, Nayani Ilangakoon, Kylen Solvik, Nathan Quaderer, et al. (2023). Ten simple rules for working with high resolution remote sensing data. *Peer Communities In Ecology*. *EcoEvoRxiv* preprint: <https://doi.org/10.31219/osf.io/kehqz>
6. Koontz, Michael J., Victoria Scholl, **Anna I. Spiers**, Megan E. Cattau, John Adler, Joseph McGlinchy, Tristan Goulden, Brett A. Melbourne, and Jennifer K. Balch. (2022). Democratizing macroecology: integrating uncrewed aerial systems with the National Ecological Observatory Network. *Ecosphere*.
5. **Spiers, Anna I.**, J. Andy Royle, Christa L. Torrens, and Maxwell B. Joseph. (2022). Estimating occupancy dynamics and encounter rates with species misclassification: a semi-supervised, individual-level approach. *Methods in Ecology & Evolution*. <https://doi.org/10.1111/2041-210X.13858>
4. Nagy, Chelsea R., Jennifer K. Balch, and 118 co-authors. 2021. Harnessing the NEON data revolution to advance open environmental science with a diverse and data capable community. *Ecosphere*. 12 (12): e03833. <https://doi.org/10.1002/ecs2.3833>
3. Haefke, Brandon J., **Anna I. Spiers**, William R. Miller, and Meg D. Lowman. 2014. Tardigrades of the Canopy: *Doryphoribius elleneddiei* nov. sp. (Eutardigrada, Parachela, Hypsibiidae), a New Species from Eastern Kansas, U.S.A. *Transactions of the Kansas Academy of Science*. <https://doi.org/10.1660/062.118.0106>
2. **Spiers, Anna I.**, Brandon J. Haefke, William R. Miller, and Meg D. Lowman. 2013. Tardigrades in the Canopy: *Doryphoribius dawkinsi* Michalczyk and Kaczmarek, 2010 - New records from eastern Kansas, U.S.A. *Transactions of the Kansas Academy of Science*. 116(3/4):125-128. <https://doi.org/10.1660/062.117.0319>

1. Brandon J. Haefke, **Anna I. Spiers**, William R. Miller, and Meg D. Lowman. 2013. Tardigrades in the Canopy: Using Double Rope Techniques to Conduct Sampling Along Vertical Transects. *Transactions of the Kansas Academy of Science*. 116(3-4):119-124.
<https://doi.org/10.1660/062.116.0303>

GRANTS AND AWARDS

Total: \$89,443

PEO Scholar Award (\$20,000)	2022 - 2023
NSF INTERN Grant (\$43,074)	2022
CU Boulder EBIO Conference Travel Grant (\$1,000)	2022
CU Boulder EBIO Research Grant (\$7,159)	2018 - 2021 (sans 2020)
Graduate School Travel Grant (\$600)	2019, 2022
Graduate School University Fellowship (\$2,360)	2018
AAUW Brown-Ricketts-Udick Grant (\$1,000)	2018
Student Government Small Group Grant (\$750)	2018
Kate Hogan Women's Athletic Award	2015
Williams College Class of 1957 Scholar	2012 - 2015
Athletic Conference (NESCAC) All-Sportsmanship Team Honor	2014
Robert G. Wilmers, Jr. 1990 Memorial Student Travel Fellowship (\$5,000)	2014
Richmond Times-Dispatch Scholar-Athlete Scholarship (\$7,500)	2011
AKA Sorority Academic Honor Scholarship (\$1,000)	2011

MENTORSHIP

Undergraduate mentorship

Hailey Perryman, University of Colorado Boulder (Ecology major). Mentored throughout honors thesis (e.g., primary literature reading, statistics, scientific writing)	2022 - 2023
Amber Kou, University of Colorado Boulder (Computer Science major). Mentored in satellite image time-series processing in R	2022
Wyatt Metelman-Alvis, University of Colorado Boulder (Ecology major). Mentored throughout honors thesis (e.g., primary literature reading, statistics, scientific writing)	2021 - 2022
Jacob Hornfeldt, University of Florida (Entomology and Nematology major). Ecological Society of America Meeting SEEDS Program	2020

Graduate peer mentorship

Chris Arehart, University of Colorado Boulder (Evolutionary Biology). Mentored for research rotation regarding remote sensing data manipulation	2021
Skylar Lynch, University of Colorado Boulder (Evolutionary Biology). Graduate School Peer Mentorship Program. Offered guidance and support to new graduate students to fulfill the need for mentoring across disciplinary boundaries and to build community among different graduate student populations.	2019 - 2020
Isaiah Tristan, University of Colorado Boulder (Astrophysics). Graduate School Peer Mentorship Program. Offered guidance and support to new graduate students to fulfill the need for mentoring across disciplinary boundaries and to build community among different graduate student populations.	2018 - 2019

