

Rebecca O'Brien

Department of Fish and Wildlife Conservation

Education

May 2018— MS. Biology University of North Carolina. Chapel Hill, NC. (Advisor Karin Pfennig)

May 2012— B.A. Environmental Science. Colorado College, Colorado Springs, CO. Graduated *cum laude*.

Dean's List: 2008, 2009, 2011, 2012. GPA: 3.75

Research

2015-Present— *Variation and Diversification in the Sexual Signals of the Plains Spadefoot Toad, Spea bombifrons*

- Designed and implemented protocol for field and laboratory studies to explore the causes of diversification in sexual signals using *Spea bombifrons* as a model system.

2012—*The Ants Go Marching*

- Performed an independent research project study of the population dynamics of ants and aphids in desert yucca communities.

2011—*The Other Side of Invasive: A study of niche partitioning between native and non-native bee species*

- Designed and implemented a sampling protocol to investigate temporal and resource niche partitioning between native and invasive bee species in rural Paraguay.

Work Experience

2015-Present—Researcher, University of North Carolina, Chapel Hill

- Designed and implemented protocol for sampling *Spea bombifrons* calls and collecting genetic data
- Navigated the permitting process for collection of biological specimens with multiple state agencies
- Worked independently to survey for *Spea bombifrons* and *Spea multiplicata* (spadefoot toads) in adverse weather
- Genotyped toe clips to distinguish hybrid and pure-bred species
- Designed and implemented protocol for lab experiments to build on field results

2015—Giant Garter Snake Research Technician. United States Geologic Survey. Dixon, CA.

- Trapped and hand-captured *Thamnophis gigas* (giant garter snakes)
- Measured snakes and assessed reproductive status
- Inserted intracoelomic and subcutaneous PIT tags
- Radiotracked in terrestrial and aquatic habitats
- Cared for captive snakes including feeding and administering medication

2014—Bat Research Technician. Indiana State University Cherokee National Forest, TN.

- Radio tracked threatened *myotis septentrionalis* (northern long eared bats) to roost sites and performed emergence counts
- Surveyed bat populations using mist nets and Anabat ultrasonic echolocation monitors
- Collected tissue and fur samples, attached wing bands, assessed age, health, and reproductive status

2013(winter)— Pit Viper Radio Telemetry Technician. University of Rhode Island. Hong Kong SAR

- Performed visual encounter and mark and recapture surveys for *Trimeresurus albolabris*
- Safely captured and handled vipers, Burmese pythons, and various large elapids and colubrids
- Anesthetized vipers to collect caudal blood samples and scale clips
- Inserted subcutaneous PIT-tags
- Radiotracked vipers through forested, mountainous terrain

2013 (summer) — Aquatic Restoration and Bear Management technician. Yosemite National Park, CA.

- Performed visual encounter surveys for endangered *Rana sierrae* (Sierra Nevada yellow-legged frogs)
- Removed invasive trout from remote alpine lakes and streams using gill nets and electrofishing techniques
- Radiotracked problem black bears and practiced hazing techniques to negatively condition bears.

2012-2013—Education Outreach Intern. Lava Beds National Monument, CA

- Prepared and presented talks and media regarding the ecology, history, and geology of the Lava Beds area
- Assisted the resource management team with the collection of data loggers, cave vandalism surveys, bat surveys, and white-nose syndrome control
- Prepared press releases for park events

Teaching

Rebecca O'Brien: Fish and wildlife Conservation

- BIOL 278L—*Animal Behavior Lab* Graduate TA. University of North Carolina. Spring 2017- Spring 2018
- BIOL 101L—*Principles of Biology Lab* Graduate TA. University of North Carolina. Fall 2016 and Summer 2017
- EV 212—*Energy: Environmental Thermodynamics and Energetics*. Post-bachelor's TA. Colorado College, Colorado Springs, CO Fall 2012

Mentorship

- Adair McNear—Post-bachelor's research assistant at University of North Carolina. 2018
- Rachel Keen—Undergraduate research assistant at University of North Carolina. 2017-2018
- Priya Desai—Undergraduate research assistant at University of North Carolina. Summer 2017
- Emma Karlok—Undergraduate research assistant at University of North Carolina. 2017
- Hannah Slep—Undergraduate research assistant at University of North Carolina. 2016-2017
- Elliott Schenker—Undergraduate research assistant at University of North Carolina. 2016-2017

Publications and Presentations

- "Sexual Signal Diversity in Spadefoot Toads" Lunch Bunch Seminar Series, Spring 2017.
- O'Brien, R and Pfennig, K. "*Variable Mating Signal Divergence Across a Zone of Sympatry in the Plains Spadefoot Toad, *Spea bombifrons**" *In prep for submission to Evolution*.
- O'Brien, R and Pfennig, K. "*Call Structure Determines Facultative Response to Signal Interference in the Spadefoot Toad, Genus *Spea**." *In prep for submission to Animal Behavior*.
- O'Brien, R. (2012). "The Ants Go Marching" (Unpublished undergraduate thesis). Colorado College, Colorado Springs, CO.

Grants and Awards

- 2018—Interfaces of Global Change Fellowship (\$40,000)
- 2017—Sigma Xi Grants in Aid of Research (\$715)
- 2016—Graduate Professional Student Federation Travel Grant (\$400)
- 2015—Doctoral Merit Assistantship (Total award value of \$47,500)
- 2011—Venture Grant (\$1,000)
- 2012—Venture Grant (\$1,000)

Outreach

- 2017-2018—Member sustainability Council for the University of North Carolina
- 2017—Designed and distributed evolution lesson plans for K-12 through the SciRen program
- 2016-2018—Writer for *The Pipettepen*, a weekly science blog
- 2015-present—Volunteer North Carolina Museum of Natural History Raleigh, NC.

Additional Skills

- R statistical program
- ArcGIS
- Radio telemetry
- Seine netting, gill netting, and electrofishing
- Mist netting for birds and bats
- DNA and RNA extraction
- Standard PCR and restriction digest
- Reptile and amphibian husbandry
- Acoustic recording and call analysis using Audacity and RavenPro