

Grace Di Cecco, PhD

EDUCATION

University of North Carolina at Chapel Hill, NC August 2017 – May 2022

Ph.D. in Evolution, Ecology, and Organismal Biology; PI: Dr. Allen Hurlbert

- Dissertation: “Understanding biodiversity responses to global change: Populations, communities, and species distributions”

Northeastern University, Boston, MA August 2013 – May 2017

B.S. in Biology; B.S. in Philosophy, *summa cum laude*; PI: Dr. Tarik Gouhier

- Honors Interdisciplinary Thesis: “Predicting how climate change will affect the spatial distribution and temporal stability of ecological communities”

HONORS AND AWARDS

University of North Carolina Dissertation Completion Fellowship (2021 – 2022)

University of North Carolina Doctoral Merit Assistantship (2017 – 2018)

Northeastern University Advanced Research and Creative Endeavors Award (2016 – 2017)

American Society for Biochemistry & Molecular Biology Student Chapter Travel Award (2017)

Northeastern University Sears B. Condit Award: Graduated in top 100 students by GPA (2017)

Northeastern University Marine Science Center Summer Research Internship (2016)

Northeastern University Civic Engagement Program Full Tuition Scholarship (2013 – 2017)

PEER-REVIEWED PUBLICATIONS

Campbell, C.J., Barve, V., Belitz, M.W., Doby, J.R., White, E., Seltzer, C., **Di Cecco, G.**, Hurlbert, A.H., Guralnick, R. Identifying the identifiers: How iNaturalist facilitates collaborative, research-relevant data generation and why it matters for biodiversity science. *BioScience* **73**(7): 533-541 (2023).

Di Cecco, G., Belitz, M., Cooper, R.J., Larsen, E., Lewis, W., Ries, L., Guralnick, R., and Hurlbert, A.H. Phenology in adult and larval Lepidoptera from structured and unstructured surveys across eastern North America. *Frontiers of Biogeography* **15**(1): e56346 (2023).

Di Cecco, G. and Hurlbert, A.H. Multiple dimensions of niche specialization explain changes in species range area, occupancy, and population size, *Frontiers in Ecology and Evolution* **10** (2022).

Di Cecco, G., Snell Taylor, S., White, E.P., Hurlbert, A.H. More individuals or specialized niches? Distinguishing support for hypotheses explaining positive species-energy relationships. *Journal of Biogeography* **49**(9): 1629-1639 (2022).

Di Cecco, G. and Hurlbert, A.H. Anthropogenic drivers of avian community turnover from local to regional scales. *Global Change Biology* **28**(3): 770-781 (2022).

Di Cecco, G., Barve, V., Belitz, M.W., Stucky, B.J., Guralnick, R.P., and Hurlbert, A.H. Observing the observers: how participants contribute data to iNaturalist and implications for biodiversity science. *BioScience* **71**(11): 1179-1188 (2021).

Snell Taylor, S., **Di Cecco, G.**, Hurlbert A.H. Using temporal occupancy to predict avian species distributions. *Diversity and Distributions* **00**:1-12 (2021).

Greenwich, J., Reverdy, A., Gozzi, K., **Di Cecco, G.**, Tashjian, T., Godoy-Carter, V., and Chai, Y. Decreasing serine levels during growth transition triggers biofilm formation in *Bacillus subtilis*. *Journal of Bacteriology* **201**(15): 00155-19 (2019).

Di Cecco, G. and Gouhier, T. Increased spatial and temporal autocorrelation of temperature under climate change. *Scientific Reports* **8**: 14850 (2018).

Book Chapters

Di Cecco, G. and Hurlbert, A.H. Caterpillar patterns in space and time: insights from and contrasts between two citizen science datasets. In S. Koptur & R.J. Marquis (Eds). *Caterpillars in the Middle*, 541-556 (2022).

In revision

Gobler, C., **Di Cecco, G.**, Doherty, O., and Kramer, B. Decadal warming has intensified *Microcystis*-dominated cyanobacterial blooms in Lake Erie.

