

Alexis Garretson

National Science Foundation Graduate Research Fellow

Ph.D. candidate in Mammalian Genetics at Tufts University & The Jackson Laboratory

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Education

2020- **Mammalian Genetics**, Ph.D.

The Jackson Laboratory for Mammalian Genetics, Bar Harbor, ME and

Tufts University, Boston, MA

Advisor: Dr. Beth Dumont

Committee: Dr. Lenore Cowen, Dr. Mary Ann Handel, Dr. Elissa Chesler,

Dr. Gary Churchill (Chair)

2020 **Biology**, M.S. Concentration in Evolutionary Biology

George Mason University, Fairfax, Virginia

Advisor: Dr. Rebecca Forkner

Committee: Dr. Rebecca Dikow, Dr. Lorelei Crerar

Thesis: Identifying and Projecting Novel and Long-Term Phenological Trends:
Integrating Heterogeneous Data Sources

2018 **Biology**, B.S. Concentration in Environmental and Conservation Biology

Minors: Economics, Public Health, and Applied Global Conservation

George Mason University, Fairfax, Virginia

Cum Laude with Honors in the Major

Advisor: Dr. Michael von Fricken

Thesis: Agent-Based Modeling of Tick-Borne Diseases in Mongolian Livestock
And Herding Communities

External Study

2018 **Harvard T.H. Chan School of Public Health**, Boston, MA

Summer Fellow in Biostatistics and Computational Biology.

2016 **Ben-Gurion University of the Negev**, Eilat, Israel

Studied Red Sea coral reef ecosystem and geology of Israel.

2016 **Smithsonian-Mason School of Conservation**, Front Royal, VA

Semester Program in Wildlife Ecology and Conservation Biology.

Publications

1. **Garretson, A.**, Forkner, R. Herbarium specimens document delays in the abscission of senesced maple leaves in the northeastern United States over the past 150 years. 2021. *Frontiers in Forests and Global Change*. doi: [10.3389/ffgc.2021.664763](https://doi.org/10.3389/ffgc.2021.664763)
2. Young, A.M., van Mantgem, E.F., **Garretson, A.**, Noel, C., Morelli, T. 2021 Translational science education through citizen science. *Frontiers in Environmental Science*. doi:[10.3389/fenvs.2021.800433](https://doi.org/10.3389/fenvs.2021.800433)
3. **Garretson, A.**, Crerar, L. 2021. Moths and frogs and *E. coli*, oh my!: Agent-based modeling of evolutionary systems. *CourseSource*. <https://doi.org/10.24918/cs.2021.35>

4. Buffington, M.L., **Garretson, A.**, Kula, R., Gates, M.W., Carpenter, R., Smith, D.R., Kula, A.A. 2020. Pan trap color preference across Hymenoptera in a forest clearing. *Entomol Exp Appl.* doi:[10.1111/eea.13008](https://doi.org/10.1111/eea.13008)
5. **Garretson, A.**, Napoli, M., Feldsine, N., Adler-Colvin, P.†, Long, E. 2020. Vernal pool amphibian breeding ecology monitoring from 1931 to present: A harmonised historical and ongoing observational ecology dataset. *Biodiversity Data Journal.* doi:[10.3897/BDJ.8.e50121](https://doi.org/10.3897/BDJ.8.e50121)
6. Keuler, R., **Garretson, A.**, Saunders, T. et al. 2020. Genome-scale data reveal the role of hybridization in lichen-forming fungi. *Scientific Reports.* doi:[10.1038/s41598-020-58279-x](https://doi.org/10.1038/s41598-020-58279-x)
7. Mayernik, M.S., Breseman, K., Downs, R.R., Duerr, R., **Garretson, A.**, Hou, C.-Y., EDGI, ESIP 2020. Risk Assessment for Scientific Data. *Data Science Journal.* doi:[10.5334/dsj-2020-010](https://doi.org/10.5334/dsj-2020-010)

Book Chapters

1. **Garretson, A.** Institutional Differences in the Stewardship and Research Output of United States Herbaria. *Institutions and Incentives in Public Policy: An Analytical Assessment of Non-Market Decision-Making.* ed. Rosolina A. Candela, Rosemarie Fike, and Robert Herzberg. London: Rowman and Littlefield International. ISBN 9781538160947. Preprint: [10.1101/2021.01.07.425759](https://doi.org/10.1101/2021.01.07.425759)
2. **Garretson, A.** Citizen Science Can Improve Visitor Experience and Research Outcomes in Museums and Cultural Institutions. In *Digital Museums: What's new in the field?*. ed. Andrea Ledsema, Jessica BrodeFrank, Isabel Sanz. Museum Computer Network. 2021. <http://publications.mcn.edu/2020-scholars/citizen-science/>

