

# Kelsey M. Yule, PhD

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## EDUCATION

<b>University of Arizona</b> , Tucson, AZ, USA	<b>2012-2018</b>
Ph.D. in Ecology and Evolutionary Biology	
Ph.D. Minor in Statistics (17 graduate level credits)	
Dissertation:	"Mistletoe-vector-host interactions: From within-host processes to population genetic structure"
Advisor:	Dr. Judith Bronstein
<b>Rice University</b> , Houston, TX, USA	<b>2008-2011</b>
B.S. in Ecology and Evolutionary Biology	
<i>summa cum laude</i>	
Thesis:	"Context-dependency in the mediation of population dynamics by a vertically transmitted symbiont"
Advisors:	Dr. Jennifer Rudgers & Dr. Thomas E.X. Miller

## PROFESSIONAL EXPERIENCE

<b>Arizona State University</b> , Tempe, AZ, USA	
NEON Biorepository Data Science Specialist, Senior	<b>2024-present</b>
NEON Biorepository Project Manager, Senior	<b>2022-2024</b>
NEON Biorepository Project Manager	<b>2019-2022</b>
<i>Biodiversity Knowledge Integration Center</i>	
Senior Global Futures Scientist	<b>2022-present</b>
<i>Julie Ann Wrigley Global Futures Laboratory</i>	
<b>Michigan State University</b> , East Lansing, MI, USA	<b>2018-2019</b>
Postdoctoral Research Associate	
<i>Department of Integrative Biology</i>	
Supervisor: Dr. Gideon Bradburd	

## PUBLICATIONS

[16] Atkins, J, K Aho; X Chen, A Elmore, R Fiorella, W Luo, D Lombardozi, C Lunch, L Manak, L de Pablo, A Myers-Pigg, S Record, T Qiu, S Reed, B Ruddell, B Strange, C Torrents, **KM Yule**, A Richardson. (2025) Recommendations for developing, documenting, and distributing data products derived from NEON data. *Ecosphere*. 16(1): e70159. <http://dx.doi.org/10.1002/ecs2.70159>

[15] Jackson, D, **KM Yule**, A Biera, C Hawley, J Lacson, E Webb, K McGraw, KM Cooper. (2024) "Broadening Perspectives Activities" Improve both LGBTQ+ Student Experiences and non-LGBTQ+ Students' Content Comprehension. *CBE: Life Sciences Education*. 23(4):ar9. <https://doi.org/10.1187/cbe.24-02-0052>

[14] Jobe, NB, NM Franz, MA Johnston, AB Malone, I Ruberto, J Townsend, JB Will, **KM Yule**, KP Paaijmans. (2024) The Mosquito Fauna of Arizona: Species Composition and Public Health Implications. *Insects*. 15(6): 432. <https://doi.org/10.3390/insects15060432>

