

# GEORGE C. BROOKS

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Department of Fish and Wildlife Conservation  
College of Natural Resources and the Environment  
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## EDUCATION

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<b>Ph.D.</b>	Virginia Tech, Fisheries and Wildlife Conservation	2020
<b>M.S.</b>	University of Sheffield, Zoology	2014
<b>B.S.</b>	University of Sheffield, Zoology	2013

## PROFESSIONAL EXPERIENCE

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<b>Postdoctoral Researcher</b> , Virginia Tech	
Modeling fisheries as socioecological systems	2022-present
Filial cannibalism in eastern hellbenders	2021-2022
Macroevolutionary models of life history evolution in vertebrates	2020-2021

## PUBLICATIONS

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- Articles in Peer Reviewed Journals** (\* indicates co-author is an undergraduate or technician)
- G. C. Brooks**, N. M. Caruso, H. C. Chandler, and C.A. Haas. Niche partitioning, not a storage effect, facilitates coexistence in an amphibian community. *Ecology and Evolution: in review*
- G. C. Brooks**, T. A. Gorman, and C.A. Haas. Variation in flatwoods salamander survival is unrelated to temperature and rainfall. *Ichthyology and Herpetology: in review*
- G. C. Brooks**, W. A. Hopkins, and H. K. Kindsvater. Concurrent threats and extinction risk in a long-lived, highly fecund vertebrate. *Ecological Applications: in review*
- Hopkins, W. A., B. F. Case, J. Groffen, **G. C. Brooks**, C. M. Bodinof Jachowski, S. T. Button, J. J. Halligan, R. S. M. O'Brien, and H. K. Kindsvater. Filial cannibalism leads to chronic nest failure of eastern hellbender salamanders. *The American Naturalist: accepted*
- Brooks, G. C.**, J. H. Roberts, A. S. Wendt, and C. A. Haas. Comparing estimates of census and effective population size in an endangered amphibian. *Animal Conservation: accepted*
- Brooks, G. C.** and H. K. Kindsvater. 2022. Early development drives variation in amphibian vulnerability to global change. *Frontiers in Ecology and Evolution* 10:813414.
- Brooks, G. C.** and C. A. Haas. 2021. Using historical dip net data to infer absence of flatwoods salamanders in stochastic environments. *PeerJ* 9:e12388.
- Brooks G. C.**, T. A. Gorman, Y. Jiao, and C. A. Haas. 2020. Reconciling larval and adult sampling methods to model growth across life-stages. *PLoS One* 15:e0237737.
- Petters, J. L., **G. C. Brooks**, J. A. Smith, and C. A. Haas. 2019. The impact of targeted data management training for field research projects. *Data Science Journal* 18:1–7.
- Brooks, G. C.**, J. A. Smith, E. Frimpong, T. A. Gorman, H. Chandler, and C. A. Haas. 2019. Indirect connectivity estimates of amphibian breeding wetlands from spatially explicit occupancy models. *Aquatic Conservation: Marine and Freshwater Ecosystems* 29:1815-1825.
- Brooks, G. C.**, J. A. Smith, T. A. Gorman, and C. A. Haas. 2019. Discerning the environmental drivers of annual migrations in an endangered amphibian. *Copeia* 107:270-276.
- Brooks, G. C.** 2013. A chance encounter with copulating cottonmouths (*Agkistrodon piscivorus*). *IRCF Reptiles and Amphibians* 20:20-22.