TEACHING EXPERIENCE

Teaching assistant

EBIO 1240 General Biology 2, University of Colorado Boulder 2023
EBIO 3590 Plants and Society, University of Colorado Boulder 2020
EBIO 2040 Principles of Ecology, University of Colorado Boulder 2017 - 2018,
2022

MATH 200 Discrete Math, Williams College 2014

Formal training

Inclusive Pedagogy, University of Colorado Boulder 2018

OPEN EDUCATION RESOURCES

Spiers, Anna I. 2021. From csv to slippy map: Introduction to Spatial Data in R. August 2021.
R-Ladies Boulder Chapter Meeting.
https://github.com/annaspiers/spatial-data_mapping_RLadies

Spiers, Anna I. Submitting to the Ecological Forecasting Challenge. June 2021. Ecological
Forecasting Initiative Student Association Early Career Workshop.
https://github.com/eco4cast/EFISA_Workshops_June2021
Presentation: <https://youtu.be/S8x5rLt1tDU>

PUBLICATIONS (NON-REFEREED)

Robin L. Chazdon and **Anna I. Spiers**. 2021. Reviving traditional land-use practices to restore
landscape and livelihoods in Shinyanga, Tanzania. Collaboration between Forestation
International and Restor.

Sarah J. Wilson, Sophie McCallum, and **Anna I. Spiers**. 2021. The hidden forest: farmers tend
regenerating trees in African Drylands. Collaboration between Forestation International and
Restor.

INVITED TALKS

Spiers, Anna I., Brett Melbourne, and Kendi F. Davies. Synergistic impacts of 2023
wildfire and forest fragmentation on tree mortality. Landscape Ecology course at
University of Colorado Boulder (Prof. Julian Resasco).

Spiers, Anna I.. Fragmentation and Drought and Fire, Oh My. Departmental 2022
Meeting for Prospective Students Lightning talks.

Spiers, Anna I., Carl Boettiger, Tad Dallas, Nico Franz, Brett A. Melbourne, Kari 2021
Norman, Eric Sokol, Thilina Surasinghe, and Kelsey Yule. Forecasting Beetle
Community Metrics. Ecological Forecasting Initiative Student Association Early
Career Workshop. <https://youtu.be/7196wcarMXQ>

Spiers, Anna I. Forecasting invertebrate distributions in a fragmented landscape. 2020
Remote Sensing of the Environment course at Boise State University (Prof.
Megan Cattau).

CONTRIBUTED PRESENTATIONS

Talks

Spiers, Anna I., Brett Melbourne, and Kendi F. Davies. Synergistic impacts of 2023
wildfire and forest fragmentation on tree mortality (12 min). Ecological Society
of America Annual Meeting.

Spiers, Anna I., Brett Melbourne, and Kendi F. Davies. Linked disturbances in 2022
Australia: Synergistic impacts of wildfire and forest fragmentation on tree
mortality (45 min). Earth Lab Environmental Data Science Seminar. *Remote*.