- [13] Thibault, KM, CM Laney, **KM Yule**, NM Franz, PM Mabey. (2023) The US National Ecological Observatory Network and the Global Biodiversity Framework: National Research Infrastructure with a Global Reach. *Journal of Ecology and Environment*. 47:21 <https://doi.org/10.5141/jee.23.076>
- [12] Johnston MA, ES Waite, ER Wright, BH Reily, GJ De Leon, AI Esquivel, J Kerwin, M Salazar, E Sarmiento, T Thiatmaja, S Lee, **KM Yule**, NM Franz (2023) Insect collecting bias in Arizona with a preliminary checklist of the beetles from the Sand Tank Mountains. *Biodiversity Data Journal* 11: e101960. <https://doi.org/10.3897/BDJ.11.e101960>
- [11] Lund, MC, BB Larsen, DM Rowsey, HW Otto, S Gryseels, S Kraberger, JM Custer, L Steger, **KM Yule**, RE Harris, M Worobey. (2023) Using archived and biocollection samples towards deciphering the DNA virus diversity associated with rodent species in the families cricetidae and heteromyidae. *Virology*. 585: 42-60. <https://doi.org/10.1016/j.virol.2023.05.006>
- [10] Nagy\*, RC, JK Balch\*,... **KM Yule**, et al. [\*co-first 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>
- [9] Kitzes, J, R Blake, S Bombaci, M Chapman, S Durán, T Huang, M Joseph, S Lapp, S Marconi, W Oestreich, T Rhinehart, A Schweiger, Y Song, T Surasinghe, D Yang, **KM Yule**. (2021) Expanding NEON biodiversity surveys with new instrumentation and machine learning approaches. *Ecosphere*. 12(11): e03795. <https://doi.org/10.1002/ecs2.3795>
- [8] Johnson CA, GP Smith, **KM Yule**, G Davidowitz, JL Bronstein, and R Ferrière. (2021) Coevolutionary transitions from antagonism to mutualism explained by the Co-Opted Antagonist Hypothesis. *Nature Communications*, 12: 2867. <https://doi.org/10.1038/s41467-021-23177-x>
- [7] **Yule, KM**, CA Johnson, JL Bronstein, and R Ferrière. (2020) Interactions among interactions: The dynamical consequences of antagonism between mutualists, *Journal of Theoretical Biology*, 501: 110334
- [6] Ålund, M, N Emery, BJM Jarrett, KJ MacLeod, HF McCreery, N Mamoozadeh, JG Phillips, J Schossau, AW Thompson, AR Warwick, **KM Yule**, ER Zylstra, E Gering (2020) Academic ecosystems must evolve to support a sustainable postdoc workforce, *Nature Ecology and Evolution*, 4: 777–781
- [5] **Yule, KM**, and JL Bronstein (2018) Intrapopulation size and mate availability influence reproductive success of a parasitic plant, *Journal of Ecology*, 106(5): 1972-1982
- [4] **Yule, KM**, and JL Bronstein (2018) Reproductive ecology of a parasitic plant differs by host species: vector interactions and the maintenance of host races, *Oecologia*, 186(2): 471-482
- [3] **Yule, KM**, JAH Koop, NM Alexandre, LR Johnston, and NK Whiteman (2016) Population structure of a vector-borne plant parasite, *Molecular Ecology*, 25(14): 3332-3343
- [2] **Yule, KM**, TEX Miller, and JA Rudgers (2013) Costs, benefits, and loss of vertically transmitted symbionts affect host population dynamics, *Oikos*, 122(10): 1393-1400
- [1] **Yule, KM**, JM Wooley, and JA Rudgers (2011) Water availability alters the tri-trophic consequences of plant-fungal symbiosis, *Arthropod-Plant Interactions*, 5(1): 19-27

## PRE-PRINTS & OTHER RESEARCH PRODUCTS

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[2] Thomas, R. Q., Boettiger, C., Carey, C., Dietze, M., Fox, A., Kenney, M. A., ... & **Yule, KM.** (2021). Ecological forecasting initiative: NEON ecological forecasting challenge documentation V1. 0. *Ecological Forecasting Initiative*. <https://doi.org/10.5281/zenodo.4780155>.

[1] **Yule, KM,** EE Gilbert, AP Husain, MA Johnston, L Rocha Prado, L Steger, NM Franz. (2020). Designing Biorepositories to Monitor Ecological and Evolutionary Responses to Change (Version 1). *Zenodo*. <http://doi.org/10.5281/zenodo.3880411>.

## EXTERNAL GRANTS, AWARDS & FELLOWSHIPS

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### U.S. National Science Foundation

Doctoral Dissertation Improvement Grant, co-PI (\$19,955)	2016-2018
<i>PI:</i> Dr. Judith Bronstein	
<i>Title:</i> Reinforcement of reproductive isolation of parasitic plant host races	
Graduate Research Fellowship, Ecology (\$100,000)	2012-2017
Graduate Research Fellowship, Population and Community Biology (\$90,000, <i>declined</i> )	2011
Research Experience for Undergraduates, Mountain Lake Biological Station	2010

### PEO International

PEO Scholar Award (\$15,000)	2017
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### American Society of Naturalists

Student Research Award (\$2,500)	2016
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### Arizona Native Plants Society

Ginny Saylor Research Grant (\$2,000)	2016
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### Society for the Study of Evolution