Curricula

1. **Garretson, A.** Natural Selection and Camouflage. In *A Laboratory Manual for Biology 308: Laboratory/Field Exercises in Ecology and Evolution.* By Lorelei Crerar, Larry L. Rockwood.
2. **Garretson, A.** and Forkner, Rebecca. Phenology, Climate Change and Citizen Science. In *A Laboratory Manual for Biology 308: Laboratory/Field Exercises in Ecology and Evolution.* By Lorelei Crerar, Larry L. Rockwood.
3. **Garretson, A.** and Crerar, Lorelei. Ecological and Evolutionary Modeling. In *A Laboratory Manual for Biology 308: Laboratory/Field Exercises in Ecology and Evolution.* By Lorelei Crerar, Larry L. Rockwood.

Publications in Preparation (* indicates student co-authors)

1. **Garretson, A.**, *Mohney, S., *Silarszka, R., *Cahill, M., *Griffin, L., Mohonk Preserve Stream Watch Citizen Scientists, Feldsine, N., Napoli, M., Long, E. Land Use and Basin Characteristics Associated with the Occurrence of Invasive Vegetation in the Hudson River Valley, New York. (In revision at *Invasive Plant Science and Management*).
2. **Garretson, A.**, *Cuddy, T., Duffy, A., Forkner, R. Citizen science data reveal regional heterogeneity in phenological response to climate in the large milkweed bug, *Oncopeltus fasciatus*. (In revision at *Ecology and Evolution*).
3. **Garretson, A.**, Feldsine, N., Napoli, M., Long, E., Forkner, R. Networks of Phenological Synchrony Reveal a Highly Interconnected Ecosystem and Potential Vulnerability to Climate-Driven Mismatches. (In submission). Preprint doi: <https://doi.org/10.1101/2022.07.11.499341>

4. Lawal, RA., Mathis, V., Barter, M., Charette, J., **Garretson, A.**, Dumont, BL. Taxonomic assessment of two wild house mouse subspecies using whole-genome sequencing. (In submission). Preprint doi: <https://doi.org/10.1101/2022.06.28.497812>
5. Fraser, H., Nakagawa, S., Fidler, F., Gould, E.,...**Garretson, A.**, Keuler, R., Duffy, A.,... Parker, T. Many EcoEvo Analysts. (Registered Report at *BMC Biology*).