RESEARCH EXPERIENCE

Ecological Modeler/Biodiversity Data Scientist December 2023 – Present
NatureServe, Arlington, VA

Postdoctoral Researcher April 2022 – December 2023
Eagle Rock Analytics, Inc., Sacramento, CA
PI: Dr. Owen Doherty

Student Services Contractor May 2021 – April 2022
U.S. Environmental Protection Agency,
Center for Public Health and Environmental Assessment, Chapel Hill, NC
PI: Dr. Danelle Lobdell

Graduate Research Assistant August 2017 – May 2022
University of North Carolina at Chapel Hill, Biology Department, Chapel Hill, NC
PI: Dr. Allen Hurlbert

Honors Interdisciplinary Thesis & Research Internship July 2016 – December 2016
Northeastern University, Marine Science Center, Nahant, MA
PI: Dr. Tarik Gouhier

Undergraduate Research Assistant September 2013 – May 2017
Northeastern University, Biology Department, Boston, MA
PI: Dr. Yunrong Chai

Guest Student

January 2016 – June 2016

Woods Hole Oceanographic Institution, Biology Department, Woods Hole, MA

PI: Dr. Don Anderson

Undergraduate Independent Study

February 2016 – April 2016

Council on International Educational Exchange, Monteverde, Costa Rica

PI: Dr. Alan Masters

Undergraduate Research Assistant

Summer 2013; Summer 2014

University of Chicago, Molecular & Cellular Biology Department, Chicago, IL

PI: Dr. Alexander Ruthenburg

PRESENTATIONS

Di Cecco, G., Doherty, O.M., Jones, A.D., Goldenson, N.G., Thomas, N., Jagannathan, K., ... Bui, J. 2023. Enabling Evidence-Based Decision-Making for a Resilient Energy Sector in California Through the Cal-Adapt: Analytics Engine, a Co-Produced Platform for Climate Data and Analytics. American Geophysical Union Fall Meeting, San Francisco, CA. (Oral presentation)

Di Cecco, G., Doherty, O.M., Jones, A.D., Goldenson, N.L., Thomas, N., Jagannathan, K., ... and Buddhavarapu, S. 2022. Beyond Data Repositories and Visualizations - Supporting Evidence-Based Decision-Making for Resilience Planning in the Energy Sector via the Cal-Adapt: Analytics Engine. American Geophysical Union Fall Meeting, Chicago, IL. (Poster presentation)

Di Cecco, G. 2022. Observing the observers: using iNaturalist data for biodiversity science. North Carolina Museum of Natural Sciences Lunchtime Discovery Series, Raleigh, NC. (Invited oral presentation)

Di Cecco, G. and Hurlbert, A.H. 2021. Anthropogenic drivers of avian community turnover from local to regional scales. Ecological Society of America, virtual. (Oral presentation)

Di Cecco, G. and Hurlbert, A.H. 2020. Interaction of climate change and forest fragmentation effects on population trends in forest breeding birds. International Statistical Ecology Conference, virtual. (Poster presentation)

Di Cecco, G. and Hurlbert, A.H. 2020. Interaction of climate change and forest fragmentation effects on population trends in forest breeding birds. Gordon Research Conference: Unifying Ecology Across Scales, Manchester, NH. (Poster presentation; conference cancelled)

Di Cecco, G. 2019. Interaction of land use and climate change impacts on breeding birds. Duke University Program in Ecology Symposium, Durham, NC. (Invited oral presentation)

Di Cecco, G. and Hurlbert, A.H. 2019. Interaction of land use and climate change impacts on breeding birds in North America. International Biogeography Society Biennial Conference, Malaga, Spain. (Oral presentation)

Di Cecco, G. and Gouhier, T. 2017. The effects of climate change on the spatial and temporal autocorrelation of temperature. Ecological Society of America Annual Meeting, Portland, OR. (Poster presentation)

Di Cecco, G., Greenwich, J., and Chai, Y. 2017. Differential tRNA^{ser} expression regulates translation rate of a biofilm master regulator during *Bacillus subtilis* biofilm development. American Society for Biochemistry and Molecular Biology Annual Meeting, Chicago, IL. (Poster presentation)

