

Bradley Alif

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Synopsis of Research

I'm broadly interested in ecology, evolution, public engagement in science, and science communication. My current research seeks to use large-scale citizen science datasets to illuminate the trophic connectivity of ecosystems, and the intersections between the human and natural worlds.

Education

Fisheries, Wildlife & Conservation Biology, PhD North Carolina State University (with Caren B. Cooper) Dissertation: <i>Evaluating the Citizen Science Experience: Motivation, Participation and Learning</i>	2018-2023
Biology, BA, Highest Honors; Creative Writing Minor University of North Carolina at Chapel Hill (with David W. Pfennig) Thesis: <i>A Phylogenetic Approach to Understanding the Evolution of the Rattlesnake Rattle</i>	2011-2015
Evolution, Ecology and Conservation Universidad San Francisco de Quito (exchange program in Ecuador)	2013

Training

Postdoctoral Fellow, Applied Ecology North Carolina State University (with Rob R. Dunn)	2023-present
Postdoctoral Researcher, Department of Integrative Biology Oregon State University (with David W. Kikuchi)	2023

Grants & Fellowship

- 2021 American Association for the Advancement of Science *Mass Media Fellowship* to fund a summer working as a science and environmental reporter for the *Austin American-Statesman* in Austin, TX. \$7,000.
- 2020 NSF *Graduate Research Fellowship* to fund research on the role of intrinsic motivation in shifting pro-environmental perspectives among citizen science volunteers. \$138,000.

Honors and Awards

- 2023 NC State College of Natural Resources *Diversity, Equity and Inclusivity Spotlight Fellowship* to support and recognize research furthering DEI issues in citizen science. \$300.
- 2022 NC State *Namkoong Family Graduate Fellowship* in recognition of dissertation work and outreach related to participatory science. \$500.
- 2020 Facilitator award for *NSF STEM for All* video on broadening participation in citizen science.
- 2019 Travel grant from the National Association of Science Writers to attend *ScienceWriters2019*, State College, PA. \$1,000.
- 2018 Winner of the Society for Neuroscience Research Video Contest, San Diego, CA. \$1,000.
- 2015 UNC Suzanne Bolch Travel Writing Fellowship, to retrace a 1,000 mile trek by John Muir across the American Southeast. \$3,500.

Publications

Journal articles (peer-reviewed):

6. Futch, S., Larson, L., Cooper, C., Cutts, B., **Allf, B.**, Sharova, M., Cavalier, D., Davis, C. Exploring Connections among projects across the citizen science landscape: a social network analysis. *Sage Open*. [Under review].

5. Taylor, B., **Allf, B.**, Hopkins, S., Irwin, R., Jewell, M., Omer, N., Nichols, L., Nabila Rodriguez, V., Evans, J., Sorensen, P., Dunn, R. (2023). Nature's Chefs: Uniting the hidden diversity of food making and preparing species across the tree of life. *BioScience*, 73(6), 408-421.
 - Highlighted by the [Harvard School of Engineering and Applied Sciences](#)
4. **Allf, B.**, Cooper, C. B., Larson, L. R., Dunn, R. R., Futch, S. E., Sharova, M., & Cavalier, D. (2022). Citizen science as an ecosystem of engagement: implications for learning and broadening participation. *BioScience*, 72(7), 651-663.
 - Highlighted by [The Wildlife Society](#), [PBS Newshour](#)
3. **Allf, B.**, Sparkman, A. M., & Pfennig, D. W. (2021). Microevolutionary change in mimicry? Potential erosion of rattling behaviour among nonvenomous snakes on islands lacking rattlesnakes. *Ethology Ecology & Evolution*, 33(2), 125-136.
2. Smith, H., **Allf, B.**, Larson, L., Futch, S., Lundgren, L., Pacifici, L., & Cooper, C. (2021). Leveraging Citizen Science in a College Classroom to Build Interest and Efficacy for Science and the Environment. *Citizen Science: Theory and Practice*, 6(1).
1. **Allf, B.**, Durst, P. A., & Pfennig, D. W. (2016). Behavioral plasticity and the origins of novelty: the evolution of the rattlesnake rattle. *The American Naturalist*, 188(4), 475-483.
 - Highlighted by [The New Scientist](#), [ScienceNews](#), [The Planet Experts](#)

Book chapters (peer-reviewed):

1. **Allf, B.**, Bai, J., Perkins, D., Cooper, C. (2023). Participatory science in the field of ornithology. In *Perspectives in Ornithology*, Oxford University Press. [In print].