Rosemary Grant Award for Graduate Student Research (\$1,500)	2014
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### Ecological Society of America

Plant Population Ecology Section Travel Award (\$500)	2013
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### National Merit Scholarship Program

John M. Stalnaker Memorial Scholarship for Mathematics and Science (\$25,000)	2008
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## INTERNAL GRANTS, AWARDS & FELLOWSHIPS

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### Arizona State University

Justice, Equity, Diversity and Inclusion Initiative Seed Grant (\$17,000 in total)	2020-2022
"Biocollections JEDI Research Fellowship: Facilitating Equity and Inclusivity in Human-Nature Connections"	

### University of Arizona

Graduate & Professional School Council Grants (\$6,225 in total)	2013-2017
College of Science Galileo Circle Scholar Award (\$4,000 in total)	2014 & 2016
Darwin-Wallace Biodiversity Scholar Award (\$1,000)	2015
Ecology & Evolutionary Biology Summer Research Fellowship (\$1,000)	2013

### Rice University

Clark P. Read Award for Excellence in Ecology and Evolutionary Biology	2011
Trustee Distinguished Scholarship (\$40,500)	2008-2011
Undergraduate Scholars Program (\$2,000)	2010-2011

Undergraduate Summer Research Award (\$2,000)

2009

## TEACHING

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**Arizona State University**, Tempe, AZ USA

Invited Lecturer

*Techniques in Conservation Biology and Ecology*

2019-present

**University of California, Los Angeles**, Los Angeles, CA, USA

Invited Lecturer

*Natural History Collections in the Biological Sciences*

2023

**Tohono O'odham Community College**, Sells, AZ, USA

Invited Lecturer

*Natural History of the Southwest and Environmental Biology*

2018

**University of Arizona**, Tucson, AZ USA

Invited Lecturer & Curriculum Development

*Introductory Biology II Laboratory, Online Course*

*Advanced Statistics Seminar*

Graduate Teaching Assistant

*Ecology*

*Introductory Biology II Laboratory*

2017

2015

2012 & 2016

2013

**Rice University**, Houston, TX, USA

Undergraduate Teaching Assistant

*Introductory Biology*

*Ecology*

*Elementary Applied Statistics*

2011

2010

2009-2010

## INVITED PRESENTATIONS

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[10] Franz, NM, EE Gilbert, A Husain, R Liao, M Johnston, KD Pearson, G Post, LD Steger, LJ Walker & **KM Yule**. (2023) Symbiota-based services for publishing genomic collections data. Global Genome Biodiversity Network. Aguascalientes, MX.

[9] **Yule, KM**, EE Gilbert, A Husain, A Johnston, R Liao, L Rocha Prado, L Steger, NM Franz (2023) The NEON Biorepository Data Portal: New Symbiota developments and workflows to enable discoverability of extended specimens and samples for large-scale ecological research. Society for the Preservation of Natural History Collections. San Francisco, CA, USA.

[8] **Yule, KM**, NM Franz (2022) Linking traits, genomes, specimens, and images to LTER data: Biological specimens and physical collections. Long Term Ecological Research Network All Scientists Meeting. Asilomar, CA, USA.

[7] **Yule, KM** (2022) The National Ecological Observatory Network (NEON) Biorepository: A developing resource to facilitate long-term biodiversity monitoring efforts. 16th Biennial Conference of Science Management on the Colorado Plateau Southwest Region. Flagstaff, AZ, USA

[6] **Yule, KM** (2020) Genetic isolation by ecological and geographic distance: New statistical methods and applications to host-associated differentiation. Department of Biological Sciences Seminar, Northern Arizona University. Virtual.

[5] **Yule, KM** (2020) Complementarity of the NEON Biorepository and natural history collection networks for understanding ecological change across spatial, temporal, and taxonomic scales. Ecological Society of America Organized Oral Symposium: Revolutionizing Our Understanding of Scale: How the NEON Network Enables Innovative Research into the Complexities of Ecological Phenomena across Spatio-Temporal Scales. Virtual.

