

# Bradley Alif

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## Synopsis of Research

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I'm broadly interested in conservation biology, ecology and public engagement in science. My dissertation seeks to understand how experiences in citizen science influence the pro-environmental attitudes and behaviors of participants, and the role of motivation in modifying these pathways.

## Education

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<i>North Carolina State University (NC State)</i> Ph.D., Fisheries, Wildlife & Conservation Biology Advisor: Caren B. Cooper	2018-2023 (expected)
<i>University of North Carolina at Chapel Hill (UNC)</i> B.A., Biology, minor in Creative Writing, Highest Honors	2011-2015
<i>Universidad San Francisco de Quito</i> Evolution, Ecology and Conservation [Exchange program in Ecuador]	2013

## Research Publications

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1. **Alif, 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](#)
2. **Alif, 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.

3. **Alif, 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](#)
4. Smith, H., **Alif, 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).
5. Futch, S., Larson, L., Cooper, C., Cutts, B., **Alif, B.**, Sharova, M., Cavalier, D., Davis, C. (2023). Exploring Connections among projects across the citizen science landscape: a social network analysis. *PeerJ*. [Under review].
6. Taylor, B., **Alif, B.**, Hopkins, S., Irwin, R., Jewell, M., Omer, N., Nichols, L., Nabila Rodriguez, V., Evans, J., Sorensen, P., Dunn, R. (2023). Nature's Chefs. *BioScience*. [In print].

## Book Chapters

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

## Grants & Fellowship

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

## Professional and Research Experience

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- Administrator of Citizen Science Project, “SciQuest”** 2021-Present  
*SciStarter.org/NC State*
- Manage a novel citizen science initiative to track volunteers’ perspectives about the environment and engagement across projects
  - Use advanced survey methods and web design tools to create engaging and responsive survey modules that volunteers complete throughout the year, enabling me to collect time series data
- 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 and Environmental Writer** 2017-Present
- Cover ecology, citizen science and conservation for a variety of national publications including *Sierra, Scientific American, Discover, Smithsonian* and *Undark*
- Co-Administrator of Citizen Science Project, “Never Home Alone at NCSU”** 2019-2020  
*NC State*
- Assisted in organizing the first survey of indoor biodiversity on a college campus
  - Surveyed a subset of the 500+ participants to better understand how the project impacted students’ perspectives about conservation and science epistemology
- Graduate Research Assistant** 2018-2020  
*NC State, Public Science Lab*
- Studied the implications of multi-project participation among thousands of citizen scientists
  - Analyzed volunteer surveys and digital trace data from hundreds of projects to better characterize participation patterns across the citizen science landscape
- Educational Events Specialist** 2015-2017  
*North Carolina Museum of Natural Sciences*
- Worked with a small team to design the largest educational science events in the country
  - Worked 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 informal science education
- Biology Technician** 2015  
*Smithers Viscient*
- Ran ecotoxicology experiments on honeybees to better understand the impact of agricultural pesticides on pollinators
- Undergraduate Research Assistant** 2013-2015  
*UNC, Pfennig Lab*

- Conducted behavioral assays on snakes in zoos across the country to evaluate the evolution of defensive signaling
- Conducted fieldwork to test differential predation on snakes in a mimicry complex

## Honors and Awards

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2023	NC State College of Natural Resources <i>Diversity, Equity and Inclusivity Spotlight Fellowship</i> to support and recognize research furthering DEI issues in citizen science. \$300.
2022	NC State <i>Namkoong Family Graduate Fellowship</i> in recognition of dissertation work and outreach related to participatory science. \$500.
2020	Facilitator award for <i>NSF STEM for All</i> video on broadening participation in citizen science.
2019	Travel grant from the National Association of Science Writers to attend <i>ScienceWriters2019</i> , 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.

## Institutional & Professional Service

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<i>Science Communicators of North Carolina, Board Member</i>	2019-Present
<ul style="list-style-type: none"> <li>• Coordinate the activities of this non-profit and regional science writing group alongside other board members, including by organizing workshops, speaker series and fundraising</li> </ul>	
<i>ComSciCon Conference Organizer</i>	2020, 2021
<ul style="list-style-type: none"> <li>• Served multiple years on the organizing committee of this national collaboration of graduate students to train other graduate students in science communication</li> </ul>	
ComSciCon-Triangle Conference Organizer	2020
<ul style="list-style-type: none"> <li>• Served on the organizing committee of the local affiliate of <i>ComSciCon</i></li> </ul>	
<i>NC State Science Storytelling Society</i>	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

*Associate Editor of In Layman's Terms*

2018-2020

- Reviewed and published creative writing for this science and nature-inspired literary magazine

## Selected Other Publications (Not Peer-Reviewed)

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[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.

## Invited Presentations and Lectures

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

**Allf, 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].

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

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

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

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

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

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

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

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

**Allf, 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)

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\***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 3<sup>rd</sup> 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 3<sup>rd</sup> 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

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

## Mentorship

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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.

## Skills

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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