Selected other publications (not peer-reviewed):

[Two by Two Degrees](#). *Dear Human at the Edge of Time: Poems on Climate Change in the United States*. Paloma Press [in print].

[Citizen Science Volunteers are Almost Entirely White](#). *The Conversation*. June 22, 2022.

[Citizen Science is Changing People's Lives—This Project Explores How It Happens](#). *Discover Magazine*. August 31, 2021.

[Texas Nature Trackers Program Taps Amateur Observers to Help Scientists Catalogue Wildlife](#). *Austin American-Statesman*. June 14, 2021.

[The Future of Wilderness](#). *NC State Applied Ecology News*. January 7, 2021.

[Don't Trust Scientists? Then Help Collect the Data](#). *Scientific American*. September 18, 2019.

[Sound Justice: Citizen Science, Noise, and the Quest for Equity](#). *Discover Magazine*. May 6, 2019.

[Crowd the Tap: Empowering Communities to Examine Their Lead Exposure](#). *Discover Magazine*. May 3, 2019.

[Take Pictures of Your \(Six-Legged\) Roommates, for Science](#). *Discover Magazine*. February 22, 2019.

[Can the Internet Save Snakes?](#) *Sierra Magazine*. September 25, 2017.

Professional Experience

Administrator of Citizen Science Project, "Who Eats Whom" 2018-Present

- Began a global campaign to collect observations of animal feeding interactions using iNaturalist
- Manage a website that displays the iNaturalist data using network visualizations and an API

Freelance Science Writer 2017-Present

- Write about ecology, citizen science and conservation for a variety of national publications including *Sierra*, *Scientific American*, *Discover*, *Smithsonian* and *Undark*

Administrator of Citizen Science Project, "SciQuest" 2021-2023

SciStarter.org/NC State

- Managed a novel citizen science initiative to track volunteers' perspectives about the environment and engagement across projects
- Used advanced survey methods and web design tools to create engaging and responsive survey modules

Educational Events Specialist 2015-2017

North Carolina Museum of Natural Sciences

- Designed and organized the largest educational science events in the country
- Partnered with university lab groups, community organizations, non-profits, and public school teachers to devise and share protocols for better engaging the public with science and research through public science events

Biology Technician 2015

Smithers Viscient

- Organized ecotoxicology experiments on honeybees to better understand the impact of agricultural pesticides on pollinators

Professional Service

- Science Communicators of North Carolina*, Board Member 2019-2023
- Coordinated the activities of this non-profit and regional science writing group alongside other board members, including by organizing workshops, speaker series and fundraising
- ComSciCon*, Conference Organizer 2020, 2021
- Served multiple years on the organizing committee of this national collaboration of graduate students to train other graduate students in science communication
- ComSciCon-Triangle*, Conference Organizer 2020
- Served on the organizing committee of the local affiliate of *ComSciCon*
- NC State Science Storytelling Society*, Co-Chair 2019-2022
- Founded and co-chaired this NC State student group to foster community among graduate and undergraduate students interested in science communication
 - Applied for and received funding from the NC State Public Science Cluster to provide honoraria for invited speakers
- In Layman's Terms*, Associate Editor 2018-2020
- Reviewed and published creative writing for this science and nature-inspired literary magazine

Invited Presentations and Lectures

Allf, B., Cassinotto, A., Pfeiffer, J. Dear human at the edge of time: poetry as a vessel for enriching the climate change dialogue. *University of Nebraska at Lincoln, Communicating Complexity Symposium*. November 16, 2023 [Virtual Presentation].

Allf, B. Public engagement in science for graduate students. *AEC 502: Introduction to Biological Research*. NC State, November 11, 2023 [Guest Lecture].

Allf, B. Science writing and science communication. [Level the Playing Field Minority Development Program](#). October 27, 2023 [Virtual Invited Presentation].

Allf, B. Creative writing for science writers. *AEC 495/630: Advanced Special Topics in Applied Ecology: Translating Science*. NC State, February 14, 2023 [Guest Lecture].

