

Daniel Lauer

Ph.D. Candidate, Quantitative Biosciences

Georgia Institute of Technology

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Education

- 2018 – Present **Ph.D. in Quantitative Biosciences**
Georgia Institute of Technology, Atlanta, GA
Cumulative GPA: 3.910
Advisor: Jenny L. McGuire
Dissertation: A multidimensional view into the deep past, present, and future dynamics of mammal biodiversity and ecosystem stability across Africa
- 2016 – 2017 **Bachelor of Science in Environmental Science and Policy: Biodiversity and Conservation Biology**
University of Maryland, College Park, MD
Cumulative GPA: 3.958
- 2013 – 2016 **Coursework in Biology and Environmental Studies**
Brandeis University, Waltham, MA
Cumulative GPA: 3.901

Research Positions

- 2019 – Present **Graduate Research Assistant**
School of Biological Sciences, Georgia Institute of Technology, Atlanta, GA
Advisor: Jenny L. McGuire
Laboratory: Spatial Ecology and Paleontology (SEPL) Lab
- 2016 – 2018 **Undergraduate Research Assistant**
Department of Biology, University of Maryland, College Park, MD
Advisor: Marjorie L. Reaka
- 2016 **Summer Research Volunteer**
Song Saa Foundation, Koh Rong, Cambodia
Advisor: Filippo Carli
Program: Tropical Marine Conservation Programme (TMCP)
- 2015 **Summer Laboratory Volunteer**
School of Public Health, Johns Hopkins University, Baltimore, MD

Advisor: Christopher D. Heaney
Laboratory: Environmental Health Microbiology and Immunology Lab

- 2014 **Summer Laboratory Volunteer**
School of Medicine, Johns Hopkins University, Baltimore, MD
Advisor: Charlotte A. Gaydos

Peer-Reviewed Publications

- 2020 McGuire, J. L., & **Lauer, D. A.** (2020). Linking patterns of intraspecific morphology to changing climates. *Journal of Biogeography*, 47(11), 2417-2425. [doi:10.1111/jbi.13954](https://doi.org/10.1111/jbi.13954)
- 2020 Wang, Y., Shipley, B. R., **Lauer, D. A.**, Pineau, R., & McGuire, J. L. (2020). Plant biomes demonstrate that landscape resilience today is the lowest it has been since end-Pleistocene megafaunal extinctions. *Global Change Biology*, 26(10), 5914-5927. [doi:10.1111/gcb.15299](https://doi.org/10.1111/gcb.15299)

Manuscripts in Preparation

- In Preparation McGuire, J. L., Castorina, E. K., Hull, R. A. W., Hyde, A., **Lauer, D. A.**, Mistur, E., Valley, S. G., Shipley, B. R., Garton, D., Jersild, A., Lew, J., Mallen, E., Pineau, R., Pineda-Munoz, S., Siegel, A., Wang, Y., & Witherspoon, B. Identifying ecological research priorities to inform conservation of climate resilient landscapes: a multidisciplinary perspective. In preparation for *Nature Climate Change*.
- In Preparation **Lauer, D. A.**, Lawing, A. M., Head, J. J., & McGuire, J. L. Extinctions induced by hominins and not climate threatened megafaunal persistence. In preparation for *Proceedings of the National Academy of Sciences*.
- In Preparation **Lauer, D. A.**, & Reaka, M. L. Habitat associations and networks of species across depth in the Gulf of Mexico. In preparation for *Nature*.

Other Publications and Creative Products

- 2020 **Lauer, D.**, Weigel, E. (2020). Island biogeography. *Make Teaching with R in Undergraduate Biology Less Excruciating*, QUBES Educational Resources. [doi:10.25334/ABY7-GQ05](https://doi.org/10.25334/ABY7-GQ05)
- 2019 **Lauer, D. A.**, & McGuire, J. L. (2019). Geometric morphometric analyses uncover features of climate-linked intraspecific variation in *Microtus californicus* dentition. *F1000Research*. [doi:10.7490/f1000research.1117364.1](https://doi.org/10.7490/f1000research.1117364.1)

