Kathryn P. Mercier

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EDUCATION

City University of New York (CUNY) Graduate Center
- PhD in Biology, Advisor: Ana Carolina Carnaval — Expected 2024
  - 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 — 2018
  - Thesis: Phylogeographic patterns of divergence within *Plestiodon egregius*
- B.S in Psychology with Minor in Mathematics — 2012

Seminole State College of Florida (SSC)
- A.A. in General Education — 2009

RESEARCH AND PROFESSIONAL EXPERIENCE

Graduate Research Assistant, City College of New York — 2021-22
Graduate Levine Fellow, City College of New York — 2019-20
Graduate Assistant, Graduate Center at the City University of New York — 2018-19
Graduate Research Assistant, University of Central Florida — 2017-18
- Evaluating Mole Skink and Salt Marsh Snake sub-specific taxonomy in Florida using genomics, USFWS

Technical Team Advisory Member, United States Fish and Wildlife Service — 2017
- Cedar Keys Mole Skink species status assessment

Technical Team Advisory Member, United States Fish and Wildlife Service — 2016
- Florida Keys Mole Skink species status assessment

Graduate Teaching Assistant, University of Central Florida — 2015-16
Graduate Research Assistant, University of Central Florida — 2015
- Population structure and genetic diversity of *Crassostrea virginica* in Apalachicola Bay, FL.

Undergraduate Research Assistant, University of Central Florida — 2014
- Evaluation of high-resolution aerial images for sea turtle nest monitoring.

Undergraduate NSF CSUMS Researcher, University of Central Florida — 2011
- An efficient algorithm to extract the sparse and low rank components of a matrix.

PUBLICATIONS

*undergraduate under my supervision ~co-first author

Mercier KP, Baylac M*, Dillon S*, Medina S*, Parkinson CL. The utility of traits, genes, and genomes in delimiting conservation units: A case study in Mole Skinks (*Plestiodon egregius*). In Prep.

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 and 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

GRANTS

New York Botanical Garden - $1826 2021
Maxwell/Hanrahan Awards in Field Biology, Harnessing evolutionary theory to improve models of biodiversity: A case study in *Asimina*

Graduate Center - City University of New York, *New York, NY* - $2000 2021
Early Research Initiative Catalyst Grant, Harnessing evolutionary theory to improve models of biodiversity: a case study in *Asimina* (pawpaw).

Society for the Study of Evolution Not Awarded 2020
RC Lewontin Early Award, Harnessing evolutionary theory to improve models of biodiversity: a case study in *Asimina*

Graduate Center - City University of New York, *New York, NY* - $1500 2020
Doctoral Student Research Grant, Systematics and niche evolution in *Asimina*, insights for conservation

Advanced Science Research Center of the City University of New York - $15,000 2019
ASRC Seed grant program, Harnessing ecophysiology and evolutionary theory to improve models of biodiversity and ecosystem function

New York Botanical Garden, *Bronx, NY* - $1970^ 2019
Cullman Program in Botanical Systematics, Harnessing big data and evolutionary theory to predict species ranges and enhance conservation

City College of New York, *New York City, NY* - $2500 2018
Biodiversity Under Environmental Change Seed Grant, Can trait-based hypotheses shed light on phylogeographic discordance?

Sigma Xi Not awarded 2016
Grant-in-aid of research, Unearthing the Evolutionary History of Mole Skinks

FELLOWSHIPS

CUNY Graduate Center, New York, NY Not awarded 2021
GC Science Communications Fellowship Program

NOAA Sea Grant Not awarded 2021
John A. Knauss Marine Policy Fellowship Program

Google Research Not awarded 2020

PhD Fellowship, Improving biodiversity prediction algorithms and enhancing conservation by harnessing big data and evolutionary theory

Provosts Office – City University of New York, *New York, NY* - $5000 2020
Provosts Pre-Dissertation Science Research Fellowship, Harnessing evolutionary theory to improve models of biodiversity: a case study in *Asimina* (Pawpaw)

Microsoft Research Not awarded 2019
Ada Lovelace Fellowship, Harnessing big data and evolutionary theory to improve models of biodiversity and enhance conservation

City College of New York, Division of Science, *New York City, NY* - $32,000 2018
Levine Fellowship

University of Central Florida College of Graduate Studies, *Orlando, FL* - $12,000 2015
Graduate Dean's Fellowship

National Science Foundation Not awarded 2015
Graduate Research Fellowship, Where the wild skinks roam: Modeling evolutionary trajectories using paleoclimate data and phylogeography

University of Central Florida Department of Mathematics, *Orlando, FL* - $10,000 2011
GAUSS Fellow – A National Science Foundation CSUMS Program

TRAVEL AWARDS

City University of New York, *New York, NY* Not Awarded 2019
Amie James Travel Award

Summer Institute in Statistical Genetics, University of Washington, *Seattle, WA* - $1725 2019
Department of Biostatistics Scholarship to attend three modules: Conservation Genetics, Population Genetics, and Statistical Genetics