[4] **Yule, KM** (2020) Collecting Natural History Specimens to Monitor Change: The NEON Biorepository as a Test Case. Special Post-Botany Symposium: Biodiversity Research Collecting Is More Important Than Ever—Ushering in a Collecting Renaissance. Virtual.

[3] **Yule, KM** and JL Bronstein (2015) Reproductive phenology of a parasitic plant differs with host species. Phenological Research and Observations of Southwest Ecosystems (PROSE) Symposium. Tucson, AZ, USA.

[2] **Yule, KM**, JAH Koop, NM Alexandre, and NK Whiteman (2015) Genetic structure of parasite populations: The role of vectors, hosts, and mutualists. Pepinière interdisciplinaire CNRS-PSL "Eco-Evo-Devo": Frontiers in Ecology and Evolution. Paris, FR.

[1] **Yule, KM**, CA Johnson, and R Ferrière (2014) The indirect effects of antagonism between species with a shared mutualist: A case study on the ecological and evolutionary dynamics of a plant-pollinator-seed disperser food web module. Eco-Evolutionary Mathematics Seminar at École Normale Supérieure. Paris, FR.

## SELECT CONTRIBUTED PRESENTATIONS

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[23] **Yule, KM**, C Earl, EE Gilbert (2025) Developments and Challenges in the Hyper-extension of NEON Biorepository Specimens. Society for the Preservation of Natural History Collections. Lawrence, KS, USA.

[22] **Yule, KM**, EE Gilbert, A Husain, A Johnston, R Liao, L Rocha Prado, L Steger, NM Franz (2023) Expanding biodiversity occurrences for ecological collections. Integrated Digitized Biocollections: Digital Data. Tempe, AZ, USA.

[21] **Yule, KM** (2021) A role for the National Ecological Observatory Network (NEON) Biorepository samples and data in monitoring and forecasting ecological change. Ecological Forecasting Initiative. Virtual.

[20] **Yule, KM**, L Steger, NM Franz (2020) National Ecological Observatory Network (NEON) Biorepository plant and algal samples available for ecological and evolutionary research. Botanical Society of America. Virtual.

[19] **Yule, KM** (2020) Ecological and climatic influences on the population structure of desert mistletoe. The Tri-National Sonoran Desert Symposium. Ajo, AZ, USA.

[18] **Yule, KM**, NM Franz, EE Gilbert, AP Husain, MA Johnston, L Rocha Prado, and L Steger (2020) The NEON Biorepository as a tool for monitoring ecological and evolutionary responses to change. American Society of Naturalists. Asilomar, CA, USA.

[17] Franz, NM, EE Gilbert, AP Husain, MA Johnston, L Rocha Prado, L Steger and **Yule, KM** (2019) Where NEON and natural history collections data meet: Exploring the NEON Biorepository data portal. Ecological Society of America. Louisville, KY, USA.

[16] **Yule, KM** (2019) Biorepositories for monitoring ecological and evolutionary responses to change. Botany. Tucson, AZ, USA.

[15] **Yule, KM** (2019) Host-association determines population genomic structure of a parasitic plant through impacts on reproductive traits and pollination. Botany. Tucson, AZ, USA.