- 2018 Reaka, M. L., & **Lauer, D.** (2018). Understanding peaks of diversity and endemism of crustacea in the Gulf of Mexico. *9th International Crustacean Conference, Abstract Book*. [doi:10.13140/RG.2.2.32808.32000](https://doi.org/10.13140/RG.2.2.32808.32000)
- 2017 Dagnachew, B., Feigenbaum, T., Kadin, S., **Lauer, D.**, Matson, C., Nickerson, N., & Stanard, I. (2017). Creating connections between environmental and human health and messaging a call to pro-environmental action. *Partnership for Action Learning in Sustainability (PALS)*. [doi:10.13016/M2P55DK9D](https://doi.org/10.13016/M2P55DK9D)

Presentations

- 2020 **Lauer, D.**, & McGuire, J.L. (2020, October). African herbivore biodiversity change over time: A multidimensional view. *Talk presented at the Georgia Institute of Technology Global Climate Action Symposium, Atlanta, GA.*
- 2020 **Lauer, D.**, & McGuire, J.L. (2020, March and August). Distinct dimensions of African herbivore biodiversity exhibited unique responses to past climatic and anthropogenic changes. *Talk presented at the Georgia Institute of Technology Graduate and Postdoc (GaP) Seminar Series, Atlanta, GA, and at the Ecological Society of America Annual Meeting, Salt Lake City, UT.*
- 2019 **Lauer, D.**, & McGuire, J.L. (2019, May, August, and October). Geometric morphometric analyses uncover features of climate-linked intraspecific variation in *Microtus californicus* dentition. *Poster presented at the Georgia Institute of Technology Evolution of Complex Life conference, Atlanta, GA, at the Ecological Society of America Annual Meeting, Louisville, KY, and at the Emory University France-Atlanta Biodiversity Symposium, Atlanta, GA.*
- 2018 Reaka, M.L., & **Lauer, D.** (2018, June). Patterns of biodiversity on Mesophotic reefs and their implications for conservation and management. *Talk presented by Dr. Reaka at the Mesophotic Coral Reef Ecosystems Gordon Research Conference, Lewiston, ME.*
- 2018 Reaka, M.L., & **Lauer, D.** (2018, May). Biodiversity and endemism of crustacea in the Gulf of Mexico. *Talk presented by Dr. Reaka at the 9th International Crustacean Conference, Washington, D.C.*
- 2016 **Lauer, D.** (2016, April). Citizen science research on the phenology of trees: seeing the bigger trends in the smaller picture. *Poster presented at the Brandeis University Experiential Learning Symposium, Waltham, MA.*
- 2011 **Lauer, D.** (2011, March). The effect of motor oil treatment on the growth and appearance of sonoma brown oyster mushrooms (*Pleurotus ostreatus*). *Poster presented at the Northeast Ohio Science and Engineering Fair, Cleveland, OH.*

Media Coverage

- 2020 *Daily Mail*. 31 August. "[Declining resilience of North America's plant biomes may be a sign of a mass extinction last seen nearly 13,000 years ago, experts warn.](#)" By Stacy Liberatore.
- 2020 *Environmental News Network*. 25 August. "[North American Biomes Are Losing Their Resilience, With Risks for Mass Extinctions.](#)" By Yale Environment 360.
- 2020 *Science Magazine*. 24 August. "[Fossil pollen record suggests vulnerability to mass extinction ahead.](#)" By John Toon.

Workshops

- 2020 **Big Data and Machine Learning**
Extreme Science and Engineering Discovery Environment (XSEDE) and Pittsburgh Supercomputing Center, Pittsburgh, PA
- 2019 **QBioS Hands-On Modeling Workshop on Microbial Games**
Interdisciplinary Graduate Program in Quantitative Biosciences, Georgia Institute of Technology, Atlanta, GA

Awards and Honors

- 2020 **Distinguished Paper in Ecology and Evolution**
Georgia Institute of Technology, Atlanta, GA
Description: awarded as part of the Quantitative Biosciences Program's 2020 Student Awards, for co-authorship on the paper "Plant biomes demonstrate that landscape resilience today is the lowest it has been since end-Pleistocene megafaunal extinctions"
- 2019 **Sigma Xi, The Scientific Research Honor Society**
Georgia Institute of Technology, Atlanta, GA
Description: "an international, multidisciplinary community of science and engineering professionals dedicated to research excellence, to promoting public engagement with science, and to fostering the next generation of researchers"
- 2018 **Herbert P. Haley Fellowship**
Georgia Institute of Technology, Atlanta, GA
Description: merit-based, and in recognition of "significant accomplishments and outstanding academic achievements"
- 2017 **Global Business Simulation Strategy Game Global Top-100 Performance**

