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Education

Boston University	August 2022-Current
Postdoctoral Associate Lecturer	
Biological Design Center	
Harvard University	September 2019-July 2022
Postdoctoral Research Fellow	
Organismic and Evolutionary Biology	
University of North Carolina at Chapel Hill	May 2019
Doctor of Philosophy	
Ecology and Evolution of Organismal Biology	
University of North Carolina at Chapel Hill	May 2011
Bachelor of Science	
Biology	

Teaching Experience

Courses Taught

- ★ denotes Instructor of Record [semesters] (enrollment)
- R Statistics for Biologists ★ [1] (30)
- Advanced Molecular Biology ★ [1] (50)
- Advanced Cell Biology ★ [1] (30)
- Advanced Genetics ★ [2] (60)
- Evolution of Vertebrate Life (Lab) [3]
- Anatomy and Physiology (Lab) [3]
- Molecular Biology and Genetics [6]
- Seafood Forensics (Lab) [1]
- Animal Behavior (Lab) [3]
- Evolutionary Mechanisms [2]
- Idea of Race [1]

Undergraduates Mentored

All appear on manuscripts as named authors.

*denotes underrepresented group

- Phlox work: James Caven*, Charlie Hale
- Drosophila work: Stephania Zhang*, Baylee Roy*, Wendy Martin*, David Peede, Kristin Isbell*, Caleigh Koppelman*, Demi Ring
- Spadefoot work: Dylan Carroll

Alliances for Graduate Education and the Professoriate Award 2011

- NSF program that aims to increase the number of historically underrepresented minority faculty in STEM.

Minority Presence Fellowship 2012

- UNC-Chapel Hill award to retain diverse talent within the Graduate School.

Publications

- 11) "The spread of *Aedes albopictus* in the islands of São Tomé and Príncipe." (bioRxiv)
JA Rader, **Antonio Serrato-Capuchina**, and Daniel R. Matute
- 10) "The gene RIM underlies mate choice between Cosmopolitan and Zimbabwe *Drosophila melanogaster* populations." (in prep)
Antonio Serrato-Capuchina and Daniel R. Matute
- 9) "Local adaptation and plasticity strengthens species boundaries in *Phlox* wildflowers." (in prep)
Antonio Serrato-Capuchina, Charlie Hale, James Caven, and Robin Hopkins
- 8) "Population structure and introgression among recently differentiated *Drosophila melanogaster* populations" (PLOS Genetics, minor revisions)
J.M. Coughlan, A.J. Dagilis, **A. Serrato-Capuchina**, H. Elias, D. Peede, K. Isbell, D.M. Castillo, B.S. Cooper, D.R. Matute
- 7) "Pure species discriminate against hybrids in the *Drosophila melanogaster* species subgroup." *Evolution*. 2021.
Antonio Serrato-Capuchina, Timothy D. Schwochert, Stephania Zhang, Baylee Roy, David Peede, Caleigh Koppelman and Daniel R. Matute
- 6) "P-elements strengthen reproductive isolation within the *Drosophila simulans* species complex." *Evolution*. 2021
Antonio Serrato-Capuchina, Jeremy Wang, Emmanuel D'Agostino, David Peede, Baylee Roy, Kristin Isbell, and Daniel R. Matute
- 5) "Paternaly inherited P-element copy number affects the magnitude of hybrid dysgenesis in *Drosophila simulans* and *D. melanogaster*" *Genome Biology and Evolution*. 2020
Antonio Serrato-Capuchina, Jeremy Wang, Eric Earley, David Peede, Kristin Isbell, and Daniel R. Matute
- 4) "Rapid and Predictable Evolution of Admixed Populations Between Two *Drosophila* Species Pairs." *Genetics*. 2020.
Daniel R. Matute, Aaron A. Comeault, Eric Earley, **Antonio Serrato-Capuchina**, et al.
- 3) "The Role of Transposable Elements in Speciation." *Genes*. 2018.
Antonio Serrato-Capuchina and Daniel R. Matute
- 2) "Genetic accommodation in the wild: evolution of gene expression plasticity during character displacement." *Journal of Evolutionary Biology*. 2017.
Nicholas A. Levis, **Antonio Serrato-Capuchina** and David W. Pfennig
- 1) "A nonrandom subset of olfactory genes is associated with host preference in the fruit fly *Drosophila oreana*." *Evolution Letters*. 2017.
Aaron A. Comeault, **Antonio Serrato-Capuchina**, David A. Turissini, Patrick J. McLaughlin, Jean R. David, and Daniel R. Matute

Research Experience

Postdoctoral Associate Lecturer

Zeba Wunderlich, Biological Design Center, Boston University

August 2022-Current

- Position is designed to provide first-hand teaching experience and pedagogical training to researchers.
- Fall and Spring semesters are focused on course work. Research takes place throughout year with summers dedicated exclusively to it.
- Use an evolutionary approach across species to identify which host pathways are co-opted by the endosymbiont *Wolbachia*.
- Live track host pathogen loads across environments and species.
- Explore how *Wolbachia* affects infection of *Drosophila* by other pathogens.

Postdoctoral Research Fellow

Robin Hopkins, Department of Organismic and Evolutionary Biology, Harvard University

September 2019-July 2022

- Use of next generation sequencing (ddRAD) tools to develop linkage map of a non-model system.
- Genome wide association/Quantitative trait loci study of reproductive incompatibility between species.
- Environmental niche modeling.
- Characterize the genetic underpinnings of self and heterospecific mate discrimination.
- Tissue staining and microscopy.

