Kathryn P. Mercier, M.S.

New York, NY 10031 | (407) 304-0953

EDUCATION

City University of New York (CUNY) Graduate Center

PhD in Biology, Advisor: Ana Carolina Carnaval — Aug 2018 – ongoing

Dissertation: Linking species distributions and diversity with environmental change; from past to future and theory to practice

University of Central Florida (UCF)

M.Sc. in Biology, Advisor: Christopher L. Parkinson — Aug 2015 – Aug 2018

Thesis: Phylogeographic patterns of divergence within *Plestiodon egregius* *(Available at: https://stars.library.ucf.edu/etd/6028/)*

B.S in Psychology with Minor in Mathematics — Jan 2010 – Dec 2012

Seminole State College of Florida (SSC)

A.A. in General Education — Jan 2008 – Dec 2009

RESEARCH AND PROFESSIONAL EXPERIENCE

Directorate Fellow, U.S. Fish and Wildlife Service, WA Ecological Services — June – Sept 2022

40 hours/week, $540/week

Priority Habitat Mapping for Climate Resiliency in the East slope Cascades

June – Sept 2022 (remote) | Supervisors: Sonja Kokos and Allison Konkowski

Worked with a team of biologists in the Ecological Services office to compile and summarize a dataset of existing species distribution and environmental data to use primarily in Section 7 consultations

- Compiled existing species distribution data for three target species
- Integrated habitat mapping data with species distribution data into GIS mapping tool
- Prepared written reports and presentations to communicate mapping tool methodology and summarized observations relevant to the team's work

PhD Student, CUNY Graduate Center, *New York, NY* — Aug 2018 – Dec 2022

40 hours/week, $32,000/Academic year

Graduate Researcher

Aug 2018 – Dec 2022 | Supervisors: Dr. Ana Carnaval and Dr. Fabian Michelangeli

Worked on multiple research projects exploring the ways that environmental change impacts species distribution and diversity. Led a project linking historical climatic stability to population genetics, using an existing data set, taking it from development to publication. Also designed, garnered funding, and collected data for a project to examine the role of niche evolution on the distribution of *Asimina reticulata* over time.

- Applied for and garnered funding for field collection and genomic sequencing of *Asimina reticulata*
- Designed research question to test with existing population genetic data and carried out all analyses

- Collected, stored, and analyzed data related to dissertation including ecological and genetic data sets
- Mentored two undergraduate students from traditionally underrepresented groups in STEM, who were working on independent research projects
- Provided feedback and communicated changes necessary to improve research projects of other lab members

Related grants and awards

- Maxwell/Hanrahan Awards in Field Biology ($1816), Harnessing evolutionary theory to improve models of biodiversity: A case study in *Asimina*. New York Botanical Garden. 2021.
- Early Research Initiative Catalyst Grant ($2000), Harnessing evolutionary theory to improve models of biodiversity: a case study in *Asimina* (pawpaw). Graduate Center - City University of New York. 2021.
- Provosts Pre-Dissertation Science Research Fellowship ($5000), Harnessing evolutionary theory to improve models of biodiversity: a case study in *Asimina* (Pawpaw). Provosts Office – City University of New York. 2020.
- Doctoral Student Research Grant ($1500), Systematics and niche evolution in *Asimina*, insights for conservation. Graduate Center - City University of New York. 2020.
- ASRC Seed grant program ($15,000), Harnessing ecophysiology and evolutionary theory to improve models of biodiversity and ecosystem function. Advanced Science Research Center of the City University of New York. 2019.
- Biodiversity Under Environmental Change Seed Grant ($2500), Can trait-based hypotheses shed light on phylogeographic discordance? City College of New York. 2018
- Levine Fellowship ($32,000), City College of New York, Division of Science. 2018.

Graduate Teaching Assistant - Ecology and Evolution Lab (BIO228)
Fall 2020 (virtual) | 2 sections, 50 students | Supervisor Dr. David Lohman
Spring 2022 | 2 sections, 50 students | Supervisor Dr. Ana Carnaval

- Instructed students and facilitated lab activities in general ecology and evolution topics
- Created lab activity on climate change and climate justice
- Designed assessments of student performance and assigned grades

Master's Student, University of Central Florida, *Orlando, FL* Aug 2015 – Aug 2018
40 hours/week, $16,000/Academic year

Graduate Researcher
Aug 2015 – Aug 2018 | Supervisor: Dr. Christopher Parkinson
Carried out a research project investigating the population genetics and phylogenetic history of a lizard species of conservation concern, Mole Skinks (*Plestiodon egregius*). Also contributed to multiple ongoing research projects in the group.