## CONFERENCE PRESENTATIONS

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- Oral Presentations** (\* indicates co-author is an undergraduate or technician)

- H. C. Chandler, N. M. Caruso, **G. C. Brooks**, and C. A. Haas. 2023. Reticulated flatwoods salamander phenology under future climate change. Southeast Partners in Amphibian and Reptile Conservation Annual Meeting, Black Mountain, NC, USA.
- Ulan, A., **G. C. Brooks**, and L. Jacobs. 2023. Anxiety in broiler chickens is affected by strain, body weight, and environmental complexity. The 56th Congress of the International Society for Applied Ethology, Tallin, Estonia.
- Uyeda J. C., **G. C. Brooks**, H. K. Kindsvater, N. Bone, C. Mull, and H. Conrad. 2022. Macroevolutionary modeling of life history evolution in vertebrates. Evolution, Cleveland, OH, USA.
- Brooks, G. C.** and C. A. Haas. 2021. On the importance of critical race theory in science. Academic Symposium on Critical Race Theory, Virginia Tech, VA, USA.
- Brooks, G. C.**, D. C. Childs, T. A. Gorman, and C. A. Haas. 2019. Assessing population viability and the efficacy of future management scenarios for an endangered amphibian. Joint Meeting of Ichthyologists and Herpetologists, Snowbird, UT, USA.
- \*Hawkins, R., J. Metzgar, **G. C. Brooks**, and C. A. Haas. 2019. A tale of natural history collections education at Virginia Tech. Society for the Preservation of Natural History Collections Conference, Chicago, IL, USA.
- \*Nelson, C. A., **G. C. Brooks**, C. A. Haas, and M. R. Stocker. 2019. Incorporating technology and multidisciplinary thinking into university collections. Society for the Preservation of Natural History Collections Conference, Chicago, IL, USA.
- Petters, J., J. A. Smith, **G. C. Brooks**, and C. A. Haas. 2018. Building data management capacity for field projects in a research group. American Geophysical Union Centennial Meeting, Washington, D.C., USA
- Brooks, G. C.** and C. A. Haas. 2018. The effects of agricultural and forestry systems on wildlife in aquatic ecosystems. Private and Commercial Pesticide Applicator Recertification Course, Virginia Tech, VA, USA
- Brooks, G. C.**, J. A. Smith, E. A. Frimpong, T. A. Gorman, H. C. Chandler, and C. A. Haas. 2018. Indirect connectivity estimates of amphibian breeding wetlands from spatially explicit occupancy models. Joint Meeting of Ichthyologists and Herpetologists, Rochester, NY, USA
- Brooks, G. C.**, Y. Jiao, T. A. Gorman, and C. A. Haas. 2017. A novel Bayesian approach to model biphasic growth in an endangered salamander, *Ambystoma bishopi*. Annual Meeting of the Ecological Society of America, Portland, OR, USA

#### **Poster Presentations** (\* indicates co-author is an undergraduate or technician)

- \*Leipold, A. E., N. M. Caruso, **G. C. Brooks**, and C. A. Haas. 2019. Variations of growth within the breeding and non-breeding seasons of the Reticulated Flatwoods Salamander (*Ambystoma bishopi*). Annual Southeastern Partners in Amphibian and Reptile Conservation Meeting, Black Mountain, NC, USA
- \*Rincon, B., N. M. Caruso, **G. C. Brooks**, \*K. C. Jones, and C. A. Haas. 2019. Monitoring Reticulated Flatwoods Salamanders with PIT tag antennas: Our first season of insights. Annual Southeastern Partners in Amphibian and Reptile Conservation Meeting, Black Mountain, NC, USA
- Brooks, G. C.**, J. A. Smith, T. A. Gorman, and C. A. Haas. 2018. Discerning the environmental drivers of annual migrations in an endangered amphibian. Joint Meeting of Ichthyologists and Herpetologists, Rochester, NY, USA

#### **PENDING GRANTS**

- 2023: Predicting the response of pond-breeding amphibians to contaminant exposure, altered fire regimes, and climate change. **G.C. Brooks** (PI), A. Burrow, E. Carter, N.M. Caruso, H.C. Chandler, B. Fitzpatrick, C.A. Haas, S. Lance, J. Maerz, and L. Smith. Department of Defense Strategic Environmental Research and Development Program, *past preproposal stage, full proposal in review*, \$3,200,000