Data Packages

1. **Garretson, A.**, Disney, J., Maniscalco, M.A., Farrell, A., Bailey, C., Matt, J., Arora, U., Armstrong, M., Pratt, S., Dorn, N., and Durand, F. 2022. Harmful algal bloom monitoring data near Frenchman Bay from 2004-2022 ver 3. Environmental Data Initiative. <https://doi.org/10.6073/pasta/11e3a827670392047a08155cb6128a76>
2. **Garretson A.**, Napoli M, Feldsine N, Long E, Huth P, Smiley D, Forester A, Pierce E, Smiley S, Thompson J (2021). Mohonk Preserve Historical Observational Biodiversity Data. Mohonk Preserve. Occurrence dataset <https://doi.org/10.15468/tckm2a>
3. Mohonk Preserve, Citizen Scientists, Feldsine N A, Kathe J J, Long E C, Montoya A J, Napoli M M, **Garretson A.**, Wander H (2021). Mohonk Preserve Riparian Invasive Vegetation Species Sampling. Mohonk Preserve. Occurrence dataset. doi:[10.15468/nw2vj4](https://doi.org/10.15468/nw2vj4)
4. Mohonk Preserve, Feldsine N, Forester A, **Garretson A.**, Huth P, Long E C, Morgan V, Napoli M, Pierce E, Smiley D, Smiley S, Thompson J (2021). Mohonk Preserve Vernal Pool Amphibian Breeding Ecology Monitoring from 1931 to Present. Mohonk Preserve. Occurrence dataset. doi:[10.15468/dypfbs](https://doi.org/10.15468/dypfbs)
5. Mohonk Preserve, C. Belardo, N. Feldsine, A. Forester, **A. Garretson**, P. Huth, E.C. Long, V. Morgan, M. Napoli, E. Pierce, D. Richardson, D. Smiley, S. Smiley, J. Thompson, and B. Wilcove. 2021. History of Acid Precipitation on the Shawangunk Ridge: Mohonk Preserve Precipitation Depths and pH, 1976 to Present ver 4. Environmental Data Initiative. doi:[10.6073/pasta/1cfbeb51493023913deeb7927fa5687b](https://doi.org/10.6073/pasta/1cfbeb51493023913deeb7927fa5687b)
6. Mohonk Preserve, N. Feldsine, **A. Garretson**, E.C. Long, M. Napoli, V. Morgan, E. Pierce, D. Smiley, S. Smiley, and J. Thompson. 2021. Mohonk Preserve Groundwater Springs Data, 1991 to Present ver 2. Environmental Data Initiative. doi:[10.6073/pasta/2592a2141bb6b6258a0e1def2a70f48f](https://doi.org/10.6073/pasta/2592a2141bb6b6258a0e1def2a70f48f)
7. **Garretson, A.**, Crerar, L., Rockwood, L. 2020. Forest Community Dynamics in Hemlock Overlook, Virginia: A Ten-Year Student-Collected Forest Plot Dataset. Environmental Data Initiative: edi.405.1. doi:[10.6073/pasta/0.6073/pasta/10.6073/pasta/9c10f7834c8772ce295789133131c009](https://doi.org/10.6073/pasta/0.6073/pasta/10.6073/pasta/9c10f7834c8772ce295789133131c009)
8. **Garretson, A.** 2020. Research-Grade iNaturalist Observations Recorded by Alexis Garretson. Global Biodiversity Information Facility. doi:[10.15468/dl.ck8ck2](https://doi.org/10.15468/dl.ck8ck2)
9. Mohonk Preserve, Feldsine, N., **Garretson, A.**, Kathe, J., Long, E., Montoya, A., Napoli, M., Wander, H., Citizen Science Volunteers. January 2020. Mohonk Preserve Stream Water Quality Invasive Species and Macroinvertebrate Sampling from 2017-Present. Environmental Data Initiative: edi399. doi:[10.6073/PASTA/068E4A6FA99628C6A01F4A739D5DD2D6](https://doi.org/10.6073/PASTA/068E4A6FA99628C6A01F4A739D5DD2D6)
10. Mohonk Preserve, Feldsine, N., Forester, A., **Garretson, A.**, Huth P., Long E., Napoli, N., Pierce, E., Smiley, D., Smiley, S., Thompson, J. July 2019. Mohonk Preserve Amphibian and Water Quality Monitoring Dataset at 11 Vernal Pools from 1931-Present. Environmental Data Initiative: edi398. doi:[10.6073/pasta/864aea25998b73c5d1a5b5f36cb6583e](https://doi.org/10.6073/pasta/864aea25998b73c5d1a5b5f36cb6583e)

Fellowships and Grants (Total awarded: \$319,145)

- 2022 **Dean's Fellow**, Tufts Graduate School of Biomedical Sciences (\$40,000)
- 2022 **Transforming Ecology Education Biodiversity Faculty Mentoring Network**, Ecological Society of America (\$1,000)
- 2022 **Computational & Data Science Fellowship**, Association for Computing Machinery's Special Interest Group on High-Performance Computing (\$45,000)
- 2022 **Tufts Institute for the Environmental Fellowship**, Tufts University (\$2,500)
- 2022 **Oskar Morgenstern Fellowship**, Mercatus Center at George Mason University (\$2,500)
- 2022 **Student Leadership Training Program**, Tufts Graduate School of Biomedical Science
- 2021 **Oskar Morgenstern Fellowship**, Mercatus Center at George Mason University (\$2,500)
- 2021 **The Podcast Fellowship**, Olami
- 2021 **Humane Studies Fellowship**, Institute for Humane Studies (\$4,000)
- 2021 **FLOW (First-Generation, Low-Income, and/or Working Class) Fellow**, Scientists Promoting INclusive Excellence (SPINEs), Tufts University
- 2020 **Don Lavoie Fellowship**, Mercatus Center at George Mason University (\$1,250)
- 2020 **Loewy-Mohonk Preserve Liaison Fellowship**, Mohonk Preserve and Lowey Family Foundation (\$7,000)
- 2020 **Museum Computer Network Scholar**, MCN and Kress Foundation (\$800)
- 2020 **FUNDing Friday**, Earth Science Information Partners Lab Funding (\$3,000)
- 2020 **Oskar Morgenstern Fellowship**, Mercatus Center at George Mason University (canceled due to COVID)
- 2020 **Community Science Fellow: Science, Policy, and Engagement Cohort**, American Geophysical Union and Gordon and Betty Moore Foundation
- 2020 **Graduate Supplemental Scholarship**, Provost Graduate Education Awards, George Mason University (\$2,500)
- 2020 **American Alpine Club Researcher**, American Alpine Club (\$1,500)
- 2020 **Global Discovery Scholarship**, George Mason University (\$1,100)
- 2020 **Dan Searle Fellow**, Institute for Humane Studies (\$3,000)
- 2019 **Data Stewardship Community Fellow (Returning)**, Earth Science Information Partners (\$6,000)
- 2019 **ACTIVATE AI and Search: Diversity and Inclusion Scholar**, Lucidworks and Salesforce (\$2,595)
- 2019 **Graduate Research Fellow**, National Science Foundation (\$138,000)
- 2019 **Environmental Data Initiative Summer Fellow**, Environmental Data Initiative and Mohonk Preserve (\$5,000)
- 2019 **Frédéric Bastiat Research Sequence Fellow**, Mercatus Center at George Mason University (\$5,000)
- 2019 **Ryan Kelley Memorial Research Fellowship**, International Women's Fishing Association Scholarship Trust (\$1,000)
- 2019 **Science Ambassador**, Science Gateways Community Institute (\$1,500)
- 2019 **Olami Inspire Online Fellow**, Olami (\$1,700)
- 2018 **Data Stewardship and Research Object Citation Community Fellow**, Earth Science Information Partners (\$5,000)

