Alexis Garretson

NSF Graduate Research Fellow | ACM SIGHPC Computational & Data Science Fellow
Ph.D. candidate in Mammalian Genetics at Tufts University & The Jackson Laboratory
alexis.garretson@tufts.edu | www.alexisgarretson.com | ORCID: 0000-0002-7260-0131

Education

2020- (present) **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)

2024- (present) **Traineeship in Advanced Data Analysis**
Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity & National Center For Advancing Translational Science (NCATS)

2023 **Summer Graduate Intern in Single Cell Biology**
The Joint Genome Institute, Lawrence Berkeley National Laboratory
Advisor: Dr. Sharon Greenblum

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 **Post-Baccalaureate Biostatistics Training Program**
Harvard T.H. Chan School of Public Health, Boston, MA
Biostatistics and Computational Biology (Summer)

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

Publications

1. **Garretson, A.,** Dumont, B.L., Handel, M.A. 2023. Reproductive genomics of the mouse: implications for human fertility and infertility. Development. 150 (4): dev201313. doi: https://doi.org/10.1242/dev.201313
2. **Garretson, A., ***Cuddy, T., Duffy, A., Forkner, R. 2023 Citizen science data reveal regional heterogeneity in phenological response to climate in the large milkweed bug, *Oncopeltus fasciatus.* Ecology and Evolution 13 (7), e10213 doi: https://doi.org/10.1002/ece3.10213

3. **Garretson, A.**, Bailey, C., Taylor, A., Dabulewicz, A., Bisson, B., Dorn, N., Kaczor, K., Nahf, M.A., Webber, H., Whiting, M., Disney, J. 2023 Citizen and Community Science Approaches to Understanding Changes in Coastal Habitats Using Anecdata.org. Maine Policy Review 32.2 (2023) : 239 -247, https://doi.org/10.53558/BDOX8109
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. Scientific Reports 12, 20866 (2022). https://doi.org/10.1038/s41598-022-25420-x
5. **Garretson, A**., *Mohney, S., *Silarszka, R., *Cahill, M., *Griffin, L., Mohonk Preserve Stream Watch Citizen Scientists, Feldsine, N., Napoli, M., Long, E. 2022. Citizen science and land use data provide insight into the invasive riparian plant composition of the Hudson River Valley Watershed. Invasive Plant Science and Management, 1-27. doi:10.1017/inp.2022.26
6. **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
7. 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
8. **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
9. 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
10. **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
11. 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
12. 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

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**.** IBSN 9781538160947. Preprint: 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/

Published Lesson Plans and 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.

Data Packages *GBIF-mediated data cited 210 times (2024-02-10)*

1. **Garretson A**, Mohonk Preserve Director of Conservation Science, Napoli M, Feldsine N, Long E C (2022). Mohonk Preserve Phenology Observations. Mohonk Preserve. Occurrence dataset. https://doi.org/10.15468/b6zrtg
2. Director of Conservation Science, Napoli M, **Garretson A**, Feldsine N, Long E C, Ferreri C T, Erle J C, Quintana Vargas M, Chinkan C, Green R, Vivirito M, Adler-Colvin P (2022). Mohonk Preserve Grassland Field Monitoring 2017-2021. Version 1.6. Mohonk Preserve. Occurrence dataset. https://doi.org/10.15468/w2xbdx
3. **Garretson A**, Williams J, Adler-Colvin P, Napoli M, Feldsine N, Long E, Solomon J, Mohonk Preserve, Smiley D, Huth P (2022). Mohonk Preserve Herbarium. Version 1.2. Mohonk Preserve. Occurrence dataset. https://doi.org/10.15468/e9zucc
4. **Garretson A**, Mohonk Preserve Director of Conservation Science, Napoli M, Feldsine N, Long E C, Ferreri C T, Erle J C, Quintana Vargas M, Green R, Chinkan C (2022). Mohonk Preserve Forest Health Monitoring Data. Mohonk Preserve. Occurrence dataset. https://doi.org/10.15468/gukkks
5. **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
6. **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
7. 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
8. 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
9. 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