University of Central Florida College of Graduate Studies, *Orlando, FL* - $500 2017
Graduate Presentation Fellowship

University of Central Florida Department of Biology, *Orlando, FL* - $800 2017
Student Travel Award

University of Central Florida Department of Biology, *Orlando, FL* - $400 2016
Student Travel Award

American Society of Ichthyologists and Herpetologists - $600 2016
Graduate Student Travel Award

INVITED PRESENTATIONS

Mercier KP. Predicting the future with Pawpaw. 2021. Torrey Botanical Society Lecture. *Virtual*

Mercier KP. How to predict species distributions in the near future (using Pawpaw). 2020. Class Lecture, City College Undergrad Ecology and Evolution (BIO228). *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 Species Distribution Modelling Group*, New York, NY.*

PRESENTATIONS

*undergraduate under my supervision

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

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.*

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, *New York, NY*. 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.*

Perez CI*, **Mercier KP**, and Carnaval AC. 2019. Determining the spatial distribution of *Anolis punctatus* in the Atlantic Forest during the Pleistocene (21 kya) and in the present. CCNY CCAPP Poster Presentation, *New York, NY*.

Jacome K*, **Mercier KP**, and Carnaval AC. 2019. Analyzing the effect of environmental factors in the tree frog sister species pair *Hypsiboas semilineatus* and *H. geographicus*. CCNY CCAPP Poster Presentation, *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, Vasconcellos MM, Michelangeli FA, Carnaval AC. 2019. Climate variability impacts on Brazilian palm tree population dynamics. CUNY Biology EEB Research Symposium, *New York, NY.*

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*.

Baylac M*, **Mercier KP**, Parkinson CL. 2016. Investigating the evolutionary relationships of mole skinks. Summer Undergraduate Research Fellowship Symposium, University of Central Florida, *Orlando, 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*.

WORKSHOPS ATTENDED

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)

TEACHING

Ecology and Evolution Lab (BIO228), Graduate Teaching Assistant — Spring 2022
City College of New York, New York, NY

Ecology and Evolution Lab (BIO228), Graduate Teaching Assistant — Fall 2020
City College of New York, New York, NY

Evolutionary Biology (PCB4683), Laboratory Instructor of Record — Fall 2016
University of Central Florida, Orlando, FL

Biology II Lab (BSC2011), Graduate Teaching Assistant — Fall 2015 & Spring 2016

University of Central Florida, Orlando, FL

Math Tutor 2009-2011

Seminole State College, Sanford, FL

MENTORING

Carolina I. Perez (B.S. Student, CCNY) 2019-2020

Building Ecological Niche Models as part of a project on Atlantic Forest land use change.

Karla Jacome (B.S. Student, CCNY) 2019-2020

Building a workshop on Ecological Niche Models for K-12 students

Milagros Baylac (B.S. Student, UCF) 2016-2017

Helped with field collection, genetic data collection, and organization on a project examining Plestiodon egregius *conservation genetics.*

Samantha Dillion (B.S. Student, UCF) 2016-2017

Helped with field collection, genetic data collection, and organization on a project examining Plestiodon egregius *conservation genetics.*

Steffany Medina (B.S. Student, UCF) 2016-2017

Collected morphological data from museum specimens on a project examining Plestiodon egregius *conservation genetics.*

OUTREACH, SERVICE, AND LEADERSHIP

Student Representative, Program Executive Committee 2022

City University of New York, New York, NY

CUNY Research Scholars Program Presentation Judge 2021

City University of New York, Virtual

Student Representative, Subprogram Advisory Committee 2019-21

City University of New York, New York, NY

Presenter, Biogeography at CCNY: the world meets in the city that never sleeps. 2020

https://www.youtube.com/watch?v=pSVvwZ5qdBI

Humboldt Day 2020, International Biogeography Society, Virtual

Organizer, Beat the Burnout 2020

City College of New York, Virtual

Lead Organizer, Graduate School Information Session for EEB Programs 2020

City College of New York, Virtual

Committee Member, Biology Department Nominations Committee 2019-20

CUNY Graduate Center, New York, NY

Volunteer, Discovery Room 2018-19

American Museum of Natural History, New York, NY

Judge, Undergraduate research lightning talks 2017

Eureka Research Society, University of Central Florida, Orlando, FL

President, Biology Graduate Student Association 2016-17

University of Central Florida, Orlando, FL

BIOTEC instructor in evolution and genetics 2016-17

Weeklong camp to prepare high school students to excel in biology, Orlando, FL
(Biology Integrated Orlando Training and Enrichment Camp)

Herpetology/science education outreach 2016

Orange County Youth Shelter, Orlando, FL

Science fair judge 2015

Rock Lake Middle School Science Fair, Longwood, FL
Volunteer Animal Care Technician 2014
Back to Nature Wildlife Refuge, Orlando, FL

PROFESSIONAL MEMBERSHIPS

The Botanical Society of America	2020-22
Society for the Study of Evolution	2017-20
Society of Systematic Biologists	2017-20
Society for the Study of Amphibians and Reptiles	2016-17

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
GIS in 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