- Wrote technical reports summarizing work progress for grant agency
- Assisted with project management, including managing funding and permitting
- Coauthor on multiple papers
- Advised on species status assessment as a technical team member for USFWS
- Mentored three undergraduate students who contributed to ongoing projects in the lab

Related grants and awards

- Graduate Presentation Fellowship ($500), University of Central Florida College of Graduate Studies. 2017.
- Student Travel Award ($800), University of Central Florida Department of Biology. 2017.
- Student Travel Award ($400), University of Central Florida Department of Biology. 2016.
- Graduate Student Travel Award ($600), American Society of Ichthyologists and Herpetologists. 2016.
- Graduate Dean's Fellowship ($12,000), University of Central Florida College of Graduate Studies. 2015.

Laboratory Instructor of Record, Evolutionary Biology (PCB4683)
Fall 2016 | 2 sections, Supervisor: Dr. Christopher Parkinson

- Instructed students and facilitated lab activities in evolutionary biology
- Designed assessments of student performance and assigned grades

Graduate Teaching Assistant, Biology II Lab (BSC2011)
Fall 2015 & Spring 2016 | 3 sections, 150 students | Supervisor: Michele Yeargain

- Co-facilitated lab activities in general biology
- Assessed student performance and assigned grades

Publix, *Sanford, FL* June 2006 – Aug 2015

20 hours/week, $12/hour | Supervisor: Heidi Steen
Worked in multiple roles including cashier, customer service staff, bakery clerk, cake decorator, and pharmacy technician.

- Collaborated with other employees to ensure daily tasks were completed
- Supervised cashiers and front service clerks to ensure customers were receiving excellent service
- Responded to frequent, complex customer requests such as ordering new products and coordinating with their health insurance provider

Undergraduate NSF CSUMS Researcher, UCF Department of Mathematics, *Orlando, FL* Jan – Aug 2011

20 hours/week, $15/hour | Supervisor: Dr. Xin Li
Worked with a group of my peers and contributed to a published research project: An efficient algorithm to extract the sparse and low rank components of a matrix.

Math Tutor, SSC – Academic Success Center, *Sanford, FL* Aug 2009 – Dec 2010

15 hours/week, $8.00/hour | Supervisor: Dr. Joseph Huston
Tutored community college students on course material from Introductory Algebra through Calculus

PROFESSIONAL DEVELOPMENT AND CONTINUING EDUCATION

Science, Art, and You: Harnessing Creativity from Process to Project (4 hours). Botany Meeting, *Anchorage, AK.* July 24, 2022.

Early Career Workshop (7 hours), Ecological Forecasting Initiative, https://ecoforecast.org/ecological-forecasting-early-career-annual-meeting, *Virtual.* June 14-15, 2021.

Reproducibility for Everyone (2 hours), ECR^2 Presented by Society for the Study of Evolution (SSE), the American Society of Naturalists (ASN), and the Society of Systematic Biologists (SSB), *Virtual.* Aug 26, 2020.

Strategies for Responding to Harassment and Bullying: Improving Workplace Climate (2 hours), ECR^2 Presented by Society for the Study of Evolution (SSE), the American Society of Naturalists (ASN), and the Society of Systematic Biologists (SSB), *Virtual*. July 24, 2020.

Posterior Predictive Simulation with P2C2M (3 hours), Society for Systematic Biology Meeting, University of Florida, *Gainesville, FL.* Jan 3, 2020.

Open Tree of Life, Society for Systematic Biology Meeting (3 hours) , University of Florida, *Gainesville, FL.* Jan 3, 2020.

SLiM Workshop (40 hours), City College of New York, *New York, NY.* Nov 4-8, 2019.

RADcamp (28 hours), Columbia University, *New York, NY.* Sept 14-15 & Oct 12-13, 2019

Summer Institute in Statistical Genetics, Department of Biostatistics, University of Washington, *Seattle, WA*. July 8-12 & July 17-19, 2019.

New developments in phylogenetics and evolution (8 hours), Society for Systematic Biology, Evolution Meeting, *Providence, RI.* June 21, 2019.

RADCamp (19.5 hours), AFBiota Meeting, *Sao Paulo, Brazil.* July 16-18, 2018

Random Forests and Predictive Phylogeography (4 hours), Society for Systematic Biology Annual Meeting, *Columbus, OH.* June 1, 2018.

Using R for Comparative Phylogenetics and Niche Modeling (8 hours), Joint Meeting of Ichthyologists and Herpetologists, *New Orleans, LA.* July 6, 2016.