- [14] **Yule, KM** and GS Bradburd (2019) Determining whether geographic distance and ecological factors influence spatial genetic differentiation. Evolution. Providence, RI, USA.
- [13] Franz, NM, EE Gilbert, AP Husain, MA Johnston, L Rocha Prado, L Steger and **Yule, KM** (2019) Introducing the National Ecological Observatory Network - NEON Biorepository Data Portal. iDigBio Digital Data Conference. New Haven, CT, USA.
- [12] **Yule, KM** (2018) Host association and environment determine population genomic structure of a parasitic plant through reproductive traits. Evolution. Montpellier, France.
- [11] **Yule, KM** and JL Bronstein (2017). Intrapopulation size and mate composition influence the reproductive success of a parasitic plant. Evolution. Portland, OR, USA.
- [10] **Yule, KM** and JL Bronstein (2016) The maintenance of host-associated differentiation in a vector-borne parasitic plant. Evolution, American Society of Naturalists Spotlight Session "The Evolution of Species Interactions." Austin, TX, USA. [9] **Yule, KM** (2016) Host species effects on desert mistletoe (*Phoradendron californicum*). The Tri-National Sonoran Desert Symposium. Ajo, AZ, USA.
- [8] **Yule, KM**, CA Johnson, and R Ferrière (2016) Integrating genetic architecture and density dependence to understand the evolution of life history. The American Society of Naturalists. Asilomar, CA, USA.
- [7] **Yule, KM**, JAH Koop, NM Alexandre, and NK Whiteman (2015) Host associated differentiation and host switching by a parasitic plant are mediated by mutualist vectors. Evolution. Guaraja, Brazil.
- [6] **Yule, KM**, CA Johnson and R Ferrière (2014) Indirect interactions in a system involving mutualism and antagonism: A model of pollinator-disperser antagonism. Ecological Society of America. Sacramento, CA, USA.
- [5] **Yule, KM** and JL Bronstein (2013) Reproductive biology of a mutualist-vectored parasitic plant differs with host species. Research Insights in Semiarid Environments (RISE) Symposium. Tucson, AZ, USA.
- [4] **Yule, KM** and JL Bronstein (2013) Reproductive biology of a mutualist-vectored parasitic plant differs with host species. Ecological Society of America. Minneapolis, MN USA.
- [3] Parmenter, RR, RW Oertel, TS Compton, S Kindschuh, M Peyton, W Meyer, C Caldwell, GZ Jacobi, O Myers, M Zeigler, and **KM Yule** (2012) Fire and floods in the Valles Caldera National Preserve, New Mexico: The 2011 Las Conchas Fire impacts on montane species diversity and food webs. Ecological Society of America. Portland, OR, USA.
- [2] **Yule, KM**, TEX Miller, and JA Rudgers (2011) Costs, benefits, and loss of vertically transmitted symbionts affect host population dynamics. Ecological Society of America. Austin, TX, USA.
- [1] JA Rudgers, Clay K, and **KM Yule** (2010) Grass-endophyte symbioses alter plant- herbivore-natural enemy interactions, Ecological Society of America. Pittsburgh, PA, USA.

## PRESENTATIONS FOR THE PUBLIC

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- [4] **Yule, KM** (2022) The complex interactions between desert mistletoe, host trees, pollinators, and Phainopeplas. Tucson Audubon Society. Tucson, AZ, USA.
- [3] **Yule, KM** (2018) Using desert mistletoe to understand host-parasite interactions. Philanthropic Education Organization (PEO). SaddleBrooke, AZ, USA.

[2] **Yule, KM** (2016) Desert mistletoe: A misunderstood, but beneficial native plant. Arizona Native Plants Society. Tucson, AZ, USA.

[1] **Yule, KM** (2013) The ecology of desert mistletoe: an emblem of the Sonoran Desert. Arizona Sonoran Desert Museum. Tucson, AZ, USA.

## ARTICLES FOR THE PUBLIC

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[2] **Yule, KM** (2016) The evolution of desert mistletoe host races: What we know and what questions remain. The Plant Press (The Arizona Native Plants Society) 29(1): 7-9.

[1] **Yule, KM** (2016) Desert mistletoe: A misunderstood native plant. Newsletter of the Friends of Ironwood Forest Spring 2016: 1-3.

## MENTORING

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### **Arizona State University, Tempe, AZ, USA**

Barrett Honors College Thesis Committee Member: Mary Haddad (2021-2022)

Barrett Honors College Research Mentor: Ava Claus (2024-present)

*Awards:* Second Prize Award in the Ecology and Conservation category at the 31st Annual School of Life Sciences Undergraduate Research Poster Symposium, awarded funding from the Barrett Honors College to present this research at AAAS meeting

### **Grand Canyon University, Phoenix, AZ, USA**

Internship Mentor: Jessica Stansfield (2019)

### **Tucson Magnet High School, Tucson, AZ, USA**

Biotechnology Program Mentor: Seneca Blank (2016-2018)

