

SHANNON K. CARTER

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OVERVIEW

Ecology PhD with extensive experience in project management, research and leadership. Expertise in data science skills including data management, version control, and sophisticated data analysis & visualization. Strong written and oral presentation skills, with experience communicating research to a broad audience. Additional skills include:

- Data analysis in RStudio
- Data visualization in ggplot
- Proposal writing
- Agent-based modeling in Netlogo
- RMarkdown
- Literature review
- Version control with GitHub
- Inkscape/Adobe Illustrator
- Experimental design

EDUCATION

Ph.D. in Ecology & Evolution—Rice University Summer 2019

Dissertation: *Linking phenological shifts to species interactions through long-term data analysis, manipulative experiments, and agent-based modelling*

Certificate: *Center for Teaching Excellence, Certificate in Teaching & Learning*

Bachelor of Science in Biology—Baylor University May 2014

3.94 GPA; *Magna cum laude*

EXPERIENCE & ACHIEVEMENTS

Data Management, Analysis, & Visualization

- Utilized the tidyverse suite of R to wrangle, manage, and analyze 20-year daily and multi-site dataset of frog populations
- Extensive experience with statistical modeling (model formulation, selection, and diagnostics) to analyze data
- Created data visuals in R's ggplot, with enhancements in Inkscape/Illustrator
- Developed agent-based models/simulations in Netlogo to expand experimental results
- Collaborated on a 10-person team to analyze global animal responses to climate change using GitHub for version control
- Composed reference coding tutorials for peers in RMarkdown

Research

- Wrote 4 original peer-reviewed research publications as lead author
- Designed and executed multiple large scale, multi-month experiments, keeping detailed timetables to manage daily tasks
- Awarded by the American Society of Naturalists, the National Science Foundation, and Rice University for excellence in research

Communication

- Conducted formal presentations of Ph.D. research including talks at 7 national meetings, invitation to present to Rice alumni and donors at Homecoming, and keynote speaker at departmental retreat
- Participated in media coverage by KHOU11 local news, Rice News, and Enquiry (Rice research periodical)
- Awarded by Rice BioSciences: Best Student Presentation and Best Student Paper
- Created fliers and social media posts to publicize all graduate student events to the student body

Leadership

- Managed a staff of over 100 employees and a budget of over \$250,000 for Rice’s graduate student pub. Hired and trained 35 new bartenders, organized events, managed certifications
- Conceptualized and coordinated a professional development lunch-and-learn for biology graduate students. Selected topics, invited speakers, led meetings
- Trained over 100 citizen scientists to collect plant phenology data for the National Phenology Network by leading a biweekly citizen scientist hike at the Houston Arboretum
- Planned a cross-departmental crawfish boil for 300 guests
- Designed and led 3-4 weekly workouts as captain of the Rice women’s cycling team

Teaching

- Earned the accredited Certificate in Teaching & Learning by completing curriculum combining formal pedagogical training, mentoring, and practical experience
- Mentored 9 undergraduate freshman students in ecology research, including teaching them to read scientific literature and find research opportunities
- Created and presented 10 undergraduate biology lectures
- Wrote and graded exams for 4 different classes of 30 students each
- Visited over 30 local K-12 classrooms to share research and experience as a scientist, reaching over 1000 students

PUBLICATIONS

Carter, S.K., V.H.W. Rudolf (in review). Shifts in phenological mean and synchrony interact to shape competitive outcomes.

Carter, S.K., D. Saenz, and V.H.W. Rudolf (2018). Shifts in phenological distributions alter numerical overlap of interacting species. *Ecology Letters*.

Carter, S.K., D.S. Vodopich, and P.W. Crumrine (2018). Heterogeneity in body size and habitat complexity influence community structure. *Journal of Freshwater Ecology* 33:1, 239-249.

Carter, S.K., J.R. Singhurst, and W.C. Holmes (2014). *Puccinellia parishii* (Poaceae, Poaeae): A genus and species new to Texas. *Phytoneuron* 58: 1-4.

POSITIONS

- Professional Development Coordinator, Rice BioSciences Nov 2018 – May 2019
- President, Ecology & Evolutionary Biology Graduate Student Association Apr 2018 – Apr 2019
- Instructor, Freshman Research Seminar, Rice University Aug 2017 – May 2018
- Media Director, Rice University Graduate Student Association Mar 2016 – Mar 2017
- Co-Instructor, Rice Outreach With Local Schools Jan 2015 – May 2017
- Personnel Manager, Valhalla Mar 2015 – Mar 2016
- Phenology Hike Leader, Houston Arboretum & Nature Center Aug 2014 – Jul 2017
- Teaching Assistant, Rice University Aug 2014 – Jul 2017
- Teaching Assistant, Baylor University Aug 2012 – Dec 2013
- Student Athlete Tutor, Baylor University Aug 2013 – May 2014