- Spiers, Anna I.**, Carl Boettiger, Tad Dallas, Nico Franz, Brett A. Melbourne, Kari Norman, Eric Sokol, Thilina Surasinghe, and Kelsey Yule. Forecasting the responses of beetle community metrics (5 min INSPIRE talk). Ecological Society of America Annual Meeting. *Remote Conference*. 2021
- Spiers, Anna I.**, Luis Allende, Kendi F. Davies, Max B. Joseph, Brett A. Melbourne, Christa Torrens, and Grant Vagle. Forecasting carabid distribution shifts with global warming using remote sensing and open source data (5 min lightning talk). Society for Conservation Biology North America Annual Meeting. *Remote Conference*. 2020
- Victoria Scholl, **Spiers, Anna I.**, Michael J. Koontz, Megan E. Cattau. Integrating UAS with Airborne Neon Data for Ecological Applications (15 min). American Society for Photogrammetry and Remote Sensing (ASPRS) Annual Meeting. *Remote Conference*. 2020
- Spiers, Anna I.** Remote sensing: what can it do for EEB and what resources are at CU Boulder? (45 min). Departmental Lunch and Learn Seminar. 2019
- Spiers, Anna I.** Female Role Models in Mathematical Ecology (30 min). American Association for University Women Boulder Chapter Meeting. 2019
- Spiers, Anna I.**, Kendi F. Davies, Brett A. Melbourne, Megan E. Cattau, and Keith Musselman. Let the Sunshine In: Modeling solar radiation in a fragmented landscape (45 min). Earth Lab Incubator. 2019
- Spiers, Anna I.** The science of Pura Vida: Tropical exploration through the Organization for Tropical Studies (45 min). Departmental Lunch and Learn Seminar. 2019
- Spiers, Anna I.** Habitat Fragmentation (3 min). University of Colorado Student Research Spring Symposium. 2018
- Spiers, Anna I.** and Julie C. Blackwood. Predicting the Future: How to Predict Critical Transitions in Ecological Systems (45 min). Williams College Department of Mathematics Senior Colloquium. 2014
- Posters*
- Spiers, Anna I.**, Brett A. Melbourne, and Kendi F. Davies. Synergistic impacts of wildfire and experimental forest fragmentation on tree mortality. Ecological Society of America Annual Meeting. *Remote Conference*. 2021
- R. Quinn Thomas, Carl Boettiger, Cayelan Carey, Michael Dietze, and 14 more co-authors. Introducing the NEON Ecological Forecasting Challenge hosted by the Ecological Forecasting Initiative Research Coordination Network. American Geophysical Union Annual Meeting. *Remote Conference*. 2020
- Spiers, Anna I.**, Luis Allende, Kendi F. Davies, Max B. Joseph, Brett A. Melbourne, Christa Torrens, and Grant Vagle. NEON: Forecasting carabid beetle dynamics in forests. Ecological Society of America Annual Meeting. *Remote Conference*. 2020
- Spiers, Anna I.**, Megan E. Cattau, Joseph McGlinchy, Brian Johnson, Brett A. Melbourne, and Kendi F. Davies. Combining UAV remote sensing and ground sensors to model understory solar radiation and thermal habitat in a fragmented forest landscape. Ecological Society of America Annual Meeting. 2019
- Spiers, Anna I.**, Brett A. Melbourne, and Kendi F. Davies. Combining UAV remote sensing and ground sensors to model understory solar radiation and thermal habitat in a fragmented landscape. Cooperative Institute for Research in Environmental Sciences Annual Rendezvous. 2019
- Spiers, Anna I.**, Jacqueline Wentz, Brett A. Melbourne, and Kendi F. Davies. The role of *Eucalyptus radiata* in a fragmented landscape. Guild of Rocky Mountain Ecologists and Evolutionary Biologists Annual Meeting. 2018
- Spiers, Anna I.**, Jacqueline Wentz, Brett A. Melbourne, and Kendi F. Davies. Modeling *Eucalyptus radiata* canopy response to habitat fragmentation. Ecological Society of America Annual Meeting. 2018

SERVICE

Manuscript reviewer. Biological Invasions

Member. Graduate student panel for prospective students 2018-22

Member. Departmental working group to design/implement an antiracist policy 2021

Co-coordinator. Departmental Lunch and Learn Seminar series 2022

Python Assistant. NC CASC Climate Data 101 in Python Workshop 2021

Team lead. Ecological Forecasting Initiative Forecasting Challenge Design Team: Beetle Communities 2020 - 2021

Member. NEON Ecological Forecasting Working Group 2019 - 2021

Quantitative Think Tank: Departmental quantitative methods discussion group

Member 2017 - 2020

Leader 2020

Organizer. Departmental Spring Student Research Symposium 2018 - 2019

Organizer. Departmental Non-Academic Career Panel 2018

Board Member. Student Math & Statistics Advisory Board 2013 - 2014

Student ambassador. NCAA Substance Abuse Awareness (APPLE) Committee 2013 - 2014

OUTREACH

Pen Pal. Letters to a Pre-Scientist 2018 - present

Judge. International Virtual Science Symposium 2019 - present
(sans 2021)

Scientist. Girls On (GO) STEM workshops and fair 2020

Judge. Swigert Elementary School Science Fair 2020

Member. Inspiring Girls Expeditions: Girls on Rock 2019

Organizer. Boulder-Denver City Nature Challenge BioBlitz 2019

Invited writer. Natural History of Ecological Restoration blog by Dr. Leighton Reed 2019

Outdoor educator. Thorne Nature Experience at Pioneer Bilingual Elementary School 2019

Member. Departmental Evolution Outreach Committee 2018

SKILLS AND PROFICIENCIES

Coding languages: Use regularly: R, Use infrequently: Python, MatLab, Use rarely: Java

Data manipulation and visualization in R: tidyverse (dplyr, ggplot2, tidyr, data.table, tmap)

GIS: R (raster, sf, lidR), Structure from Motion photogrammetry (Agisoft Metashape), QGIS

Inference: Hierarchical modeling in R using Bayesian frameworks (rstan, jagsUI) and maximum likelihood (lme4), agent-based simulation modeling in Bash

Fieldwork: Certified UAS pilot under University of Colorado COA, Vegetation plot establishment, Tree stem mapping using laser instruments, Tree climbing certificate from Tree Climber's International

Version control: git, GitHub

Dynamic documents: RMarkdown, L^AT_EX

Spoken language: Fluent: English, Conversational: Spanish, American Sign Language

PROFESSIONAL MEMBERSHIPS

Ecological Society of America 2019 - present (sans 2020)