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# 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*

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## RESEARCH

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

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

- Wrote custom R functions and an R package (`'scicomptools'`) to streamline recurring data management tasks
- Created the R package `'lterpalettefinder'` and wrote a companion R Shiny app to allow non-R users to explore it
- Collaborated with Long-Term Ecological Research (LTER) synthesis working groups to meet their data-related needs
- Converted SQL code into equivalent scripts in R
- Wrangled and 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](https://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

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

University of Georgia, Athens GA & Clemson University, Clemson SC

- 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)**

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
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- Wrote protocols for field data collection and database management

### **Vegetation Sampling Field Crew Coordinator (June – July 2017 & June – July 2018)**

Iowa State University, Ames IA

- Conducted vegetation percent cover estimations for several plant functional groups
- Trained technicians with variable previous field experience in identification of plant species and functional groups
- Planned and executed an intensive sampling schedule with field technicians from three different universities
- Wrote customized functions in R for response calculation as well as tidy and analysis scripts for raw collected data

### **Marine Microplastics Researcher (Apr. 2014 – May 2016)**

University of Puget Sound, Tacoma WA

- Developed a novel methodology using fluorescence microscopy to quantify plastic load in mussels (*Mytilus spp.*)
- Wrote competitively funded grant proposals for university funding for the summer of 2014 and 2015
- Selected as the university's sole 'Biological Sciences' representative at the Murdock College Science Research Conference

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## **TEACHING**

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### **Biology Teaching Assistant (Jan. 2021 – May 2021)**

University of Georgia, Athens GA – **Biology 1108 (Concepts in Biology II)**

- 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 13 weeks of labs that emphasized class discussion and critical thinking skills
- Provided thorough and constructive written feedback on lab reports as well as on quiz-style assignments

### **Biology Teaching Assistant (Aug. 2020 – Dec. 2020)**

University of Georgia, Athens GA – **Biology 1103 (Concepts in Biology)**

- Provided facilitative feedback on multiple drafts of lab reports and other written assignments
- Created lectures for 12 weeks of hands-on and virtual lab content on introductory biology
- Trained students in performing laboratory techniques (e.g., using spectrophotometer, pipetting, etc.)

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

Iowa State University, Ames IA – **Biology 312 (Intro to Ecology)**

- 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

### **Instructor of Record (Aug. 2017 – Dec. 2017)**

Iowa State University, Ames IA – **Environmental Sciences 490 (Independent Research)**

- Mentored an Iowa State University undergraduate in their first independent research experience
- Facilitated the student in hypothesis formation, methods development, statistical analysis, and results reporting
- Taught the student data management and cleaning in the R statistical environment
- Wrote guidelines and gave feedback on abstract writing and poster presentation skills

### **Instructor's Assistant (Jan. 2016 – May 2016)**

University of Puget Sound, Tacoma WA – **Biology 111 (Unity of life)**

- Addressed questions from students as they learned and employed lab techniques
- Supervised and led trainings in the use of lab equipment
- Taught statistical and database management methods in Microsoft Excel

### **Guest Lectures**

Clemson University – 2020 – Introduction to Statistics and R in Ecology Research. **Insect Ecology (ENT 4520/6520)**

Iowa State University (ISU) – 2019 – Plotting with ggplot2. **Data Wrangling in R for Natural Resource Professionals (NREM 305)**

ISU – 2019 – Choosing the "Right" Statistical Test. **Data Wrangling in R for Natural Resource Professionals (NREM 305)**

ISU – 2018 – Multivariate Statistics in R. **Data Management and Analysis in R for Ecologists and Evolutionary Biologists (EEB 698)**

## SERVICE

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### Vice President (Sep. 2019 – May 2020)

Clemson University, Clemson SC – **Clemson Entomology Club**

- Led a campaign to get graduate student representation on faculty committees in the department
- Designed a suite of recruitment materials to increase program presence at national and regional conferences
- Organized ride and room sharing to local, regional, and national conferences to increase accessibility
- Spurred a partnership with a related program's graduate student organization to cooperate on advocacy for students

### Social Media Coordinator (May 2018 – May 2019)

Iowa State University, Ames IA – **Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)**

- Led workshops on professional networking and the process of applying to graduate school
- Created consistent branding for web presence across social media platforms
- Wrote and posted tweets in-line with the support for diverse identities in science consistent with the society's mission

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

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

- 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

### Graduate Student Senator (Dec. 2017 – May 2019)

Iowa State University, Ames IA – **Graduate and Professional Student Senate**

- Voted on policy and administrative matters that affect graduate students
- Advocated for issues relevant to graduate students in the Ecology and Evolutionary Biology Graduate Program
- Appointed as the first EEB Program Senator and subsequently elected for the following term

### Applied Ecology Section Liaison (Aug. 2017 – Oct. 2018)

Ecological Society of America – **ESA Student Section**

- Provided social media (e.g., Twitter, newsletter, etc.) content on Applied Ecology Section news relevant to students
- Recorded a podcast with the ESA Student Section on my experience of being an applied ecology graduate student
- Member of the Ecological Society of America since August 2017

### Phi Sigma Research Symposium Co-Chair (Apr. 2015 – May 2016)

University of Puget Sound, Tacoma WA – **Phi Sigma Biological Sciences Honors Society**

- Organized a symposium for student researchers across the natural sciences to present to the campus community
- Secured a keynote speaker for the symposium and coordinated logistics around their visit
- Sourced and managed a designer to produce posters to publicize the event around campus

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## PUBLICATIONS

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

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.

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## SELECTED RESEARCH PRESENTATIONS

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Lyon, N.J., Madden, M., Behnke M.F., Blubaugh C.K. Balancing the Risks and Benefits of Allowing Weeds to Persist in Organic Agriculture. **Entomological Society of America**, FL, November 2020. Virtual Oral Presentation.

Lyon, N.J., Blubaugh C.K. The Enemy of my Enemy: Utilizing Diverse Weed Communities to Recruit Natural Enemies for Pest Suppression. **South Carolina Entomological Society**, SC, October 2019. *Awarded Best Poster Presentation.*

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., 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.

Lyon, N.J., Debinski, D.M., Miller, J., Schact, W. Plant and Pollinator Response to Adaptive Management. **Graduate and Professional Student Research Conference**, Ames IA, April 2018. *Awarded Best Oral Presentation.*

Lyon, N.J., Debinski, D.M. Butterfly and Nectar-Producing Plant Response to Invasive Grass Management. **Graduate Research in Ecology and Evolutionary Biology Symposium**, Ames IA, February 2018. Oral Presentation.

Lyon, N.J. An Integrated Approach to Tallgrass Prairie Restoration. **Three-Minute Thesis**, Ames IA, January 2018. Oral Presentation.

Lyon, N. J., Debinski, D.M., and Rangwala, I. Species Distribution Modeling to Predict Prairie Restoration Success under Climate Change. **Ecological Society of America**, Portland OR, August 2017. Oral Presentation.

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## HONORS & AWARDS

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### 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