- 2018 **Kennedy Research Fellowship**, David M. Kennedy Center for International Studies (\$1,000)
- 2018 **Ocean Discovery Fellowship**, MIT Media Lab and All Hands on Deck (\$750)
- 2018 **Frédéric Bastiat Fellow**, Mercatus Center at George Mason University (\$5,000)
- 2018 **Ridge to Reef Summer Trainee**, Climate and Life Summer Institute, UC Davis and NSF (Research Traineeship in Urban Ecosystem Management) (\$850)
- 2018 **Post-Baccalaureate Internship**, Harvard T.H. Chan School of Public Health, Department of Biostatistics (\$5,100)
- 2016 **Joseph Schumpeter Fellow**, Mercatus Center at George Mason University (\$3,000)
- 2018 **Undergraduate Research Scholars Program (Traditional)**, George Mason University (\$1,500)
- 2017 **Sinai Scholar**, Sinai Scholars Society (\$500)
- 2017 **Research Semester Cohort**, George Mason University, Department of Biology (\$2,000)
- 2017 **Undergraduate Research Scholars Program (Intensive)**, George Mason University (\$5,000)
- 2016 **Undergraduate Research Scholars Program (Traditional)**, George Mason University (\$1,500)
- 2012 **National Security Language Initiative for Youth**, US State Department (\$10,000)

Awards and Honors

- 2022 **Honorable Mention**, Ford Foundation Predoctoral Fellowship
- 2021 **Honorable Mention**, Ford Foundation Predoctoral Fellowship
- 2020 **Biodiversity Open Data Ambassador**, Global Biodiversity Information Facility
- 2020 **Champion**, National Microbiome Data Collaborative
- 2020 **Data and Software Carpentry Instructor**, The Carpentries
- 2020 **CourseSource Writing Studio Writing Fellow**, CourseSource and Society for the Advancement of Biology Education Research
- 2020 **Finalist - Westarctica Conservation Scholarship**, Westarctica Inc.
- 2020 **Open Access Publishing Fund**, George Mason University (€90)
- 2019 **Attendance Funding: American Geophysical Union 2019**, Earth Science Information Partners, Data Stewardship Committee (\$2,000)
- 2019 **Attendance Funding: Evolutionary Dynamics of Cancer**, Mathematical Biosciences Institute and National Institute of Statistical Sciences (\$375)
- 2018 **Science Alliance Leadership Training Fellow**, New York Academy of Sciences
- 2018 **Virtual Student Federal Service**, USGS and Northeast Climate Science Center
- 2018 **Affiliate Researcher**, Children's Hospital Boston
- 2018 **Ridge to Reef Travel Award and Scholarship**, UC Davis and NSF Traineeship (\$700)
- 2018 **Departmental Honors**, Department of Biology, George Mason University
- 2018 **Senior Award**, Department of Biology, George Mason University (\$250)
- 2018 **OSCAR Student Excellence Award: Research and Scholarship**, The Mason Impact Leadership Council (\$500)
- 2018 **The Biology Writing Award**, Department of Biology, George Mason University (\$500)
- 2018 **F.A. Hayek Award**, F.A. Hayek Program for Advanced Study in Philosophy, Politics, and Economics at the Mercatus Center at George Mason University (\$500)
- 2018 **Best Paper Award**, Sinai Scholars Society - George Mason University (\$150)