Allf, B., Bohon, W., Brown, M., Davis, D., Gladstone, M., Laungani, R., Prinster, S., Watkins, J. Communicating complexity. *University of Nebraska SciComm Conference*. August 18, 2022. [Virtual Panel Expert].

Schmehl, M., **Ailf, B.**, Das, M., Hinkle, Duong, Y. Developing science communication during a Ph.D. *ComSciCon-Triangle*. February 12, 2022. [Virtual Panel Expert].

Ailf, B. How to spot a predator: science epistemology in the era of “fake” science. Alpha Epsilon Honor Society, American Society of Agricultural and Biological Engineers. September 7, 2021. Raleigh, NC. [Presentation].

Ailf, B. How predatory academic journals endanger science. *TEDx NC State*. August 9, 2021. Raleigh, NC. [Presentation].

Goodwin, J., **Ailf, B.** Public science and science communication for undergraduate science majors. Biotechnology Sequencing-Based Undergraduate Research Experience, REU cohort. July 6, 2021. [Virtual Presentation].

Ailf, B. SciQuest: a citizen science project to track your contributions. *SciStarter.org: Making it Count*. March 29, 2021. [Virtual Presentation].

Ailf, B. Science Sonnets: the poetry in good science communication. *Duke University Initiative for Science & Society*. April 15, 2021. [Virtual Presentation].

Ailf, B. Scaly and slimy adventures from the tiny wild. *Reptile and Amphibian Day, North Carolina Museum of Natural Sciences*. March 9, 2021. [Virtual Presentation].

Ailf, B., Goodwin, J. Science communication. NC State ENG 520: Science Writing for the Media. October 5, 2020. Raleigh, NC. [Guest Lecture].

Ailf, B. A citizen science primer for interested volunteers. Verizon Inc. Corporate Volunteer Program. April 15, 2020. [Virtual Presentation].

Ailf, B., Auerbach, E., Tony, J. The Science behind Jurassic Park and de-extinction. *Carbon Neutral, Episode 6*. March 23, 2017. [Podcast].

Ailf, B. A phylogenetic approach to understanding the evolution of the rattlesnake rattle. *North Carolina Herpetological Society, Spring Meeting*. March 22, 2016. Wilmington, NC. [Presentation].

Selected Conference Presentations and Posters (* Presenting Author)

Larson, L., Cooper, C., **Ailf, B.**, & Smith, H. Broader impacts of citizen science: exploring volunteer motivations and learning outcomes. *Pathways 2023: Human Dimensions of Wildlife Conference*. Fort Collins, CO: May 31-June 3, 2023. [Presentation]

***Ailf, B.**, Larson, L.R., Cooper, C.B. Corporate Citizen Scientists More Diverse but Participation Limited by External Motivation. *Citizen Science Association Conference*. May 22-26, 2023. [Virtual Poster].

***Allf, B.**, Cooper, C.B., Larson, L.R., Dunn, R.R., Futch, S.E., Sharova, M., Cavalier D. New Horizons for Citizen Science Participation: Multiproject Volunteers. *Citizen Science Association Conference*. May 23, 2022. [Virtual Poster].

***Allf B.**, Cooper, C.B., Larson, L.R., Cavalier, D. New Horizons for Citizen Science Participation: Corporate Volunteers. *NC State College of Natural Resources Graduate Research Symposium*. Raleigh, NC. March 23, 2022. [Presentation].

Smith, H., **Allf, B.**, Larson, L.R., Futch, S.E., Lundgren, L., Pacifici, L., Cooper, C.B. Incorporating Citizen Science in the University Classroom - Building Interest and Efficacy for Science and the Environment. *Biennial Conference on University Education in Natural Resources*. March 23-24, 2022. [Virtual Presentation]

Cavalier D., Nickerson, C., Cooper, C.B., **Allf, B.** Citizen Science Resources: Leveraging SciStarter for Participatory Research. *American Association for the Advancement of Science Annual Meeting*. February 17-20, 2022 [Virtual Workshop].

