

Kelsey M. Yule

734 W Alameda Dr, Tempe, AZ 85282
kmyule@asu.edu • +1 (615) 513-9109 • kelseyule.com

EDUCATION

University of Arizona, Tucson, AZ, USA

- Ph.D. in Ecology and Evolutionary Biology with Minor in Statistics 2012 – 2018
 - Dissertation: Mistletoe-vector-host interactions:
From within-host processes to population genetic structure
 - Advisor: Dr. Judith Bronstein

Rice University, Houston, TX, USA

- B.S. in Ecology and Evolutionary Biology 2008 – 2011
 - *summa cum laude*
 - Advisors: Dr. Jennifer Rudgers & Dr. Thomas E.X. Miller

PROFESSIONAL APPOINTMENTS

Arizona State University, Tempe, AZ, USA

- NEON Biorepository Project Manager Senior 2022 – present
- NEON Biorepository Project Manager 2019 – 2022
 - Biodiversity Knowledge Integration Center
 - School of Life Sciences
- Senior Global Futures Scientist 2022 – present
 - Julie Ann Wrigley Global Futures Laboratory

Michigan State University, East Lansing, MI, USA

- Postdoctoral Research Associate 2018 – 2019
 - Department of Integrative Biology
 - Supervisor: Dr. Gideon Bradburd

PUBLICATIONS

REFEREED JOURNAL ARTICLES

- [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*. <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**. Expanding NEON biodiversity surveys with new instrumentation and machine learning approaches. *Ecosphere*. In press. <https://doi.org/10.1002/ecs2.3795>
- [8] Johnson CA, GP Smith, **Yule, KM**, 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-PRINT ONLINE AND IN REVIEW

- [1] **Yule, KM**, EE Gilbert, AP Husain, MA Johnston, L Rocha Prado, L Steger, NM Franz. (2020, June 5). Designing Biorepositories to Monitor Ecological and Evolutionary Responses to Change (Version 1). Zenodo. <http://doi.org/10.5281/zenodo.3880411>. Under review at *Bioscience*.

EXTERNAL GRANTS

- **National Science Foundation, Doctoral Dissertation Improvement Grant, co-PI** 2016 – 2018
\$ 19,955
PI: Dr. Judith Bronstein
Title: Reinforcement of reproductive isolation of parasitic plant host races
- **American Society of Naturalists, Student Research Award** 2016
\$ 2,500
- **Arizona Native Plants Society, Ginny Saylor Research Grant** 2016
\$ 2,000
- **Society for the Study of Evolution, Rosemary Grant Award for Graduate Student Research** 2014
\$ 1,500

FELLOWSHIPS, AWARDS & INTERNAL GRANTS

- **Justice, Equity, Diversity and Inclusion Initiative Seed Grant** 2020 & 2021
"Biocollections JEDI Research Fellowship: Facilitating Equity and Inclusivity in Human-Nature Connections"
\$17,000 in total
- **PEO International, PEO Scholar Award** 2017
\$15,000
- **National Science Foundation Graduate Research Fellowship** 2012 – 2017
Ecology
\$ 100,000
- **University of Arizona Graduate & Professional School Council Grants** 2013 –2017
\$ 6,225 in total
- **University of Arizona College of Science Galileo Circle Scholar** 2014 & 2016
\$ 4,000 in total
- **University of Arizona, Darwin-Wallace Biodiversity Scholar Award** 2015
\$ 1,000
- **University of Arizona, Ecology & Evolutionary Biology Summer Research Fellowship** 2013
\$ 1,000
- **Ecological Society of America, Plant Population Ecology Section Travel Award** 2013
\$ 500
- **National Science Foundation Graduate Research Fellowship** 2011
Population and Community Biology, *declined*
\$ 90,000
- **Rice University Clark P. Read Award** 2011
Excellence in Ecology and Evolutionary Biology
- **Rice University Trustee Distinguished Scholarship** 2008 – 2011
\$ 40,500
- **Rice University Undergraduate Scholars Program** 2010 – 2011
\$ 2,000
- **National Science Foundation Research Experience for Undergraduates** 2010
Mountain Lake Biological Station
- **Rice University Undergraduate Summer Research Award** 2009
\$ 2,000

TEACHING EXPERIENCE

- 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 2017
 - Advanced Statistics Seminar 2015
- Graduate Teaching Assistant
 - Ecology 2012 & 2016
 - Introductory Biology II Laboratory 2013

Rice University, Houston, TX USA

- Undergraduate Teaching Assistant
 - Introductory Biology 2011
 - Ecology 2010
 - Elementary Applied Statistics 2009 – 2010

ACADEMIC PRESENTATIONS

INVITED

- [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.
- [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.
- [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.
- [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.
- [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, France.
- [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, France.