- 2018 **F.A. Hayek Essay Contest First-Place Winner**, Department of Economics, George Mason University (\$500)
- 2018 **Arctic Summer College Fellow**, Ecologic Institute
- 2017 **OSCAR Fellow**, Office of Undergraduate Research George Mason University
- 2017 **Yeshiva Travel Scholarship**, Chabad on Campus (\$1,500)
- 2017 **Jeff Seidel Scholarship**, Jeff Seidel Jewish Student Centers (\$500)
- 2017 **Undergraduate Student Travel Fund**, George Mason University (\$500)
- 2017 **Best Overall Research and Scholarship Poster Presentation**, College of Humanities and Social Sciences (\$500)
- 2016 **Federal Supplemental Educational Opportunity Grant**, George Mason University (\$1,400)
- 2016 **Virginia Commonwealth Award**, George Mason University (\$6,000)
- 2015 **G92 Fellow**, World Vision International
- 2014 **Leading for Life: Urban Youth Workers Cohort**, The Richard and Helen DeVos Family Foundation
- 2013 **City Vision Fellow**, Lake Avenue Community Foundation

Conference Presentations (* indicates student, † indicates presenting author, if not AG)

Oral Presentations:

1. **Garretson, A.**, Dumont B. (2022, Aug.) Modeling Age-Related Reproductive Decline in the Collaborative Cross Mouse Population. Mechanisms of Cellular Resilience Symposium. MDI Biological Laboratory, Bar Harbor, ME.
2. **Garretson, A.** Dumont, B. (2022, Apr.) Leveraging single-institution breeding records of laboratory animals to investigate the genetics of fertility. 49th Maine Biological and Medical Sciences Symposium. MDI Biological Laboratory, virtual.
3. **Garretson, A.**, Dumont, B. (2022, Apr.) Structural variation implicated in male infertility using retrospective analysis of Collaborative Cross breeding records. Tufts University Genetics-Neuroscience Retreat. The Jackson Laboratory, Bar Harbor, ME.
4. **Garretson, A.** (2021, Oct.) Alt Text in Twitter Job Postings: Improving The Accessibility of Digital Communications. ConsMark 2021, Virtual.
5. **Garretson, A.** †*Cuddy, T., Forkner, R. (2020, June). Observational biodiversity occurrence data reveal spatiotemporal trends in large milkweed bugs. National Conference for Undergraduate Research, Virtual.
6. **Garretson, A.** (2020, August). Do you see what I see? Harmonizing data from multiple repositories. Talk presented at the Ecological Society of America Conference. Virtual.
7. **Garretson, A.** (2020, June). Extracting phenology and life history data from digitized specimens. Talk presented at the 4th Annual Digital Data Conference, Indiana University. Virtual.
8. **Garretson, A.** (2020, January). Citizen Science in the Earth Sciences: Challenges and Opportunities. Session organized at the Earth Science Information Partners Winter Meeting, Bethesda, MD.
9. **Garretson, A.** (2020, January). Do You See What I See? Citizen Science Data Coverage. Talk presented at the Earth Science Information Partners Winter Meeting, Bethesda, MD.
10. **Garretson, A.** (2019, July). The Unique Challenges of Long-Term Physical Collections: An Implementation of the Data Risk Matrix at the Mohonk Preserve. Talk presented at the Earth Science Information Partners Summer Meeting, Tacoma, WA.

11. †Keuler, R., **Garretson, A.**, Saunders, T., Erickson, R., St. Andre, N., Grewe, F., Smith, H., Lumbsch, T. H., St. Clair, L. L., Leavitt, S. D (2019, July). Potential role of hybrid speciation in lichen-forming fungi. Talk presented at Botany Conference, Tucson, AZ.
12. **Garretson, A.** (2019, January). Using Science Gateways in Phenological Research. Talk presented to the Science Gateways Community Institute Board. Virtual.
13. †Davies, H., **Garretson, A.**, Hogan, K., Vodzak, M., Zimmerman, D., Valitutto, M., Aguirre, A., von Fricken, M. (2018, July). Regional-scale analysis of bat-virus associations in Tropical Asia to support One Health surveillance. Oral presentation at the 55th annual Association of Tropical Biology and Conservation Meeting, Sarawak, Malaysia.
14. **Garretson, A.** (2018, July). Effects of Gestational Age and Birth Weight on Neurodevelopmental and Psychiatric Outcomes in Adolescents after Pediatric Cardiac Surgery. Talk presented at the Harvard Pipelines to Biostatistics Symposium, Boston, MA.
15. **Garretson, A.** (2018, July). Arctic Vegetation: Avenues for Herbarium-Driven Research. Talk presented to the Arctic Summer College. Virtual.
16. **Garretson, A.** (2018, February). Polycentricity and Collective Action in Religious Communities: A Case Study of the Chabad-Lubavitcher Sect. Talk presented at the Austrian Student Scholars Conference, Grove City, PA.
17. **Garretson, A.** (2017, March). The Perception Problem: Migration and the Commons. Talk presented at the Austrian Student Scholars Conference, Grove City, PA.
18. **Garretson, A.** (2016, December). Natural Lands in Virginia. Talk presented at the Celebration of Student Scholarship, Fairfax, VA.
19. **Garretson, A.**, Reid, A., Shumaker, P. (2016, May). Coyote Activity at the Smithsonian Conservation Biology Institute. Talk presented publicly at the Smithsonian-Mason School of Conservation, Front Royal, VA.
20. **Garretson, A.** (2016, May). Quantitative Analysis and Nutritional Optimization of Amazonian Fish Diet Mix. Talk presented to Amazonia keepers at the Smithsonian's National Zoo, Washington, DC.