***Allf, B.**, Cooper, C.B., Larson, L.R., Dunn, R.R., Futch, S.E., Sharova, M., Cavalier, D. The New Citizen Scientist: Multi-Project Participation. *NC State College of Natural Resources Graduate Research Symposium*. Raleigh, NC. March 17, 2021 [Virtual Presentation].

***Allf, B.**, Sparkman, A., Pfennig, D.W. Island Tails: Is Tail Vibration Rattlesnake Mimicry? *Southeast Partners in Amphibian and Reptile Conservation*. February 22-27, 2021 [Virtual Presentation].

***Allf, B.**, Cooper, C.B., Larson, L.R., Futch, S.E., Sharova, M. SciStarter: The impact of a 3rd party platform on volunteer communities. *Citizen Science in Higher Education Research Symposium*. September 12, 2020 [Virtual Presentation].

***Allf, B.**, Cooper, C.B., Larson, L.R., Cavalier, D., Spiers, H., Futch, S.E., Sharova, M., Dayan, N., Gal, K. SciStarter: The impact of a 3rd party platform on volunteer communities. *European Citizen Science Association Conference*. September 6-11, 2020 [Virtual Workshop].

Larson, L.R., Cooper, C.B., **Allf, B.**, Futch, S.E. Multi-project participation among citizen science volunteers benefits science and society. *ISSRM: International Symposium for Society & Resource Management*. June 22-26, 2020. Cairns, Australia [Virtual Presentation].

***Allf, B.**, Cooper, C.B., Larson, L.R., Cavalier D. Citizen Science for All. *NSF STEM for All Video Showcase*. May 5-12, 2020. [Online Presentation].

***Allf, B.**, Larson, L.R., Cooper, C.B. The New Citizen Scientist: Boundless Participation, Boundless Impact? *NC State College of Natural Resources Graduate Research Symposium*. February 26, 2020. Raleigh, NC [Presentation].

Eyman, G., Beaulieu, M.S., **Allf, B.**, Dunn, R.R. Never Home Alone: Studying the Life in Schools and Homes. *Bridging the Gap Conference*. October 22-23, 2019. Raleigh, NC [Panelist].

Futch, S.E., Larson, L.R., Cooper, C.B., **Allf, B.**, Sharova, M. Bridging gaps, broadening networks: Fostering multi-project engagement among citizen science volunteers. *Pathways: Human Dimensions of Wildlife Conference*. Sept 22-25, 2019. Estes Park, CO [Presentation].

***Allf, B.**, Larson, L.R., Cooper, C.B. Where do they come from and where do they go? Understanding the citizen scientist more holistically. *NERR: National Environment and Recreation Research Symposium*. April 7-9, 2019. Annapolis, MD [Presentation].

***Allf, B.**, Larson, L.R., Cooper, C.B. Towards a more holistic perspective on the citizen science volunteer. *Conference of the Citizen Science Association*. March 13-16, 2019. Raleigh, NC [Presentation].

***Allf, B.**, Larson, L.R., Cooper, C.B. The modern citizen science volunteer. *NC State College of Natural Resources Graduate Research Symposium*. February 8, 2019. Raleigh, NC [Presentation].

Institutional Service: Reviewer

- PLOS One
- Global Ecology and Conservation
- Citizen Science: Theory and Practice
- Ocean and Coastal Management

Mentorship

Spring 2024	Mentored three undergraduate students at Oregon State University (Cierra Freese, Amy Wright, Lauren Rose Smith) conducting a systematic review of snake abundance data to better understand spatial bias in ecological citizen science.
2022	Graduate student mentor for Ariana Lurie, an NC State Junior enrolled in research credits to study the growth in ornithological citizen science over time
Spring 2020	Mentored a group of NC State Seniors studying the diversity of citizen science projects (Kristin Biggs, Hailey Shoptaugh, Hailea Kennedy, Guimel Magallanes Hernandez) as part of an environmental studies capstone course.

Certifications

- NC State Reflective Educational Design Certificate: Universal Course Design, 2024

Skills

Science communication • Citizen science project management • Statistical analysis and data visualization in *R* • Advanced survey development in *Qualtrics* • Interviewing for qualitative data collection • Competence in graphic manipulation in *Adobe CC* programs • Competence in *HTML* and *Javascript* • Working knowledge of web design in *R Markdown* and *React* • Conversational Spanish