SELECT CONTRIBUTED

- [22] **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. 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.
- [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.
- [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, M 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	<p>[4] Yule, KM (2022) The complex interactions between desert mistletoe, host trees, pollinators, and Phainopeplas. Tucson Audubon Society. Tucson, AZ, USA.</p> <p>[3] Yule, KM (2018) Using desert mistletoe to understand host-parasite interactions. Philanthropic Education Organization (PEO). SaddleBrooke, AZ, USA.</p> <p>[2] Yule, KM (2016) Desert mistletoe: A misunderstood, but beneficial native plant. Arizona Native Plants Society. Tucson, AZ, USA.</p> <p>[1] Yule, KM (2013) The ecology of desert mistletoe: an emblem of the Sonoran Desert. Arizona Sonoran Desert Museum. Tucson, AZ, USA.</p>
PUBLICATIONS FOR THE PUBLIC	<p>[2] Yule, KM (2016) The evolution of desert mistletoe host races: What we know and what questions remain. <i>The Plant Press (The Arizona Native Plants Society)</i> 29(1): 7-9.</p> <p>[1] Yule, KM (2016) Desert mistletoe: A misunderstood native plant. <i>Newsletter of the Friends of Ironwood Forest Spring 2016</i>: 1-3.</p>
MENTORSHIP	<p>Arizona State University, Barrett Honors College Thesis Committee Member, Tempe, AZ, USA</p> <ul style="list-style-type: none"> ▪ Mary Haddad 2021- 2022 <p>Arizona State University, Master of Science Committee Member, Tempe, AZ, USA</p> <ul style="list-style-type: none"> ▪ Brennan Hayes 2019- present <p>Grand Canyon University, Internship Mentor, Tempe, AZ, USA</p> <ul style="list-style-type: none"> ▪ Jessica Stansfield 2019 <p>Tucson Magnet High School, Biotechnology Program Mentor, Tucson, AZ, USA</p> <ul style="list-style-type: none"> ▪ Seneca Blank 2016 – 2018 <ul style="list-style-type: none"> • 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 <p>University of Arizona, Senior Honors Thesis Mentor, Tucson, AZ, USA</p> <ul style="list-style-type: none"> ▪ Nico Lorenzen 2014 – 2015 <ul style="list-style-type: none"> • Awards: Outstanding Senior Award for both the Department of Ecology and Evolutionary Biology and the Department of Neuroscience <p>University of Arizona, Research Mentor, Tucson, AZ, USA</p> <ul style="list-style-type: none"> ▪ Caitlin Davey, Emerson Martin, Alexandra Pond, Elyse May, James Berry, Nicolas Alexandre, Lauren Johnston, Meghan Iacueli, Victoria Eudy, Michelle Gradall 2012-2017 <p>Pima Community College, Research Mentor, Tucson, AZ, USA</p> <ul style="list-style-type: none"> ▪ Peter Rice 2012
OUTREACH & SERVICE	<ul style="list-style-type: none"> ▪ Diversity, Equity, and Inclusion Biocollections Scholars Program 2020-present <ul style="list-style-type: none"> • Serve 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 <ul style="list-style-type: none"> • Member of organizing team for EFI RCN NEON Ecological Forecast Challenge: NEON Beetle Abundance Forecast Challenge ▪ Conservation, education, and advocacy work 2014 – present <ul style="list-style-type: none"> • Board Member for non-profit Friends of Ironwood Forest • Secretary for Sierra Club Borderlands Team ▪ Contributions to science in the media 2017-present <ul style="list-style-type: none"> • Interviews with and field trip guidance for members of national press media outlets regarding research conducted in and preservation of Ironwood Forest National Monument

- Regular interviews with local print and digital media outlets regarding the importance of desert mistletoe to ecosystem functioning
- **Service to scientific societies** 2020
 - Co-organizer, The American Society of Naturalists Meeting at Asilomar
 - Judge for Don Abbott Postdoc Research Award, The American Society of Naturalists
- **Contributor to local flora project** 2016
 - Provided input for “From Ajo Peak to Tinajas Altas: Flora of Southwestern Arizona” by R. S. Felger and S. Rutman
- **Science fair judge** 2014 – 2017
 - 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
- **Elementary school outreach leader** 2013
 - Volunteer for Insect Discovery, an elementary school education program at University of Arizona
- **Departmental service**
 - Postdoctoral representative to the Integrative Biology seminar organization committee, Michigan State University 2018 – 2019
 - Organized and led weekly seminar and discussion group on current topics in eco-evolutionary dynamics at University of Arizona 2014
 - Judge at Ecology & Evolutionary Biology Undergraduate Research Poster Session, University of Arizona 2013 – 2016
 - Co-organizer of the Ecology & Evolutionary Biology Prospective Graduate Recruitment Weekend, University of Arizona 2013
- WORKSHOPS ORGANIZED**
 - **Envisioning Biocollections for Long Term Ecological Networks** 2022
 - Long-Term Ecological Research Network All Scientists Meeting
 - **Exploring the NEON Biorepository data portal with Symbiota and R** 2019
 - Career Central at Ecological Society of America
 - **Beyond Data: Navigating NEON Resources** 2019
 - Data Help Desk at Ecological Society of America
- WORKSHOPS ATTENDED**
 - **iDigBio and BiotaPhy: Using Digitized Herbarium Data in Research: Applications for Ecology, Phylogenetics, and Biogeography** 2019
 - **Cyverse-iPlant** 2016
 - **Joint MBI-NIMBioS-CAMBAM Summer Graduate Workshop** 2013
 - Connecting Biological Data with Mathematical Models
- JOURNALS REFEREED**

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**

American Society of Naturalists, Arizona Native Plants Society, Botanical Society of America, Ecological Society of America, Society for the Study of Evolution, The Next Generation Sonoran Desert Researchers
- REFERENCES**
 - **Judith Bronstein**, PhD advisor
 - University Distinguished Professor of Ecology & Evolutionary Biology at University of Arizona
 - judieb@email.arizona.edu
 - **Nico Franz**, Current Supervisor
 - Professor in the School of Life Sciences at Arizona State University
 - Director of the Biodiversity Knowledge Integration Center (BioKIC) and Biocollections at Arizona State University
 - nico.franz@asu.edu
 - **Noah Whiteman**

- Associate Professor of Integrative Biology at University of California, Berkeley
 - whiteman@berkeley.edu
- **Régis Ferrière**
- Associate Professor of Ecology & Evolutionary Biology at University of Arizona
 - Professor of Eco-Evolutionary Mathematics at École Normale Supérieure
 - regisf@email.arizona.edu