Poster Presentations:

1. **Garretson, A.** Dumont, B. (2022, Apr.) Structural variation may impact fertility through altered gene expression. Poster presented at the 2022 Jackson Lab Trainee Symposium. Portland, ME.
2. **Garretson, A.** Dumont, B. (2022, Apr.) Germline mutational burdens predict reproductive success. Poster presented at the 2022 New England Science Symposium. Harvard University, virtual.
3. **Garretson, A.** Dumont, B. (2021, Nov.) Relationship Between Reproductive Traits and the Mutation Rate in the Collaborative Cross Mouse Population. Poster presented at the 2021 Earle P. Charlton Poster Competition, Tufts University. Virtual.
4. **Garretson, A.** Dumont, B. (2021, Oct.) Genetic Architecture of Mutation Rate in the Collaborative Cross Mouse Population. Poster presented at the Jackson Laboratory Scientific Symposium. Virtual.
5. **Garretson, A.** (2021, Sep.) Alt Text in Twitter Job Postings are an Underutilized Tool to Support Accessibility. Poster presented at the American Public Health Association Disability Section First Annual Twitter Conference. Virtual.
6. †*Silarszka, R., †*Cahill, M., †*Griffin, L., **Garretson, A.**, *Mohney, S., Mohonk Preserve Stream Watch Citizen Scientists, Feldsine, N., Napoli, M., Long, E. (2021, Apr.) Land Use and Basin Characteristics Associated with the Occurrence of Invasive Vegetation in the

- Hudson River Valley, New York. Poster at the National Conference for Undergraduate Research. Virtual.
7. **Garretson, A.** (2021, Jan.). Linking Data Usage to Citizen Science Observations and Observers. Poster Presented at the Earth Science Information Partners Winter Meeting 2021. <https://doi.org/10.6084/m9.figshare.13604300.v1>
 8. **Garretson, A.**, Forkner, R. (2020, June). Digitized herbarium specimens document changes in phenophases and pathogen damage in Eastern United States maples. Poster presented at the Ecological Society of America Conference. Virtual.
 9. **Garretson, A.** [†]*Cuddy, T., Forkner, R. (2020, June). Observational biodiversity occurrence data reveal spatiotemporal trends in large milkweed bugs. Poster presented at the Ecological Society of America Conference. Virtual.
 10. **Garretson, A.**, Forkner, R. (2020, June). Digitized herbarium specimens document changes in phenophases and pathogen damage in Eastern United States maples. Poster presented at the 4th Annual Digital Data Conference, Indiana University. Virtual.
 11. **Garretson, A.** [†]*Cuddy, T., Forkner, R. (2020, June). Extracting life stage and behavioral data from observational biodiversity occurrence data reveals spatiotemporal trends in large milkweed bugs. Poster presented at the 4th Annual Digital Data Conference, Indiana University. Virtual.
 12. **Garretson, A.** Crerar, L. (2019, Nov.) Agent-Based Modeling in Evolution Education: Impacts on Student Understandings of Evolutionary Processes. Poster presented at the Mathematical Biosciences Institute Evolutionary Dynamics of Cancer. Columbus, OH.
 13. **Garretson, A.**, Blumberg, K., O'Brien, M. (2019, July). Research, Reuse, and Re-Search: Harmonizing ecocomDP and DarwinCore. Poster presented at the Earth Science Information Partners Summer Meeting 2019, Tacoma, WA.
 14. **Garretson, A.**, Napoli, M., Feldsine, N., *Adler-Colvin, P., Long, E. (2019, July). Vernal Pool Amphibian Breeding Ecology Monitoring from 1931 to Present: A Harmonized Historical and Ongoing Observational Ecology Dataset. Poster presented at the Earth Science Information Partners Summer Meeting 2019, Tacoma, WA.
 15. **Garretson, A.**, Forkner, R. (2019, Jan.). Automated Classification of Herbarium Specimens in Phenological Research: Preliminary Results and Future Directions. Earth Science Information Partners Winter Meeting 2019. Bethesda, MD.
 16. **Garretson, A.**, von Fricken, M. (2018, Oct.). Agent-Based Modeling of Tick-Borne Disease Exposure in Mongolian Livestock and Herders. American Society of Tropical Medicine and Hygiene Annual Meeting 2018. New Orleans, LA.
 17. [†]Davies, H., **Garretson, A.**, Hogan, K., Naimi, F., Vodzak, M., Zimmerman, D., Valitutto, M., Aguirre, A., von Fricken, M. (2018, Oct.) Characterizing the risk of bat-borne virus exposure at popular cave destinations in Southeast Asia for prevention and response. American Society of Tropical Medicine and Hygiene Annual Meeting 2018. New Orleans, LA.
 18. **Garretson, A.**, Forkner, R. (2018, August). Comparison of Herbaria-Derived Measures with Direct Observation of Phenological Trends. Ridge to Reef: Climate and Life Summer Institute, Irvine, CA.
 19. [†]*Ullah, O., Frelier, J.M., **Garretson, A.**, Bleich, S.N. (2018, July). Fast Food Pricing In Metropolitan Areas. Poster Presented at the FACETS Summer Poster Session at Harvard University. Boston, MA.
 20. **Garretson, A.**, von Fricken, M. (2018, May). Agent-Based Modelling of Tick-Borne Disease Exposure in Mongolian Livestock and Herders. OSCAR Celebration of Student Scholarship, Fairfax, VA.