*Awards:* 1st place in High School Plant Sciences at The Southern Arizona Research, Science, and Engineering Foundation and selected to attend the International Science and Engineering Foundation Fair, and recipient of a \$2,000 University of Arizona scholarship based on her project

### **University of Arizona, Tucson, AZ, USA**

Senior Honors Thesis Mentor: Nico Lorenzen (2014-2015)

*Awards:* Outstanding Senior Award for both the Department of Ecology and Evolutionary Biology and the Department of Neuroscience

Research Mentor: Caitlin Davey, Emerson Martin, Alexandra Pond, Elyse May, James Berry, Nicolas Alexandre, Lauren Johnston, Meghan Iacueli, Victoria Eudy, Michelle Gradall (2012-2017)

### **Pima Community College, Tucson, AZ, USA**

Research Mentor: Peter Rice (2012)

## OUTREACH & SERVICE

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### **Diversity, Equity, and Inclusion Biocollections Scholars Program**

**2020-2024**

Served as the founder and lead organizer of the Arizona State University Diversity, Equity, and Inclusion Biocollections Scholars Program, a six-week summer training program for undergraduates and recent graduates from groups historically excluded from the sciences to experience natural history collections science, including field collection, specimen curation, and biodiversity informatics.

### **Ecological Forecasting Initiative**

**2020-present**

Member of organizing team for EFI RCN NEON Ecological Forecast Challenge: NEON Beetle Abundance Forecast Challenge.

<b>Conservation, education, and advocacy work</b>	<b>2014-present</b>
Board Member for non-profit Friends of Ironwood Forest Secretary for Sierra Club Borderlands Group	
<b>Contributions to science in the media</b>	<b>2017-present</b>
Interviews with and field trip guidance for members of national press media outlets (e.g., Medium, The Wilderness Society) regarding research conducted in and preservation of Ironwood Forest National Monument. Regular interviews with local print and digital media outlets (e.g., KJZZ, NPR) regarding the importance of desert mistletoe to ecosystem functioning.	
<b>Service to scientific societies</b>	<b>2014 - 2020</b>
Co-organizer, The American Society of Naturalists Meeting at Asilomar Judge for Don Abbott Postdoc Research Award, The American Society of Naturalists	
<b>Contributor to local flora project</b>	<b>2016</b>
Provided input for "From Ajo Peak to Tinajas Altas: Flora of Southwestern Arizona" by R. S. Felger and S. Rutman	
<b>Science fair judge</b>	<b>2014-2017</b>
Grand Awards Judge at the Southern Arizona Research, Science, and Engineering Foundation (SARSEF) Regional Fair Judge at Flowing Wells High School and Tucson Magnet High School fairs	
<b>Elementary school outreach leader</b>	<b>2013</b>
Volunteer for Insect Discovery, an elementary school program at University of Arizona	
<b>Departmental service</b>	<b>2013-2019</b>
Michigan State University Postdoctoral representative to the Integrative Biology seminar organization committee University of Arizona Organized and led weekly seminar and discussion group on current topics in eco-evolutionary dynamics Judge at Ecology & Evolutionary Biology Undergraduate Research Poster Session Co-organizer of the Ecology & Evolutionary Biology Prospective Graduate Recruitment Weekend	

## WORKSHOPS & SYMPOSIA ORGANIZED

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<b>Society for the Preservation of Natural History Collections (SPNHC)</b>	
The (over) extended specimen: why are these data so difficult to share? (contributing role)	<b>2025</b>
<b>Living Data</b>	
Sustaining and Building Knowledge Through Long-Term Biological Monitoring (contributing role)	<b>2025</b>
Leveraging partnerships across data providers to facilitate synthesis of biodiversity data (contributing)	<b>2025</b>
<b>National Science Foundation Research Coordination Network</b>	
Integrating Organismal Biology into NEON (supporting role)	<b>2024 &amp; 2025</b>
<b>Ecological Society of America Workshops</b>	<b>2024</b>
Data Dialogues: Towards Deep Indexing of Ecological Survey and Trap Data (contributing role)	



Explore and use NEON sample and specimen data (lead role)