Grant Support

2019 - 2024 **National Science Foundation Graduate Research Fellowship**
Using Deep-Learning & Computer Vision in the Phenological Classification of Digitized Herbarium Specimens
Role: Principal Investigator **Total Award:** $138,000

Fellowships and Grants (Total awarded: $196,145)

2024 **Traineeship in Advanced Data Analysis,** Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity (AIM-AHEAD) and NIH National Center For Advancing Translational Science ($10,000)

2023 **Robert G. Raskin Scholarship,** Earth Science Information Partners ($5,000)

2022 **Computational & Data Science Fellowship,** Association for Computing Machinery's (ACM) Special Interest Group on High-Performance Computing (SIGHPC) ($45,000)
Dean's Fellow, Tufts Graduate School of Biomedical Sciences ($40,000)
Oskar Morgenstern Fellowship, Mercatus Center at George Mason University ($2,500)
Tufts Institute for the Environmental Fellowship, Tufts University ($2,500)
Transforming Ecology Education Biodiversity Faculty Mentoring Network, Ecological Society of America & QUBES Hub ($1,000)

2021 **Oskar Morgenstern Fellowship,** Mercatus Center at George Mason University ($2,500)
Humane Studies Fellowship, Institute for Humane Studies ($4,000)

2020 **Don Lavoie Fellowship**, Mercatus Center at George Mason University ($1,250)
Loewy-Mohonk Preserve Liaison Fellowship, Mohonk Preserve and Lowey Family Foundation ($7,000)
Museum Computer Network Scholar, MCN and Kress Foundation ($800)
FUNding Friday, Earth Science Information Partners Lab Funding ($3,000)
Graduate Supplemental Scholarship, Provost Graduate Education Awards, George Mason University ($2,500)
American Alpine Club Researcher, American Alpine Club ($1,500)
Global Discovery Scholarship, George Mason University ($1,100)
Dan Searle Fellow, Institute for Humane Studies ($3,000)

2019 **Environmental Data Initiative Summer Fellow,** Environmental Data Initiative and Mohonk Preserve ($5,000)
Data Stewardship Community Fellow (Returning), Earth Science Information Partners ($6,000)
Frédéric Bastiat Research Sequence Fellow, Mercatus Center at George Mason University ($5,000)
ACTIVATE AI and Search: Diversity and Inclusion Scholar, Lucidworks and Salesforce ($2,595)
Olami Inspire Online Fellow, Olami ($1,700)
Ryan Kelley Memorial Research Fellowship, International Women's Fishing Association Scholarship Trust ($1,000)
Science Ambassador, Science Gateways Community Institute ($1,500)

2018 **Data Stewardship and Research Object Citation Community Fellow,** Earth Science Information Partners ($5,000)
Kennedy Research Fellowship, David M. Kennedy Center for International Studies ($1,000)
Ocean Discovery Fellowship, MIT Media Lab and All Hands on Deck ($750)
Frédéric Bastiat Fellow, Mercatus Center at George Mason University ($5,000)
Ridge to Reef Summer Trainee, Climate and Life Summer Institute, UC Davis and NSF (Research Traineeship in Urban Ecosystem Management) ($850)
Post-Baccalaureate Internship, Harvard T.H. Chan School of Public Health, Department of Biostatistics ($5,100)
2018 **Undergraduate Research Scholars Program**, George Mason University ($1,500)
2017 **Sinai Scholar**, Sinai Scholars Society ($500)
Research Semester Cohort, George Mason University, Department of Biology ($2,000)
Undergraduate Research Scholars Program, George Mason University ($5,000)
2016 **Joseph Schumpeter Fellow**, Mercatus Center at George Mason University ($3,000)
Undergraduate Research Scholars Program, George Mason University ($1,500)
Federal Supplemental Educational Opportunity Grant, George Mason University ($1,400)
Virginia Commonwealth Award, George Mason University ($6,000)
2012 **National Security Language Initiative for Youth**, US State Department ($10,000)

