

# Alexis Garretson

NSF Graduate Research Fellow | ACM SIGHPC Computational & Data Science Fellow  
Ph.D. candidate in Mammalian Genetics at Tufts University & The Jackson Laboratory  
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## Education

2024 **Mammalian Genetics**, Ph.D.

(expected) 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)

Thesis: Leveraging Population-Scale Data and Single-Institution Breeding Data to  
Uncover the Interrelationship and Genetic Architecture of Fertility and  
Genomic Stability

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. 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>
4. **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](https://doi.org/10.1017/inp.2022.26)
5. **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)
6. 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)
7. **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>
8. 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)
9. **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)
10. 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)
11. 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 (peer reviewed)

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](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/>

### Published Lesson Plans and Curricula (non peer reviewed)

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.**, Dumont, BL. Fitness effects of breeding strategy: implications for life history trait evolution and mouse husbandry. (In revision).  
<https://doi.org/10.1101/2023.02.13.526889>
2. **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 revision). Preprint:  
<https://doi.org/10.1101/2022.07.11.499341>
3. Gould E, Fraser HS, ...**Garretson, A.**..., Larkin, D. J. (2023). Same data, different analysts: variation in effect sizes due to analytical decisions in ecology and evolutionary biology. Preprint: <https://doi.org/10.32942/X2GG62> (Registered Report at *BMC Biology*).
4. Taylor, A., Bieluch, K., Zoellick, B., Buckman, K., Lust, H., **Garretson, A.**, Bailey, C., Farrell, A., Jackson, B., Lincoln, R., Arneson, E., Stanton, K., Disney, J. The public health impact of a school-based citizen science effort to assess well water for arsenic. (In submission).
5. **Garretson, A.**, Crerar, L., Forkner, R. Understanding Climate Impacts on Deciduous Tree Phenology: Community Monitoring and Open Data. (In revision).

#### Selected Data Packages GBIF-mediated data cited 166 times (2023-12-01)

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/gukkkks>
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](https://doi.org/10.15468/nw2vj4)

## Grant Support

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

## Fellowships and Grants (Total awarded: \$324,145)

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

2022 **Computational & Data Science Fellowship**, Association for Computing  
Machinery's Special Interest Group on High-Performance Computing (\$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 **Graduate Research Fellow**, National Science Foundation (\$138,000)  
**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)

- 2018 **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)  
**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 **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.** <sup>†</sup>\*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. <sup>†</sup>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. <sup>†</sup>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 Communities: A Case Study of the Chabad-Lubavitcher Sect. Talk presented at the Austrian Student Scholars Conference, Grove City, PA.
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.** (2016, December). Natural Lands in Virginia. Talk presented at the Celebration of Student Scholarship, Fairfax, VA.
24. **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.
25. **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., Frelief, 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.** (2017, August). Recovery in Vulnerable Populations After Hurricane Katrina. Poster Presented at the OSCAR Summer Celebration of Student Scholarship, Fairfax, VA.
28. **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.
29. **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.
30. **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.

## 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. **\*Aleisha Roberts**, B.S. student. Harvard University. Summer 2023. Supported mentorship in the Jackson Laboratory Summer Student Program simulating mouse *in silico* genomics.
2. **Joshua Quigley**, M.S. student. University of New England. Fall 2022. Supervised capstone project analyzing marine debris data.
3. **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.
4. **Charlie Bourne**, H.S. student. Summer 2022. Supervised field data collection and management summer project on marine microplastics.
5. **Harper Hollister Fremont-Smith**, H.S. student. Summer 2022. Supervised field data collection and management summer project on phytoplankton.
6. **Michael Maniscalco**, Ph.D. student. UC Santa Barbara. Summer 2022. Supervised an Environmental Data Initiative-funded summer fellowship curating phytoplankton data.
7. **Nathan Dorn**, Americorps Environmental Steward. Summer 2022. Supervised environmental field research and volunteer management.
8. **Stephen Bredin**, Recent graduate. George Mason University. Summer 2020. Supervised summer research project in amphibian breeding ecology.
9. **\*Amber Jackson**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in ethnobotany and natural history collections.
10. **\*Elizabeth Elliot**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in ethnobotany and natural history collections.
11. **\*Morgan Cahill**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in water quality and citizen science.
12. **\*Rachel Silarszka**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in water quality and citizen science.

13. **\*Laurel Griffin**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in water quality and citizen science.
14. **\*Mary Beth Armstrong**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in data science and air quality indicators.
15. **\*Rinad Chowdhury**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in data science and air quality indicators.
16. **\*Amy Guillen**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in data science and air quality indicators.
17. **\*Preeti Joginapalli**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in machine learning and image processing.
18. **\*Isaac Richards**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in machine learning and image processing.
19. **Wakil Nooristany**, B.S. student. George Mason University. Summer 2020. Supervised summer research project in machine learning and image processing.
20. **\*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.
21. **Lars Anderson**, B.S. student. Brigham Young University. Summer 2019. Supervised in field data collection for *Hemigrapsus sanguineus*.
22. **\*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 **Biostatistics 101**, Department of Biostatistics, Harvard T.H. Chan School of Public Health
- 2018 **Programming in R**, 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**