

EDUCATION

PhD. University of Colorado, Boulder. Advisors: M. Deane Bowers, Robert Guralnick 2013
Department of Ecology and Evolutionary Biology

M.A. University of Colorado, Boulder. Advisor: M. Deane Bowers 2009
Department of Ecology and Evolutionary Biology

B.S. University of California, Berkeley 2003
Major: Molecular Environmental Biology

Continuing Education and Certifications

Udemy - Machine Learning A-Z	Current
Compass Science Communications Workshop	2017
Software/Data Carpentry Instructor Certification	2014
Bayesian Modeling for Practicing Ecologists	2014

RESEARCH INTERESTS & SKILLS

Data Management & QA/QC	Python, R, Javascript	Ecological Modeling
Bayesian & Frequentist Statistical Analysis	Git/Github	Community Ecology
Mobile Application Development	Markdown, SQL,HTML	Scientific Writing
Spatial Data Processing & Analyses	GIS Modeling Applications	Spatial Ecology

PROFESSIONAL EXPERIENCE

National Ecological Observatory Network (NEON) 2014-Present

Data Scientist II & Scientific Software Developer

- Development and implementation data QA/QC algorithms and tools for staff use
- Development of mobile data collection applications
- Assistance with spatial data processing and workflow improvement
- Development and implementation of observatory commissioning tests, and report generation
- Outreach to scientific community through conference & workshop attendance/teaching
- Contribution of lesson materials/coding support to 'NEON Data Skills' website
- General support to science staff for technical document writing, statistical analyses, data acquisition and management, development and use of scripting tools (R, Python, Javascript) for various workflows

RESEARCH

Understanding the drivers of butterfly diversity patterns and testing model transferability across global ecosystems. 2009-2013

Dissertation research, with M. Deane Bowers and Robert Guralnick
Department of Ecology and Evolutionary Biology; University of Colorado, Boulder

Graduate Research Assistant: Modeling variables of importance to the distributions of organisms on a global scale; integrating global species distributions, remote sensing, and climate data to assess biodiversity response to climate change (with NASA) 2011-2013

- Climate and Biological Response program and NCEAS), with Robert Guralnick
Department of Ecology and Evolutionary Biology; University of Colorado, Boulder
- Research Data Analyst: Statistical analyses on various research projects, using R statistical software, with Michael Grant 2010-2012
Department of Ecology and Evolutionary Biology; University of Colorado, Boulder
- Monitoring the effects of habitat type and land-use variables on butterfly communities: Master's Research, with M. Deane Bowers 2006-2009
Department of Ecology and Evolutionary Biology; University of Colorado, Boulder
- Graduate Research Assistant: Museum collection reorganization and improvement: insect teaching collection, with M. Deane Bowers 2008
Department of Ecology and Evolutionary Biology; University of Colorado, Boulder
- Research Assistant: Small mammal disease dynamics and population ecology, with Sharon Collinge 2004
Department of Ecology and Evolutionary Biology; University of Colorado, Boulder
- Lab Assistant II: Amphibian parasite and fungal pathogen ecology, with Cheryl Briggs 2003
Department of Integrative Biology; University of California, Berkeley
- Lab Assistant II: Gall making insect and parasitoid population ecology, with Cheryl Briggs 2002-2003
Department of Integrative Biology; University of California, Berkeley
- Field Assistant II: Invasion dynamics in a California grassland ecosystem, with Jeffrey Corbin 2002
Department of Integrative Biology; University of California, Berkeley
- The effects of invasive species on insect communities in a California grassland ecosystem. Undergraduate research with Jeffrey Corbin 2002-2003
Department of Integrative Biology; University of California, Berkeley

PUBLICATIONS

In Press:

Li, D., Record, S., Sokol, E., Bitters, M., Chen, M., Chung, A., Helmus, M., Jaimes, R., Jansen, L., Jarzyna, M., Just, M., LaMontagne, J., Melbourne, B., Moss, W., Norman, K., Parker, S., **Robinson, N.**, Seyednasrollah, B., Smith, C., Spaulding, S., Surasinghe, T., Thomsen, S., Zarnetske, P. NEON organismal data for biodiversity research. *Ecosphere*, *under review*.

Robinson, N., Barnett, D.T., Jones, K. D., Stanish, L. F., Parker, S. M. Multiple dimensions of resilience: How NEON supports ecology and community in the face of compounding disasters. *Frontiers in Environmental Science*, *under review*.

Peer-reviewed:

Parmentier, B., McGill, B., Wilson, A., Regetz, J., Jetz, W., Guralnick, R., Tuanmu, M-N., **Robinson, N.**, Schildhauer, M. An assessment of methods and remote-sensing derived covariates for regional predictions of 1 km daily maximum air temperature. *Remote Sensing*. 2014, 6(9),

8639 – 8670.

Robinson N., Kadlec, T., Guralnick, R. P., Bowers, M. D. 2014. Integrating Species traits and habitat characteristics into models of butterfly diversity in a fragmented ecosystem. *Ecological Modelling*. 2014, 281(2014), 15-25.