Graduate Student

Dr. Daniel Matute, Biology Department, UNC-Chapel Hill

December 2015 - Spring 2019

- Discovered the first documented invasion of P transposable elements into the novel species, *Drosophila yakuba*.
- Provided the first population level description of *Drosophila oreana* since its identification in 1975.
- Expanded the knowledge of the phenotypic consequences of P-elements across a novel genetic architecture.
- Showed that transposable element load directly affects reproductive isolation between species.
- Characterized a single gene (*RIM*) that underlies mate choice preference between *D. melanogaster* populations.

- Developed biochemical protocols to assess the source of behavioral discrimination against hybrids in sister species.
- Used population genetics to develop a suite of candidate genes for mate preference.
- Extensive field work across Sao Tome & Principe, off west coast of Africa.

Research Assistant

Dr. David Pfennig, Biology Department, UNC-Chapel Hill

August 2012 - December 2015

- Developed qPCR and manipulative experiment to test genetic accommodation across candidate genes for parallel evolution of repeated plasticity.
- Optimized PCR & qPCR primers based of in-house sequence data compared to the published *Xenopus* genome.
- Explored the evolution of Batesian mimicry of coral snakes.
- Performed field collections and experiments across varied environments ranging from the marshes of Florida to the deserts of Arizona and New Mexico.
- Characterized plasticity in color change between *Spiza bombifrons* populations.
- Extensive field collections and experiments across North Carolina, Florida, Arizona, and New Mexico.

Lab Assistant

Dr. Karin Pfennig, Biology Department, UNC-Chapel Hill

May 2011 - August 2012

- Planned and executed a novel genetic method (RAD-tags) to create a genetic map of the spadefoot toad, for phenotypic analysis.
- Prepared field protocols to maximize efficiency and outcomes.
- Amphibian husbandry.

Talk Experience

Evolution Talks

- “Adaptation and niche divergence along a precipitation gradient in Phlox wildflowers” Evolution Online, 2021
- “Revisiting self-incompatibility in Phlox”
• “The gene *RIM* underlies mate choice between Cosmopolitan and Zimbabwe *Drosophila melanogaster* populations.” Montpellier, France. 2018
- “Effects of Novel P Transposable Element Invasion in *Drosophila yakuba*.” Portland, Oregon. 2017
- “Evidence of a recent invasion of *Drosophila yakuba* by the P-element.” Austin, Texas. 2016

Southeastern Population Ecology and Evolutionary Genetics Conference

- “Fitness tradeoffs of P transposable elements in *Drosophila yakuba*.” Laurel Hill, NC 2017

Society for the Study of Evolution

- “Environmentally induced background matching in spadefoot toads.” Raleigh, NC. 2014

Outreach Experience

Lead Scientist, Arboretum Young Scientists
Harvard University

Summer 2022

- Developed scientific protocols for a novel experiential learning program aimed at 8th graders from Boston Public Schools.
- Led lessons with students using a variety of modern scientific equipment.
- Focus objectives around understanding how intertwined environment is with our health.
- Gave students first-hand experience in the scientific method and how we gain knowledge.

Diversity in Biology, Harvard University

November 2019 – May 2022

- Developed protocols and charter for diversity, equity, inclusion, and justice in recruitment and hiring practices.

CLC Volunteer (Carolina Latino Collaborative)

April 2014 - April 2017

- Arranged field trips for minority teens to NC museums to spark interest in science and stress the importance of education.

Discovery Research Bus Instructor

February 2012 - 2017

- Performed basic DNA experiments to engage elementary school aged children in an effort to recruit them into STEM fields.

Darwin Day Volunteer

- Poster explaining the concept of DNA hybridization. August 2013 - 2015
 - Activity extracting DNA from fruits in order to engage a younger audience.
- Carolina Union Board of Directors, GPSF Rep
- Allocated space for student groups and planning union events. 2013 - 2014
 - Budgeted the money allocated to student led clubs.
- Graduate and Professional Student Federation, Special Projects Chair
- The political representatives of Graduate Students in University matters. 2012 - 2013
 - In charge of orientation and research day.
- Biology Graduate Student Association, Wilson Representative
- Represented the Biology graduate student body. January 2011 - May 2011
 - Planned social gatherings.
- Field Assistant/Lab Technician (*Dr. Pfennig*)
- Performed lab experiments for pigment sample analysis of the Scarlet kingsnake. July 2010 - May 2011
 - Traveled to different field sites to capture specimens needed for research.
 - Ensured the housing for specimens met legal standards.
- Residential Housing, UNC-Chapel Hill
- Set up community wide programs for the student body to learn about college life and safety. May 2011 - June 2011/ May 2010 - June 2010
 - Served as an advisor for class schedule selection and planning.
 - Led presentations to co-workers centered around reaching out to underrepresented residents.
 - Became certified to handle situations involving people of gay/lesbian/transgender identification.
- Counselor for Project Uplift
- Assisted in the coordination of a summer program for recruiting underrepresented minorities to institutes of higher education. August 2009 - May 2011
 - Assisted high school students with financial aid applications and test prep.

- Led group discussions to address immigration related issues.
- Contacted parents of individuals to stress the importance of a higher education.
- Head of the funding committee that solicited donations to make the summer program financially viable.

January 2006 - May 2007

LINC Volunteer (Linking Immigrants to New Communities)

- Assisted new adult immigrants in learning the basic law of the United States as well as English reading comprehension.

August 2005 - January 2006

Community Volunteer

- Set up flyers at local Hispanic businesses offering my assistance with any issues resulting from lack of English comprehension.
- Attended many things ranging from hospital visits and court dates of non-English speakers as an interpreter as well as filling out the necessary paperwork.

August 2004-May 2006

Teaching Assistant

- Taught basic science principles to elementary school students.