TEACHING AND MENTORING EXPERIENCE

Teaching Assistant, University of North Carolina at Chapel Hill, Fundamentals of Ecology Lab, 31 students (2020)

Teaching Assistant, University of North Carolina at Chapel Hill, Avian Biology Lab, 14 students (2020)

Teaching Assistant, Data Matters Data Science Short Course Series, Programming, Visualization, and Advanced Statistical Modeling in R (2018, 2019, 2020, 2021)

Graduate Research Consultant, University of North Carolina at Chapel Hill, Global Biogeography and Macroecology, 19 students (2019)

- **Guest Lecture:** Future of Biodiversity & Methods in Macroecology

Teaching Assistant, University of North Carolina at Chapel Hill, Human Anatomy and Physiology Lab, 52 students (2019)

Teaching Assistant, University of North Carolina at Chapel Hill, Introduction to Ecology and Evolution, 105 students (2018)

R Instructor, University of North Carolina at Chapel Hill, How to Learn to Code (2018)

- Instructed graduate students and post-doctoral researchers for summer boot camp course

Teaching Assistant, Northeastern University, Honors First Year Writing Seminar (2016 – 2017)

Peer Tutor, Northeastern University, Biostatistics, R coding, Organic Chemistry (2014 – 2017)

- Certified Master Tutor, College Reading and Learning Association

Mentor, Undergraduate independent study: Ellie Kremer, “Comparing community turnover in avian communities in protected and unprotected natural areas” (2020)

Mentor, Undergraduate independent study: Andrew Zachman, “Spatial variation in phenology of defended and undefended caterpillars through the bird nesting season” (2019)

Mentor, Undergraduate independent study: Brittney Brinson, "Effects of climate change on arrival date of Red-eyed vireo" (2018)

SERVICE AND OUTREACH

Reviewer, *Ecology*, *Ecosphere*, *BioScience*, *Ornithological Applications*, *Scientific Reports*, *Journal of Mammology*, *Journal of Animal Ecology*, *Northeastern Naturalist*

Technical Contributor, Fifth National Climate Assessment: Southwest Chapter (2022)

Organizing Committee, University of North Carolina Climate Change Symposium (2020)
Biology Department Senator, University of North Carolina Graduate and Professional Student Federation (2018 – 2020)

- **Chair**, Senate Oversight and Advocacy Committee (2019 – 2020)

Officer, University of North Carolina Biology Graduate Student Association (2018 – 2020)

Graduate Assistant, Caterpillars Count! Workshops: Assisted with outreach workshops for citizen science program monitoring arthropod abundance and phenology (2018)

- Supervised three undergraduate students

Graduate Assistant, SciREN Triangle Educator Open House: Provided lesson plan on trophic levels and phenology to educators for grades 8-12 (2017, 2018)

Contributor to Encyclopedia of Life page on *Lepathopsis comet-halleyi* (Orchidaceae): <https://eol.org/pages/1141128/articles> (2015)

TECHNICAL SKILLS

Proficient:

- R statistical programming language
- Version control with Git and GitHub: <http://github.com/gdicecco>
- Data cleaning and management
- High performance cluster computing using Linux and SLURM workload manager
- GIS analysis and mapping

Intermediate experience:

- Bayesian models using JAGS and Stan software
- SQLite databases with R
- Cloud computing
- Shell scripting with Unix
- Mathematica and MatLab
- Remote sensing image analysis with ENVI

PROFESSIONAL MEMBERSHIP

American Geophysical Union, Ecological Society of America, International Biogeography Society, Sigma Xi

OTHER TRAINING

Associates Level of Accomplishment, Center for the Integration of Teaching, Learning, and Research (2020)

- Completed pedagogical training course: “Introduction to Evidence-Based Undergraduate STEM Teaching”

Certificate in Science Policy, University of North Carolina Training Initiatives in Biomedical & Biological Sciences (2017)

LANGUAGES

Conversational Spanish