<b>InDigiData: Indigenous Data Science Education Workshop</b>	<b>2024</b>
Our Data Relations: Kinship, Stewardship, Sovereignty in Biodiversity and Biollections (supporting role)	
<b>National Ecological Observatory Network Data Skills Webinar</b>	<b>2023</b>
Introduction to the Biorepository (lead role)	
<b>Long-Term Ecological Research Network All Scientists Meeting</b>	<b>2022</b>
Envisioning Biollections for Long Term Ecological Networks (lead role)	
<b>Career Central at Ecological Society of America</b>	<b>2019</b>
Exploring the NEON Biorepository data portal with Symbiota and R (lead role)	
<b>Data Help Desk at Ecological Society of America</b>	<b>2019</b>
Beyond Data: Navigating NEON Resources (contributing role)	

## WORKSHOPS ATTENDED

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<b>Towards Building a National Community for the Earth Biogenome Project</b>	<b>2024</b>
<b>NEON Derived Data Products Workshop Series</b>	<b>2023</b>
<b>NSF Research Coordination Network Workshop: Sampling Nature</b>	<b>2023</b>
<b>NEON Science Summit</b>	<b>2019</b>
<b>iDigBio and BiotaPhy</b>	<b>2019</b>
Using Digitized Herbarium Data in Research: Applications for Ecology, Phylogenetics, and Biogeography	
<b>CyVerse-iPlant</b>	<b>2016</b>
Training in Cyberinfrastructure for Life Sciences Research	
<b>Joint MBI-NIMBioS-CAMBAM Summer Graduate Workshop</b>	<b>2013</b>
Connecting Biological Data with Mathematical Models	

## TECHNICAL SKILLS

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### Select Statistics & Mathematics

Linear and non-linear regression (including generalized linear models, mixed, repeated measures regression, structural equation models, and more)  
Model selection methods  
Bayesian methods of parameter estimation using machine learning  
Perturbation analyses  
Matrix and integral projection modeling of population structure and dynamics  
Multivariate analyses of community composition and dynamics  
Analytical modeling via systems of differential equations  
Population genomic structure analyses  
Simulation modeling  
Individual/Agent-based modeling

### Select Programming & Software

Fluent: R, SQL  
Proficient: PHP, Git, Mathematica, Gauss, TeX, SLiM

Some experience: Python, Bash, CSS, Javascript, ArcGIS, MatLab, html, SAS, NetLogo

## **JOURNALS REFEREED**

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Biocontrol, Botany Letters, Conservation Science and Practice, Ecosphere, Evolution, Evolutionary Applications, Global Change Biology, Mathematical Biosciences, Plant Biology, Plant Ecology, The American Naturalist

## **PROFESSIONAL SOCIETIES**

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American Society of Naturalists, Arizona Native Plants Society, Botanical Society of America, American Association for the Advancement of Science, Ecological Society of America, Society for the Study of Evolution, The Next Generation Sonoran Desert Researchers

## **REFERENCES**

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### **Nico Franz, PhD**

University of Kansas, Lawrence, KS, USA  
Krishtalka Director of the Biodiversity Institute and Natural History Museum  
Professor of Ecology and Evolutionary Biology  
nico.franz@ku.edu

### **Kate Thibault, PhD**

Battelle Memorial Institute, NEON (National Ecological Observatory Network), Boulder, CO  
NEON Science Lead  
kthibault@battelleecology.org

### **Judie Bronstein, PhD (Doctoral advisor)**

University of Arizona, Tucson, AZ, USA  
University Distinguished Professor of Ecology & Evolutionary Biology  
American Academy of Arts and Sciences Member  
judieb@email.arizona.edu

### **Régis Ferrière, PhD**

École Normale Supérieure, Paris, FR  
Professor of Eco-Evolutionary Mathematics  
University of Arizona, Tucson, AZ, USA  
Professor of Ecology & Evolutionary Biology  
regisf@email.arizona.edu

### **Noah Whiteman, PhD**

University of California Berkeley, Berkeley, CA, USA  
Professor of Integrative Biology  
Professor of Molecular & Cell Biology  
whiteman@berkeley.edu