University of Maryland, College Park, MD

Description: for attaining strong business outcomes as a manager of a virtual drone-sales company in a business course

National Collegiate Jewish A-Cappella Championship Champion

University of Maryland, College Park, MD

Description: for the first-place performance of Rak Shalom, a co-educational Jewish a-cappella group, at the annual competition entitled Kol HaOlam

Tau Sigma National Honor Society

University of Maryland, College Park, MD

Description: a society that “promotes the academic excellence and involvement of transfer students”

2016 – 2017

Academic Honors

University of Maryland, College Park, MD

Description: awarded for three semesters, for “students who complete 12 or more credits with a semester GPA of 3.5 or higher”

2013 – 2016

Dean's List

Brandeis University, Waltham, MA

Description: awarded for six semesters, for “students who achieved a semester GPA of 3.50 or higher on a 4.0 scale, completed a minimum of three courses for a letter grade and received a grade of C or higher in all courses”

Lerman-Neubauer Fellowship Program

Brandeis University, Waltham, MA

Description: for “students with exceptional scholastic records who possess the potential to make significant contributions to the academic field of their choice”

2014

National Society of Collegiate Scholars

Brandeis University, Waltham, MA

Description: a society that “honors high achievers and inspires them to live and lead with integrity while transforming the world in a positive way”

Volunteering Experience

2019

Science Night Volunteer

Marietta High School, Marietta, GA

2019

Science Night Volunteer

Lockheed Elementary School, Marietta, GA

2019

Research Conference Volunteer

Ecological Society of America Annual Meeting, Louisville, KY

2019 **Research Conference Volunteer**
Evolution of Complex Life Conference, Atlanta, GA

Teaching Experience

2021 **Graduate Teaching Assistant, Experimental Design & Statistical Methods**
School of Biological Sciences, Georgia Institute of Technology, Atlanta, GA

2019 **Graduate Teaching Assistant, Principles of Biology**
School of Biological Sciences, Georgia Institute of Technology, Atlanta, GA

2018 **Graduate Teaching Assistant, General Ecology Laboratory**
School of Biological Sciences, Georgia Institute of Technology, Atlanta, GA

2018 **Undergraduate Teaching Assistant, Marine Ecology**
Department of Biology, University of Maryland, College Park, MD

Leadership Experience

2015 – 2016 **Music Director**
Brandeis University, Waltham, MA
Description: musical leader of Manginah, the premiere co-educational Jewish a-cappella group on campus

2014 **Student Club Treasurer**
Brandeis University, Waltham, MA
Description: financial manager of the Brandeis Orthodox Organization, the largest student club on campus

Professional Experience

2017 **Student Collaborator**
Montgomery County Department of Parks, Silver Spring, MD
Description: collaborated with academics and policymakers to strategize ways in which to strengthen the connections between environmental and human health, as a means to increase public involvement in environmental protection

Academic Organization Memberships

- Sigma Xi: The Scientific Research Honor Society
- Tau Sigma National Honor Society
- Lerman-Neubauer Fellowship program
- National Society of Collegiate Scholars

- National Honor Society

Technical Skills

- **Computer – general programming languages:** R, Python, MATLAB, SQL, Pig, Scala, Java
- **Computer – data visualization:** Excel, Tableau, GIS, Plotly, Power BI, Gephi, Google Earth, D3 (including Javascript, HTML, and CSS)
- **Computer – big data and cloud computing:** Hadoop, Spark, Microsoft Azure (including ML Studio), AWS
- **Computer – other:** Git and GitHub, OpenRefine
- **Other:** Advanced Open Water SCUBA Diving

References

Jenny McGuire, PhD

Assistant Professor

Georgia Institute of Technology

Interdisciplinary Graduate Program in Quantitative Biosciences

School of Biological Sciences

School of Earth and Atmospheric Sciences

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Marjorie Reaka, PhD

Professor

University of Maryland, College Park

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Project Manager (former)

Song Saa Foundation (former)

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