Preparing Tomorrow's Faculty (18 hours), University of Central Florida, *Orlando, FL.* May 29 – Aug 7, 2015 (Meetings twice monthly)

PEER-REVIEWED PUBLICATIONS

*undergraduate under my supervision

Mercier KP, Vasconcellos MM, Martins EGA, Pirani JR, Michelangeli FA, Carnaval AC. 2022. Linking environmental stability with genetic diversity and population structure in two Atlantic Forest palm trees. Journal of Biogeography. https://doi.org/10.1111/jbi.14523

Jenkins DG, Ohyama L, López-Borghesi F, Hart JD, Bogotá-Gregory JD, Rautsaw RM, Correa Roldán V, Guilfoyle K, Jarvis A, Loch J, **Mercier KP**, Myers O, Shaw R, Volk D, Bard AM. 2021. Biogeography and predictors of wildlife killed on roads at peninsular Florida State Parks. Ecology and Evolution. https://doi.org/10.1002/ece3.7743

Rautsaw RM, Schramer TD, Acuña R, Arick LN, DiMeo M, **Mercier KP**, Schrum M, Mason AJ, Margres MJ, Strickland JL, Parkinson CL. 2021. Genomic Adaptations to Salinity Resist Gene Flow in the Evolution of Floridian Watersnakes. Molecular Biology & Evolution. 38(3): 745–760. https://doi.org/10.1093/molbev/msaa266

Lawrance M, **Mercier KP**, Solomon J, Walters LJ, Parkinson CL. 2017. Genetic diversity and population structure of oysters in Apalachicola Bay, FL. Florida Scientist. 80(4): 145-150. https://www.jstor.org/stable/26361328

Boas T, Dutta A, Li X, **Mercier KP**, Niederman E. 2017. Shrinkage function and its application in matrix theory. Electronic Journal of Linear Algebra. 37:163-171. https://doi.org/10.13001/1081-3810.3218

SELECTED TALKS AND POSTERS

*undergraduate under my supervision

Mercier KP, Michelangeli FA, Carnaval AC. 2022. Predicting the future with Pawpaw, *Asimina reticulata*. Botany Meeting. *Anchorage, Alaska.*

Mercier KP. 2021. Predicting the future with Pawpaw. Torrey Botanical Society Lecture. *Virtual.* (Available at https://www.youtube.com/watch?v=GZqUqHWmjzE)

Mercier KP, Vasconcellos MM, Martins EGA, Pirani JR, Michelangeli FA, Carnaval AC. 2020. Historical stability impacts population dynamics of two Brazilian palm tree species. CUNY Graduate Center Sciences Virtual Student Orientation, *New York, NY.*

Mercier KP. 2020. Predicting the Future with Pawpaw. Biogeography at CCNY: the world meets in the city that never sleeps. Humboldt Day 2020, International Biogeography Society, *Virtual.* (Available at https://www.youtube.com/watch?v=pSVvwZ5qdBI)

Perez CI*, **Mercier KP**, and Carnaval AC. 2020. Understanding the impact of climate and land-use change on the distribution of *Anolis punctatus* in the near future. CCNY Remote STEM Internships Symposium, *Virtual*. Presentation Award in Biology, Biotech, Chemistry and Applications.

Jacome K*, **Mercier KP**, and Carnaval AC. 2020. Analyzing the effect of environmental factors in the tree frog sister species pair *Hypsiboas semilineatus* and *H. geographicus*. Collegiate of Science and Technology Entry Program Research Expo, Poster, *New York, NY.*

Mercier KP, Vasconcellos MM, Michelangeli FA, Carnaval AC. 2019. Impact of climate stability on the population dynamics of two Brazilian palm species. New York City Species Distribution Modelling Group*, New York, NY.*

Mercier KP, Vasconcellos MM, Martins EGA, Pirani JR, Michelangeli FA, Carnaval AC. 2019. Historical stability impacts population dynamics of two Brazilian palm tree species. Evolution Meeting, *Providence, RI.*

Mercier KP, Parkinson CL. 2018. Digging up the phylogenetics and population structure of a fossorial skink, *Plestiodon egregius.* Society of Systematic Biology Meeting, *Columbus, OH*.

Baylac M*, **Mercier KP**, Parkinson CL. 2017. Investigating the evolutionary relationships of Mole Skinks in Florida. Showcase of Undergraduate Research, University of Central Florida, *Orlando, FL*. Judges choice in life sciences.

Mercier KP, Baylac M*, Parkinson CL. 2017. Using hypothesis testing to unearth phylogeographic patterns within Mole Skinks. Evolution Meeting, *Portland, OR*.

