Nicholas J. Lyon

Research Interests: Data Science, Community Ecology, Plant-Insect Interactions, Biostatistics, Restoration Ecology

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EDUCATION

M.Sc. Ecology and Evolutionary Biology – May 2019 – Iowa State University, Ames IA
Thesis: *An Integrated Approach to Restoring Grassland Function to Working Lands*

B.Sc. Biology – May 2016 – University of Puget Sound, Tacoma WA
Interdisciplinary Emphasis in **Bioethics**, Minor in **Humanities**
Thesis: *Mytilus Mussels as Bio-indicators of Regional Microplastic Trends*

PROFESSIONAL EXPERIENCE

LTER Network Office Data Analyst (Feb. 2022 – Present)

National Center for Ecological Analysis and Synthesis (NCEAS), Santa Barbara CA

- Worked with 91 members of 5 LTER working groups to meet their data synthesis-related needs
- Taught workshops on the `tidyverse` R packages and reproducible coding with Git and GitHub
- Authored the R package `lterpalettefinder` and wrote a companion R Shiny app to allow non-R users to explore it
- Converted SQL code into equivalent scripts in R
- Analyzed spatial data from a variety of sources (including lithology, land cover, etc.)

Data Scientist & Network Administrator (Aug. 2021 – Jan. 2022)

Herbivory Variability Network, Lansing MI

- Coded a quality assurance pipeline in R for a database collected by 200 collaborators based in more than 30 countries
- Designed a data management plan to standardize post-collection data handling and distribution across the Network
- Revised the set of protocols used to train collaborators before and during data collection
- Created an R Shiny app for data submission and error checking (code: github.com/HerbVar-Network/Data-Portal)
- Handled communication to and from current and prospective collaborators

Entomology Consultant (Jan. – Nov. 2021)

BrdgAI, Pittsburgh PA

- Provided entomology expertise on study design and sampling procedure for insects across a range of cropping contexts
- Collaborated with software developers and agronomists in regular meetings to reach project goals
- Identified over 65,000 insects to species, family, or sub-order level from pictures of sticky cards
- Created framework for consistent insect classification between India, the United States, and Canada

Biology Teaching Assistant (Aug. 2020 – May 2021)

Concepts in Biology I & II (BIO 1103 & 1108), University of Georgia, Athens GA

- Facilitated students in honing their scientific observation, experimental design, and writing skills
- Aided students in identifying their first independent research question and implementing the subsequent experiment
- Designed instructional content for 25 weeks of labs that critical thinking skills across two semesters
- Provided thorough and constructive written feedback on lab reports as well as on quiz-style assignments

Agroecological Predator-Prey Interactions Researcher (Aug. 2019 – May 2021)

Entomology Department, University of Georgia, Athens GA

- Identified 16,916 insects to family-level from 15 orders in the field and *post hoc* from pitfall and vacuum samples
- Formed productive working relationships with 23 organic farmers in South Carolina and Georgia
- Wrote R code to tidy and analyze data collected via 8 distinct methods at varying spatial and temporal scales
- Mentored 6 undergraduates as they worked towards completing independent research projects
- Maintained colonies of squash bugs (*Anasa tristis*) and melon aphids (*Aphis gossypii*) in a greenhouse

Grassland Plant and Pollinator Researcher (May 2016 – May 2019)

Ecology and Evolutionary Biology Graduate Program, Iowa State University, Ames IA

- Performed field surveys for butterflies, wild bees, and flowering plants in remnant and restored prairie
- Wrote univariate and multivariate analysis code for ecological community data in the R statistical environment
- Built species distribution models (SDMs) in R for grassland plant species to inform climate-resilient seed-mix design
- Interviewed, hired, trained, and managed field technicians for summer 2017 and 2018
- Wrote protocols for field data collection and database management

Recruitment Committee Graduate Student Representative (May 2017 – May 2019)

Ecology and Evolutionary Biology Graduate Program, Iowa State University, Ames IA

- Established timeline for organizing the research symposium during recruitment weekend
- Worked with faculty, staff, and students to ensure a successful recruitment season
- Designed a promotional flier and the program for the event
- Elected for two consecutive terms by the graduate student members of the program

Ecology Teaching Assistant (Aug. 2018 – Dec. 2018)