21. **Garretson, A.**, Crerar, L., Garretson, L. (2018, April). Utilizing Agent-Based Modeling in Natural Selection and Evolution Education. College of Science Celebration, Fairfax, VA.
22. **Garretson, A.**, Forkner, R, Ingram, K. (2018, April). Aseasonal Leaf Production and Coloration in Mid-Atlantic Maples. College of Science Celebration, Fairfax, VA.
23. **Garretson, A.**, Forkner, R., Crerar, L. (2017, December). Assessing the Accuracy of Student Phenological Data Collection. Poster Presented at the Biology Research Celebration, Fairfax, VA.
24. **Garretson, A.** (2017, October). Analysis of coyote activity around composting sites. Poster presented at the Student Conference on Conservation Science, New York City, NY.
25. **Garretson, A.** (2017, August). Recovery in Vulnerable Populations After Hurricane Katrina. Poster Presented at the OSCAR Summer Celebration of Student Scholarship, Fairfax, VA.
26. **Garretson, A.**, Shefy, D., Greshin, P., Slonin, G. (2017, May). Assessing White Syndrome Dispersion in the Red Sea Fringing Reef. Poster presented at Celebration of Student Scholarship, Fairfax, VA.
27. **Garretson, A.**, Reid, A. (2017, April). Analysis of coyote activity around waste disposal sites and management implications. Poster presented at College of Humanities and Social Sciences Undergraduate Research Symposium, Fairfax, VA.
28. **Garretson, A.** (2017, April). The Politics of Addiction: Innovative Strategies for Combating Heroin Addiction in New Jersey. Poster at the National Conference for Undergraduate Research, Memphis, TN.
29. **Garretson, A.**, †Reid, A. (2017, April). Analysis of coyote activity around waste disposal sites and management implications. Poster presented at the National Conference for Undergraduate Research, Memphis, TN.

Teaching Experience

- 2020 **Computer Vision for Ecology**
Lead Instructor. George Mason University, Department of Biology.
- 2019 **Bioinformatics and Data Analysis II**
Teaching Assistant. Brigham Young University, Department of Biology
Student Review: 4.88/5
- 2019 **Introduction to Bioinformatics**
Teaching Assistant. Brigham Young University, Department of Biology.
- 2018 **Principles of Biology for Non-Majors**
Teaching Assistant. Brigham Young University, Department of Biology.
Student Review: 4.66/5
- 2018 **Applied Ecology**
Learning Assistant. George Mason University,
Department of Biology and Department of Environmental Science and Policy
Student Review: 8.98/10
- 2017 **Foundations of Ecology and Evolution**
Learning Assistant.
George Mason University, Department of Biology and Department of
Student Review: 9.55/10

Mentorship (* indicates underrepresented students in medicine and earth science)