Robinson, N., Regetz, J., Guralnick, R. P. 2014. EARTHENV-DEM90: A Nearly-global, void-free, multi-scale smoothed, 90m digital elevation model from fused ASTER AND SRTM data. *ISPRS Journal of Photogrammetry and Remote Sensing*. 87(2014): 57-67.

Robinson N., Armstead, S and Bowers, M.D. 2012. Butterfly Community Ecology: The Influences of Habitat Type, Weather Patterns and Dominant Species in a Temperate Ecosystem. *Entomologia Experimentalis et Applicata*. 145(1): 50-61.

Basey, J. M., Sackett, L. C., **Robinson N.** 2008. Optimal Science Lab Design: impacts of various Components of lab design on students' attitudes toward lab. *International Journal for the Scholarship of Teaching and Learning*, 2 (1)

Non Peer-reviewed:

Robinson N., Barton, K., Nufio, C., Bowers, M.D. 2010. Laboratory Manual for Insect Biology, University of Colorado, Boulder.

DATA PUBLICATIONS

Dryad

Robinson N., Armstead S, Bowers MD (2012) Data from: Butterfly community ecology: the influences of habitat type, weather patterns, and dominant species in a temperate ecosystem. Dryad Digital Repository. doi:10.5061/dryad.57vh3

GRANTS, AWARDS & FELLOWSHIPS

InnoCentive <i>Challenge 9933881- DataApp: A Mobile App Framework for Field Data Capture – Stage 1. \$2500</i>	Sep 2017
University of Colorado Graduate School <i>Dissertation Completion Fellowship. \$9,879.82</i>	Fall 2013
Department of Ecology and Evolutionary Biology, University of Colorado, Boulder <i>Dissertation Completion Fellowship. \$9,879.82</i>	Fall 2013
University of Colorado Graduate School <i>Travel grant to present research at the 97th Annual Ecological Society of America Meetings. \$300</i>	May 2012
Ecology and Evolutionary Biology Departmental Grant, University of Colorado, Boulder <i>Understanding the Influence of Habitat Fragmentation on Butterfly Occurrence Patterns: Developing and Testing Models Across Global Ecosystems. \$2000</i>	April 2012
Beverly Sears Graduate Student Grant, University of Colorado, Boulder	April 2012

*Understanding the Influence of Habitat Fragmentation on Butterfly Occurrence Patterns:
Developing and Testing Models Across Global Ecosystems.* \$1000

- Ecology and Evolutionary Biology Departmental Grant, University of Colorado, Boulder May 2010
*Species Trait Modeling of Butterflies in Urban Fragments Along the Colorado
Front Range:* \$750
- Ecology and Evolutionary Biology Departmental Grant, University of Colorado, Boulder April 2009
*Species Trait Modeling of Butterflies in Urban Fragments Along the Colorado
Front Range:* \$1500
- University of Colorado Museum of Natural History Grant, University of Colorado, Boulder April 2009
*Species Trait Modeling of Butterflies in Urban Fragments Along the Colorado
Front Range:* \$1200
- Ecology and Evolutionary Biology Spring Symposium, University of Colorado, Boulder May 2008
Best Graduate Student Talk
- Ecology and Evolutionary Biology Departmental Grant, University of Colorado, Boulder April 2008
Long-term Survey of Butterfly Communities on City of Boulder OSMP Land: \$840
- City of Boulder Open Space and Mountain Parks Research Grant May 2007
Long-term Survey of Butterfly Communities on City of Boulder OSMP Land: \$6,235
- Ecology and Evolutionary Biology Departmental Grant, University of Colorado, Boulder April 2007
Long-term Survey of Butterfly Communities on City of Boulder OSMP Land: \$750

INVITED TALKS

- Robinson Natalie. 2011. (Talk) “Butterfly Community Variation in Urban Fragments of the Colorado Front Range.” *City of Louisville, CO Open Space Advisory Board Meeting.*
- Robinson Natalie. 2008. (Talk) “Long-term Monitoring of Butterfly Communities around City of Boulder Open Space and Mountain Parks Land.” *Boulder County Audubon Society “Butterfly Night” meeting.*

PRESENTATIONS

- Robinson, Natalie. 2019 (Talk) “NEON data for detecting patterns, trends, and phenomena in diverse ecosystems.” *Ecological Society of America Annual Meeting*
- Robinson, Natalie. 2017 (Talk) “Quality is everything: Automated data collection tools to enhance the quality of NEON's 'big data' streams.” *Ecological Society of America Annual Meeting*
- Robinson, Natalie. 2012. (Talk) “Methods for constructing a high quality 90m Global DEM.” *University of Colorado Brown Bag Series.*
- Robinson, Natalie. 2012. (Poster) “Understanding community response to habitat fragmentation: Modeling butterflies across global ecosystems.” *Ecological Society of America Annual Meeting.* F1000 poster: <http://f1000.com/posters/browse/summary/1092599>.