Awards and Honors

2024 **NSF Rising Scientist Award,** The Allied Genetics Conference 2024 ($1,950)
Trainee Travel Scholarship, International Mammalian Genome Society ($1,200)
2023 **Top Oral Presentation Award,** The Jackson Lab Scientific Symposium ($500)
Trainee Travel Scholarship, International Mammalian Genome Society ($1,200)
JAX Trainee Travel Award, The Jackson Laboratory ($500)
2022 **Honorable Mention,** Ford Foundation Predoctoral Fellowship
Student Leadership Training Program, Tufts Graduate School of Biomedical Science
2021 **FLOW (First-Generation, Low-Income, and/or Working Class) Fellow**, Scientists Promoting INclusive Excellence (SPINEs), Tufts University
Honorable Mention, Ford Foundation Predoctoral Fellowship
2020 **Biodiversity Open Data Ambassador,** Global Biodiversity Information Facility
Champion, National Microbiome Data Collaborative
Data and Software Carpentry Instructor, The Carpentries
CourseSource Writing Studio Writing Fellow, CourseSource and Society for the Advancement of Biology Education Research
Finalist - Westarctica Conservation Scholarship, Westarctica Inc.
Open Access Publishing Fund, George Mason University (€90)
Community Science Fellow: Science, Policy, and Engagement Cohort, American Geophysical Union and Gordon and Betty Moore Foundation
2019 **Attendance Funding: American Geophysical Union 2019,** Earth Science Information Partners, Data Stewardship Committee ($2,000)
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
Virtual Student Federal Service, USGS and Northeast Climate Science Center
Affiliate Researcher, Children's Hospital Boston
Ridge to Reef Travel Award and Scholarship, UC Davis and NSF Traineeship ($700)
Departmental Honors, Department of Biology, George Mason University
Senior Award, Department of Biology, George Mason University ($250)
OSCAR Student Excellence Award: Research and Scholarship, The Mason Impact Leadership Council ($500)
The Biology Writing Award, Department of Biology, George Mason University ($500)
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)
Best Paper Award, Sinai Scholars Society - George Mason University ($150)
F.A. Hayek Essay Contest First-Place Winner, Department of Economics, George Mason University ($500)
Arctic Summer College Fellow, Ecologic Institute

2017 **OSCAR Fellow**, Office of Undergraduate Research George Mason University
Yeshiva Travel Scholarship, Chabad on Campus ($1,500)
Jeff Seidel Scholarship, Jeff Seidel Jewish Student Centers ($500)
Undergraduate Student Travel Fund, George Mason University ($500)
Best Overall Research and Scholarship Poster Presentation, College of Humanities and Social Sciences ($500)

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.**, Wang, P., Baumgart, L., O'Malley, R., Greenblum, S. (2023, Aug.) Comparative Analysis of Stem Cell Niches Across Eukaryota: Single-Cell Insights into the Origins of Multicellularity. Symposium on New Lineages of Life. Berkeley, CA.
2. **Garretson, A.**, Dumont B. (2023, Jun.) The rate and spectrum of somatic mutations in healthy tissues revealed by RNA sequencing. Genetics, Molecular, and Cellular Biology Retreat. Tufts University, Freeport, Maine.
3. **Garretson, A.**, Dumont B. (2023, May) Somatic Mutation Rates and Spectra Vary by Anatomical Site and Genetic Background in Healthy Mice. 7th Annual JAX Scientific Symposium. Farmington, Connecticut.
4. **Garretson, A.**, Dumont B. (2023, Apr.) The Somatic Mutation Landscape Of Laboratory Mice: Signatures of Molecular and Metabolic Phenotypes. 49th Maine Biological and Medical Sciences Symposium. MDI Biological Laboratory, Bar Harbor, Maine.
5. **Garretson, A.**, Dumont B. (2023, Mar.) Relationships Between Germline Mutation Rates and Reproductive Success in the Collaborative Cross Mice. International Mammalian Genome Conference 2023. Tsukuba, Japan.
6. **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.