1. **Joshua Quigley**, M.S. student. University of New England. Fall 2022. Supervised capstone project analyzing marine debris data.
2. **Sirohi Kumar**, B.S. student. Smith College. Summer 2022 Supervised in the Jackson Laboratory Summer Student Program studying wild mice transposable elements using long-read data and computational methods.
3. **Charlie Bourne**, H.S. student. Summer 2022. Supervised field data collection and management summer project on phytoplankton.
4. **Michael Maniscalco**, Ph.D. student. UC Santa Barbara. Summer 2022. Supervised an Environmental Data Initiative-funded summer fellowship curating phytoplankton data.
5. **Nathan Dorn**, Americorps Environmental Steward. Summer 2022. Supervised environmental field research and volunteer management.
6. ***Jeremy Andre**, B.S. student. George Mason University. Fall 2020. Supervised research project in specimen usage.
7. **Stephen Bredin**, Recent graduate. George Mason University. Summer 2020. Supervised summer research project in amphibian breeding ecology.
8. ***Amber Jackson**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in ethnobotany and natural history collections.
9. ***Elizabeth Elliot**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in ethnobotany and natural history collections.
10. ***Morgan Cahill**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in water quality and citizen science.
11. ***Rachel Silarszka**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in water quality and citizen science.
12. ***Laurel Griffin**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in water quality and citizen science.
13. ***Mary Beth Armstrong**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in data science and air quality indicators.
14. ***Rinad Chowdhury**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in data science and air quality indicators.
15. ***Amy Guillen**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in data science and air quality indicators.
16. ***Preeti Joginapalli**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in machine learning and image processing.
17. ***Isaac Richards**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in machine learning and image processing.
18. **Wakil Nooristany**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in machine learning and image processing.
19. **Jonathan Matt**, recent graduate. George Mason University. Summer 2020. Supervised summer research project in natural language processing and COVID.
20. ***Marcus Shera**, recent graduate. George Mason University. Summer 2020. Supervised summer research project in natural language processing and COVID.
21. ***Tedra Cuddy**, B.S. student. George Mason University. Fall 2019. Supervised federal work-study research student in data collection and statistical analysis in R and python.
22. **Lars Anderson**, B.S. student. Brigham Young University. Summer 2019. Supervised in field data collection for *Hemigrapsus sanguineus*.

23. ***Eleanor DiNuzzo**, B.S. student. Brigham Young University. Spring 2019. Provided field research oversight and mentorship, supported model development, analysis, R programming, and NetLogo Programming for independent research.
24. ***Jade Carver**, B.S. student. Brigham Young University. Spring 2019. Trained in statistical analysis, graphics in R, graduate school applications.
25. ***Kylie Perkins**, B.S. student. Brigham Young University. Spring 2019. Mentored in statistical analysis, graduate school applications, and provided career development advice.
26. ***Catherine Ferarri**, M.A. student. SUNY New Paltz. Summer 2019. Trained in using R, data cleaning and data publishing.
27. ***Penelope Adler-Colvin**, Recent graduate. SUNY New Paltz. Summer 2019. Trained in using R, data analysis and presentation, and publishing.

Professional Development and Continuing Education

- 2021 **Human and Mammalian Genetics and Genomics**, The Jackson Laboratory
- 2021 **Statistical Inference for Biologists**, The Jackson Laboratory
- 2021 **Short Course on the Genetics of Addiction**, The Jackson Laboratory
- 2021 **Science Communication Training**, National Center for Ecological Analysis and Synthesis and COMPASS
- 2020 **Data Science Instructor Training**, The Carpentries
- 2019 **Bioinformatics for Conservation Genomics**, Smithsonian-Mason School of Conservation
- 2019 **Evolutionary Dynamics in Cancer**, Mathematical Biosciences Institute and National Institute of Statistical Sciences
- 2019 **Data Publishing Workshop**, Environmental Data Initiative
- 2018 **Collective Behavior and Emergent Phenomena in Biology**, Mathematical Biosciences Institute
- 2018 **Geospatial Data Analysis Short Course**, The National Socio-Environmental Synthesis Center
- 2017 **Designing, Applying, and Interpreting Conservation Genetics Studies**, American Museum of Natural History
- 2017 **Spatial Analysis in R**, American Museum of Natural History
- 2016 **Environmentalism, Property Rights, and Markets**, Property and Environment Research Center Student Colloquium

Service

- 2021-Present Reviewer, *Citizen Science: Theory and Practice*
- 2020-Present Reviewer, *Journal of Emerging Investigators*
- 2020-2021 Associate Editor, *Journal of Emerging Investigators*
- 2020 Abstract reviewer for the National Conference on Undergraduate Research
- 2020 Scholarship reviewer for American Councils for International Education

Professional Membership

- 2020 **Phi Kappa Phi**
- 2018 **Delta Alpha Pi**, International Honor Society for Students with Disabilities
- 2016 **Sigma Xi**, The Scientific Research Honor Society
- 2015 **Virginia Academy of Science**