DiMeo MA, Arick LN, Hickson JB, Mason AJ, **Mercier KP**, Rautsaw RM, Strickland JL, Territo GP, Parkinson CL. 2017. Turbulent waters: Resolving the evolutionary history of the Atlantic Salt Marsh Snake *Nerodia clarkii taeniata*. Florida Chapter of the Wildlife Society Annual Meeting, *Orlando, FL*. Best student poster.

Jenkins DG**,** Smith N, Grace MK, Arnaldi K, Bunner C, Guilfoyle K, Klein CM, **Mercier KP**, Napier J, Perry D, Phillips K, Rautsaw R, Stahelin G, Volk D. 2017. Toward a macroecology of roadkill. Conference of the International Biogeography Society, *Tucson, TX*.

Mercier KP, Baylac M*, Parkinson CL. 2016. Unearthing the evolutionary history of Mole Skinks. Joint Meeting of Ichthyologists and Herpetologists, *New Orleans, LA*. SSAR Victor Hutchinson Student Poster Award in Evolution, Genetics, and Systematics.

Mercier KP, Parkinson CL. 2016. Unearthing the evolutionary history of Mole Skinks. Southeastern Ecology and Evolution Conference, *Tallahassee, FL*.

Crawford L, **Mercier KP**, Burgess M, Castro J, Percival F, Schwoerer M, Tappen M, Von Holle B, Weishampel J. 2014. Evaluation of high-resolution aerial images for Sea Turtle nest monitoring. Showcase of Undergraduate Research Excellence, *Orlando, FL*.

Mercier KP, Boas T, Niederman E, Li X. 2011. An efficient algorithm to extract the sparse and low rank components of a matrix. Conference for Computational Science Training for Undergraduates in the Mathematical Sciences, *St. Paul, MN*.

RELEVANT COURSEWORK AND SEMESTER HOURS

Advances in Plant Ecological Restoration (1*)
Biogeography (4*)
Biomedical Informatics (3*)
Calculus I, II, & III (14)
Conservation Genetics (3*)
Differential Equations (3)
Directed Research (5*)
Ecology (3, 3**)
Evolution (4, 3**)
General Biology I & II (8)
General Chemistry I & II (8)
General Physics I & II (8)
Genetics (3)
Introduction to Combinatorics (3)
Introduction to Oceanography (3)
Introduction to Oral Communication (3)
Introduction to Programming with C (3)
Linear Algebra (4)
Mathematical Biology Lecture & Lab (5**)
Mathematical Modelling (3)
Matrix and Linear Algebra (3)
Methods in Experimental Ecology I & II (6*)
Numerical Methods (3)
Professional Development in Biology I & II (2*)
Restoration Ecology (4*)
Science Communication (3**)
Seminar in Biology (2*)
Seminar in Zoogeography (3**)
Taxonomy of Vascular Plants Lecture & Lab (5**)
Teaching Diverse Populations (3)
Teaching with Technology (3)
Writing for Technical Professions (3)

Thesis (13*^)

***** Graduate level coursework at UCF. Full time enrollment for one semester of non-thesis coursework is 9 credit hours.
****** Graduate level coursework at CUNY. Full time enrollment for one semester of non-thesis coursework is 7 credit hours.
^ Full time enrollment for one semester of thesis work at UCF is 3 credit hours

SKILLS

Laboratory
Dissection/tissue collection
DNA & RNA extraction
Gel electrophoresis
Polymerase chain reaction
Double digest RADseq

Field
Cover board collection for herps
Drift fence/pitfall collection for herps
Radio telemetry
Transect surveys

Analytical
Microsoft Word, Excel, and PowerPoint
qGIS and ArcMap
R Statistical Computing
Ecological niche modeling
Microsatellite scoring & analysis
Phylogenetic reconstruction

Administrative
IACUC preparation
Grant Management

REFERENCES

Dr. Ana Carolina Carnaval – PhD Advisor
Associate Professor, Department of Biology
City College of New York, CUNY, New York, NY 10031
acarnaval@ccny.cuny.edu, 212-650-5099

Dr. Fabian Michelangeli – PhD Committee Member
Curator, Institute of Systematic Botany
New York Botanical Gardens, Bronx, NY 10458
fabian@nybg.com, 718-817-8199

Dr. Christopher L. Parkinson – MS Advisor
Professor, Department of Biological Sciences &
Wildlife and Fisheries Biology
Clemson University, Clemson, SC 32816
Viper@clemson.edu, 864-656-3058

Sonja Kokos - DFP Supervisor
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