7. **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.
8. **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.
9. **Garretson, A.** (2021, Oct.) Alt Text in Twitter Job Postings: Improving The Accessibility of Digital Communications. ConsMark 2021, Virtual.
10. **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.
11. **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.
12. **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.
13. **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.
14. **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.
15. **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.
16. †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.
17. **Garretson, A.** (2019, January). Using Science Gateways in Phenological Research. Talk presented to the Science Gateways Community Institute Board. Virtual.
18. †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.
19. **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.
20. **Garretson, A.** (2018, July). Arctic Vegetation: Avenues for Herbarium-Driven Research. Talk presented to the Arctic Summer College. Virtual.
21. **Garretson, A.** (2018, February). Polycentricity and Collective Action in Religious
22. **Garretson, A.** (2017, March). The Perception Problem: Migration and the Commons. Talk presented at the Austrian Student Scholars Conference, Grove City, PA.
23. **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.
24. **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.,** Wang, P., Baumgart, L., O'Malley, R., Greenblum, S. (2023, Aug.) Comparative Analysis of Stem Cell Niches Across Eukaryota: Single-Cell Insights into Tissue Regeneration and Resilience. Joint Genome Institute User Meeting. Berkeley, CA.
2. **Garretson, A.,** Dumont B. (2023, Mar.) Heritable Fitness Effects Of Breeding Strategy In House Mice: Implications For Mouse Husbandry And The Evolution Of Alloparenting. International Mammalian Genome Conference 2023. Tsukuba, Japan.
3. **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.
4. **Garretson, A.** Dumont, B. (2022, Apr.) Germline mutational burdens predict reproductive success. Poster presented at the 2022 New England Science Symposium. Harvard University, virtual.
5. **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.
6. **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.
7. **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.
8. †*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.
9. **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
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 Ecological Society of America Conference. Virtual.
11. **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.
12. **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.
13. **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.
14. **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.

15. **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.
16. **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.
17. **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.
18. **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.
19. †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.
20. **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.
21. †*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.
22. **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.
23. **Garretson, A.,** Crerar, L., Garretson, L. (2018, April). Utilizing Agent-Based Modeling in Natural Selection and Evolution Education. College of Science Celebration, Fairfax, VA.
24. **Garretson, A.,** Forkner, R, Ingram, K. (2018, April). Aseasonal Leaf Production and Coloration in Mid-Atlantic Maples. College of Science Celebration, Fairfax, VA.
25. **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.
26. **Garretson, A.** (2017, October). Analysis of coyote activity around composting sites. Poster presented at the Student Conference on Conservation Science, New York City, NY.
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 marine microplastics.
4. **Harper Hollister Fremont-Smith,** H.S. student. Summer 2022. Supervised field data collection and management summer project on phytoplankton.
5. **Michael Maniscalco,** Ph.D. student. UC Santa Barbara. Summer 2022. Supervised an Environmental Data Initiative-funded summer fellowship curating phytoplankton data.
6. **Nathan Dorn,** Americorps Environmental Steward. Summer 2022. Supervised environmental field research and volunteer management.
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. ***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.
20. **Lars Anderson,** B.S. student. Brigham Young University. Summer 2019. Supervised in field data collection for *Hemigrapsus sanguineus*.
21. ***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.

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 **Quantitative Trait Mapping in the Diversity Outbred**, UW-Madison and JAX
2020 **Life Sciences Consulting Short Course,** Tufts Biomedical Business Club
2020 **Containerization with Singularity**, The Jackson Laboratory
2020 **Introduction to HPC,** The Jackson Laboratory
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 **Ridge to Reef Summer Institute**, UC Irvine and NSF
2018 **Introduction to Epidemiology**, Department of Biostatistics, Harvard T.H. Chan School of Public Health
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 **Practical Zoo Nutrition Management** Smithsonian-Mason School of Conservation Continuing Education

Service

2022-Present Co-founder, Tufts Computational Biology Club
2021, 2016 Science Fair Judge, Computational Biology
2021-Present Reviewer, *Citizen Science: Theory and Practice*
2020-Present Reviewer, *Journal of Emerging Investigators*
2020-Present Community Environmental Health Lab, Local Environmental Volunteer
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**