Intro to Ecology (BIO 312), Iowa State University, Ames IA

- Taught core ecological concepts to sophomore through senior undergraduate students
- Worked with students individually and in groups to facilitate formal scientific writing skills and strategies
- Led both lab and field exercises to promote hands-on interaction with course concepts
- Collaborated with another TA to modify the course structure to emphasize development of scientific writing skills

PUBLICATIONS

Kucuk, R.A., Campbell, B.J., **Lyon, N.J.**, Caterino, M.S. Gut Bacteria of Adult and Larval Cotinis nitida Linnaeus (Coleoptera: Scarabaeidae) Demonstrate Community Differences According to Life Stage and Gut Region. ***[In prep]***

Gaynor, K. et al., 2022. Ten Simple Rules to Cultivate Belonging in Collaborative Data Science Research Teams. ***PLOS Computational Biology***

Lyon, N.J., Stein, D.S., Debinski, D.M., Miller, J.R., Schact, W.H. 2021. Responses of Flowering Plant and Butterfly Communities to Experimental Herbicide and Seeding Treatments for Native Grassland Restoration. ***Ecological Restoration*** 3.

Coon, J.J., **Lyon, N.J.**, Raynor, E.J., Debinski, D.M., Miller, J.R., Schact, W.H. 2021. Using Adaptive Management to Restore Grasslands Invaded by Tall Fescue (*Schedonorus arundinaceus*). ***Rangeland Ecology and Management*** 76.

Lyon, N.J., Debinski, D.M., Rangwala, I. 2019. Evaluating the Utility of Species Distribution Models in Informing Climate Change-Resilient Grassland Restoration Strategy. ***Frontiers in Ecology and Evolutionary Biology*** 7.

SELECTED LECTURES & PRESENTATIONS

Lyon, N.J. Introduction to Statistics and R in Ecology Research. Insect Ecology (ENT 4250/6250), **Clemson University**, SC, Fall 2020. Guest Lecture.

Lyon, N.J., Debinski, D.M. Evaluating the Effects of 11 Years of Consistent Restoration Management. **Ecological Society of America**, Louisville KY, August 2019. Oral Presentation.

Lyon, N.J. Multivariate Statistics in R. Data Management and Analysis in R for Ecologists and Evolutionary Biologists (EEB 698) **Iowa State University**, IA, Fall 2019. Guest Lecture.

Lyon, N.J. Choosing the "Right" Statistical Test. Data Wrangling in R for Natural Resource Professionals (NREM 305), **Iowa State University**, IA, Spring 2019. Guest Lecture.

Lyon, N.J. Plotting with `ggplot2`. Data Wrangling in R for Natural Resource Professionals (NREM 305), **Iowa State University**, IA, Spring 2019. Guest Lecture.

Lyon, N.J., Debinski, D.M., Miller, J., Schact, W. Native Plant and Pollinator Response to Adaptive Management. **Ecological**

Society of America, New Orleans LA, August 2018. Oral Presentation.

HONORS & AWARDS

Fellowships & Honors

2019 – **Joel A Berly Research Fellow** – Clemson University, Clemson SC
2018 – **Preparing Future Faculty Fellow** – Iowa State University, Ames IA
2017 – **Science Communication Fellow** – Reiman Gardens, Ames IA
2017-19 – **Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) Member** – Iowa State University, Ames IA
2016 – **Biology Department Honors** – University of Puget Sound, Tacoma WA
2013-16 – **Phi Sigma Biological Sciences Honors Society Member** – University of Puget Sound, Tacoma WA

Grants & Awards

2020 – **W. Carl Nettles, Sr., and Ruby S. Nettles Memorial Endowment Travel Grant** – $330
Clemson University Entomology Graduate Program
2019 – **Early Career Publication Award** – $250
Ecological Society of America, Restoration Ecology Section
2019 – **Real/Brown Graduate Student Travel Award** – $150
Ecological Society of America, Student Section
2018 – **Graduate Student Travel Award** – $500
Ecological Society of America, Applied Ecology Section
2017 – **Graduate Student Travel Grant** – $600
Center for Global and Regional Environmental Research (CGRER)
2017 – **Graduate Student Field Research Grant** – $1,377
Center for Global and Regional Environmental Research (CGRER)
2015 – **Student Research Award** – $3,250
University of Puget Sound, Biology Department
2014 – **Student Research Award** – $3,250
University of Puget Sound, Biology Department