

# Bradley Alf

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## EDUCATION

University of North Carolina at Chapel Hill (UNC) Honors Program  
Bachelor of Arts in Biology, Creative Writing minor, May 2015  
Cum Laude with Distinction

**Exchange Student:** Universidad San Francisco de Quito, Ecuador, Fall 2013

## HONORS AND AWARDS

- 2017 Finalist for the Evolution Film Festival in Portland, OR
- 2015 Received the Suzanne Bolch Travel Writing Grant to explore by bike a 1,000-mile trek undertaken by John Muir in 1867 across the American Southeast
- 2015 Biology Honors Thesis “A phylogenetic approach to understanding the evolution of the rattlesnake rattle” awarded Highest Honors by thesis committee
- 2015 Creative Writing Honors Thesis “Drift, Fence” about my experience as a biology researcher awarded Honors by thesis committee
- 2011 Salutatorian and Vice-President of Forestview High School, Class of 2011

## RESEARCH EXPERIENCE

**Pfennig Lab, UNC-CH • Independent Researcher**, January 2013-Current

- Self-designed a novel phylogenetic method for understanding the evolution of the rattlesnake rattle and carried out research in zoos across the country to test hypothesis
- Lead-authored a paper in *The American Naturalist* outlining an example of behavioral plasticity preceding, and possibly instigating, the evolution of a novel morphological structure—the rattlesnake rattle
- Completed an independent project testing the skin lipids of snakes in a snake mimicry complex to better understand whether mimetic snakes employ both visual and chemosensory mimicry
- Currently investigating a potential example of aposematic signal mimicry in tail-vibrating snakes by examining Colubrid populations on the California Channel Islands that lack a mimetic model

**Smithers Viscient, Snow Camp, NC • Biology Technician II**, June 2015-September 2015

- Carried out ecotoxicology experiments investigating the effects of pre-market pesticides on honey bees
- Utilized cutting-edge photographic software and laboratory techniques to assess bee colony health
- Managed inventory and supplies for maintaining over 500 hives involved in multiple experimental setups

**Environmental Law Internship, UNC-CH • Research Assistant**, May 2014-August 2014

- Researched Filipino property law to compile the first working case-file of flood map determination in the Philippines in order to better understand the legal implications of climate change in Southeast Asia
- Trained in case file research, including the use of LexisNexis law database

**Pfennig Lab, UNC-CH • Research Technician**, May 2014-August 2014

- Set up and carried out field experiments across eastern North Carolina using clay snake models to test predation on different mimetic kingsnake phenotypes
- Contributed to the findings in “Batesian Mimicry promotes pre- and post-mating isolation in a snake mimicry complex.” published in *Evolution*, 2015

**Pfennig Lab, UNC-CH • Research Technician**, May 2013-August 2013

- Scored phenotypes of wild-caught spadefoot toad tadpoles to determine the distribution of plastic feeding morphologies across populations of tadpoles that differed in population density and food availability

## OTHER RELEVANT EXPERIENCE

### Freelance Science Writer • Sep. 2017-Current

- Cover emerging research in biology for publications like *Sierra* and *Atlas Obscura*
- Serve as a conduit between academic science and the public, crafting engaging stories for a non-specialist audience that facilitate scientific understanding and appreciation without over-simplifying concepts

### The North Carolina Museum of Natural Sciences • *Educational Events Specialist*, Nov. 2015-Sep. 2017

- Worked with a small team to design the largest annual science events in the state, including events such as Darwin Day and Astronomy Days that garner international media coverage and tens of thousands of visitors
- Created science exhibits with interactive components focusing on themes from genetics to entomology
- Worked with university lab groups, science clubs, non-profits, and public school teachers to devise ways to better engage the public with science and research through public museum events and external outreach
- Increased annual event budget by more than \$12,000 through writing and receiving grants

## PEER-REVIEWED PUBLICATIONS

Allf, Bradley C., Paul AP Durst, and David W. Pfennig. "Behavioral plasticity and the origins of novelty: the evolution of the rattlesnake rattle." *The American Naturalist* 188.4 (2016): 475-483. PDF at

[http://labs.bio.unc.edu/Pfennig/LabSite/Publications\\_files/2016\\_Am%20Nat.pdf](http://labs.bio.unc.edu/Pfennig/LabSite/Publications_files/2016_Am%20Nat.pdf)

-Highlighted on *The New Scientist's* webpage ("Rattlesnakes silently shook their tails before evolving rattles" <https://www.newscientist.com/article/2106162-rattlesnakes-silently-shook-their-tails-before-evolving-rattles/>, September 16, 2016)

-Highlighted on *ScienceNews's* webpage ("Tail vibrations may have preceded evolution of rattlesnake rattle" <https://www.sciencenews.org/blog/wild-things/tail-vibrations-may-have-preceded-evolution-rattlesnake-rattle>, August 31, 2016)

-Highlighted on *The Planet Experts's* webpage ("Which Came First: The Rattle or the Rattling?" <http://www.planetexperts.com/came-first-rattle-rattling/>, August 18, 2016)

-Featured in cover story for *North Carolina Naturalist* magazine ("Why Rattle, Snake?", print only, July 2017)

## PROFESSIONAL DEVELOPMENT AND AFFILIATIONS

2017	Attended North Carolina Science Writing Workshop, North Carolina State University
2016	Completed "Using Facilitated Dialogue to Engage Museum Visitors in Inquiry," Prescott College
2017-Present	Member of the National Association of Science Writers (NASW)
2015-Present	Member of the North Carolina Herpetological Society (NCHS)
2015-Present	Member of Science Communicators of North Carolina (SCONC)

## PRESENTATIONS AND PUBLIC OUTREACH

2017	Invited speaker at the North Carolina Herpetological Society Spring Meeting, Carolina Beach, NC
2017	Invited guest expert for Carbon Neutral Podcast, Episode 6, about the science behind <i>Jurassic Park</i> genetics
2016	Invited judge at the East Cary Middle School Science Fair
2016	Exhibited my rattlesnake research at a "Darwin Day" educational table, NC Museum of Natural Sciences
2015	Invited co-speaker at Biology Lunch Bunch presentation series for UNC-CH Biology faculty
2015	Invited to read at <i>The Invisible Bear</i> Launch Party, Durham, NC
2015	Successfully defended Honors Thesis in front of a panel of UNC-CH biology faculty and graduate students

## **RELEVANT COURSEWORK**

Ecology and Evolution, Molecular Biology and Genetics, Cell and Developmental Biology, Animal Behavior, Undergraduate Research, Language and Animal Communication, Evolution and Development, Senior Biology Thesis

**GPA: 3.6; Junior and Senior year GPA: 4.0**

## **REFERENCES**

- **David Pfennig** • *Professor*, UNC-CH Biology Department  
dpfennig@unc.edu, (919) 962-6958
- **Chris Akcali** • *Graduate Student* UNC-CH Biology Department  
akcali@live.unc.edu, (214) 213-2550
- **Kari Wouk** • *Senior Manager of Educational Collaborations*, NC Museum of Natural Sciences  
kari.wouk@naturalsciences.org, (919) 707-9879