Robinson Natalie. 2010. (Talk) “The Orange Skipperling (*Copaeodes aurantiaca* (Hesperiidae)): A New Record for the Colorado Front Range.” *21st Annual Meeting of the High Country Lepidopterists Society*.

Robinson Natalie. 2010. (Talk) “To Be or Not To Be: Using Ecological Modeling to Understand Butterfly Occurrence Patterns Based on Species Traits and Environmental Variables.” *University of Colorado Museum Award Recipients Lunch-time Presentation Series*.

Robinson Natalie. 2009. (Talk) “To Be or Not To Be: Using Ecological Modeling to Understand Butterfly Occurrence Patterns Based on Species Traits and Environmental Variables.” *Guild for the Rocky Mountain Ecologists and Evolutionary Biologists Annual Meeting*.

Robinson Natalie. 2008. (Talk) “The Effects of Environmental and Land-use Variables on Butterfly Communities Across a Temperate Landscape.” *University of Colorado Department of Ecology and Evolutionary Biology Spring Symposium*

Robinson Natalie. 2007. (Talk) “City of Boulder Open Space and Mountain Parks Butterfly Survey.” *18th annual High Country Lepidopterists Meeting*.

TEACHING/MENTORING

Ecological Society of America Workshop: “Working with Biodiversity Data
Instructor – R for data processing and visualization of NEON Summer 2020

NEON Internship Program 2019 - 2020
Mentor for internship project to build R Shiny applications for various use cases within the organization. Support of data acquisition from databases and APIs and reformatting via LaTeX for high-quality downloadable csvs and pdfs

Explore NEON Workshop: Virginia Commonwealth University Fall 2019
Instructor – Introduction to NEON, basics of getting and working with NEON data in R

NEON Summer Internship Program Summer 2019
Co-mentor for internship project “A Bug’s Life Changing a Plant’s Life: Exploring the Relationship Between Gypsy Moths and Deciduous Broadleaf Trees in Connection to Accumulated Growing Degree Days”. Support of data analyses and visualizations, report generation, and R Shiny app deployment

Ecological Society of America Workshop: “Access and Work with NEON data
Instructor – R for data getting and processing NEON data Summer 2019

STROBE Science and Technology Center Data Carpentry Workshop Spring 2019
Instructor – Unix Shell, Version Control with Git, Building programs with Python

Ecological Society of America Workshop: “Working with Time Series in R using
NEON Data” Summer 2017
Instructor – R for data processing and visualization of NEON temperature and plant phenology data

US Geological Survey (USGS) Data Carpentry Workshop Instructor - R for data processing and visualization	Spring 2016
Ecological Society of America Workshop: “Big Data in R” Instructor – R for spatial data processing and visualization of NEON remote sensing data	Summer 2015
Software Carpentry Unicamp Workshop Remote instructor – introduction to R for data processing and visualization	Summer 2015
National Data Integrity Conference (NDIC) Data Carpentry Workshop Instructor - R for data processing and visualization	Spring 2015
NEON Summer Internship Program Co-mentor for internship project “Exploring vascular plant and carabid beetle diversity across three different ecoclimatic domains using NEON provisional data”. Support of data acquisition, processing, and analysis using R and writing/report generation.	Summer 2014
Department of Ecology and Evolutionary Biology; University of Colorado, Boulder	
<u>Teaching Assistance:</u>	
General Biology Lecture TA	Spring 2011
Biometry TA	Spring 2010
General Biology Clicker Software Manager	Spring 2009
Insect Biology Lab TA	Fall 2008, Fall 2009, Fall 2010
Evolutionary Biology Lab TA	Fall 2007, Spring 2008
General Biology Lab TA	Fall 2006, Spring 2007
<u>Guest Lectures:</u>	
Ecology: Climate Impacts on Ecosystems (Co-taught with Liesl Erb)	Spring 2011
Insect Biology: Photoreception in Insects	Fall 2010
Insect Biology: Chemoreception in Insects	Fall 2010
Biometry: Model Fitting Using Akaike’s Information Criteria	Spring 2010
Insect Biology: The Bark Beetles	Fall 2008, Fall 2009, Fall 2011
Evolutionary Biology: Coevolution	Spring 2008
Insect Biology: Coevolution	Fall 2008

ACADEMIC SERVICE AND OUTREACH

Peer Review		
Ecological Indicators	Ecological Applications	PLOS One
International Journal of Remote Sensing		
Department of Ecology and Evolutionary Biology; University of Colorado, Boulder		
Colloquium Committee: travel coordinator	Fall 2012- Fall 2013	
Graduate Student Mentor (tips and advice for first year graduate students)	Fall 2010-Spring 2013	
Graduate Computer Committee: Co-chair	Spring 2012	
Evolution Outreach Committee: Event organizer and presenter	Spring 2008	
Other		
Lab rep/activity coordinator: Crestview Elementary field trip to CU Boulder	Spring 2012	