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

- 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
- Collaborated with external working group participants to meet their data synthesis-related needs
- 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

Gaynor, K. et al., Ten Simple Rules to Cultivate Belonging in Collaborative Data Science Research Teams. *[In review]*

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]*

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