2023: Creating a framework to guide restoration and management of longleaf pine embedded wetlands in the southeastern United States. H.C. Chandler (PI), **G.C. Brooks**, D. McLaughlin, and C.A. Haas. U.S. Department of Agriculture Natural Resources Conservation Service, *provisionally accepted*, \$200,000

#### EXTERNAL GRANTS

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- 2023: Eglin Air Force Base Endangered Species Adaptive Management and Monitoring on Eglin Air Force Base, Florida. C.A. Haas (PI), L.I. Blanc, T.A. Gorman, **G.C. Brooks**, J.R. Walters. U.S. Fish and Wildlife Service, \$165,000
- 2023: Predicting the persistence of salamanders: Consequences of phenological shifts for species of management concern on DoD lands. C.A. Haas (PI), H.C. Chandler, N.M. Caruso, and **G.C. Brooks**. Department of Defense Strategic Environmental Research and Development Program, \$27,000
- 2022-2023: Preliminary assessments for translocation of Reticulated Flatwoods Salamanders onto private lands. **G.C. Brooks** (PI), C.A. Haas, and H.C. Chandler. U.S. Fish and Wildlife Service, \$100,000
- 2019: Temporal patterns in the reproductive ecology of the Florida Bog Frog. **G.C. Brooks** and C.A. Haas. The Society for the Study of Amphibians and Reptiles Roger Conant Grant in Herpetology, \$500

#### INTERNAL GRANTS

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- 2022: Wetland loss along the Blue Ridge Parkway. **G.C. Brooks** (PI), C.A. Haas, H.C. Chandler, E. Brooks, J. Petters, and K. Diaz. University Libraries Collaborative Research Grant. \$10,000
- 2019: Fish and Wildlife Graduate Student Association Travel Grant to attend the Joint Meeting of Ichthyologists and Herpetologists, Snowbird, UT, USA. \$600
- 2019: College of Natural Resources Instructional Support Fund to purchase teaching microscopes. **G.C. Brooks** (PI), C.A. Haas, L. Castello, D. Orth. \$2,000
- 2018: Virginia Tech Graduate Student Association Travel Fund to attend the Joint Meeting of Ichthyologists and Herpetologists, Rochester, NY, USA. \$250

#### HONORS AND AWARDS

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Georgia Pacific Dean's Graduate Fellowship, 2019  
Dwight Chamberlain Graduate Wildlife Fellowship, 2019  
Departmental nominee for Virginia Tech's Instructor of Record Award, 2019  
Fish and Wildlife Conservation's Outstanding Teaching Assistant of the Year Award, 2018

#### TEACHING EXPERIENCE

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| <b>Instructor</b> <i>Inclusive Pedagogy</i>  | Spring 2022 |
| <ul style="list-style-type: none"><li>• Designed and co-taught monthly workshops for graduate students</li><li>• Introduced students to modern teaching methods and DEI related issues in the classroom</li></ul>        |             |
| <b>Instructor</b> <i>Introduction to Ecological Modeling in R</i>  | Spring 2022 |
| <ul style="list-style-type: none"><li>• Taught weekly workshops throughout the semester to graduate students</li><li>• Introduced students to coding best practices and the philosophy of statistical modeling</li></ul> |             |
| <b>Instructor</b> <i>4344 Herpetology</i>  | Spring 2020 |
| <ul style="list-style-type: none"><li>• Taught lecture and 2 lab sections to 40 undergraduate students</li><li>• Developed all lecture and lab material, field trips, and assignments</li></ul>                          |             |

**Instructor** 2324 *Wildlife Field Biology* Spring 2019

- Taught lecture and lab to 40 undergraduates
- Developed lecture and lab material, quizzes, exams, and homework assignments
- Evaluated highly by students for approachability, enthusiasm, and improving students' understanding of difficult concepts

**Course Assistant** 4984 *Natural History Collections and Curation* Spring 2019

- Collaborated with faculty across three departments to design and plan the course
- Organized guest speakers and led in-class discussions
- Supervised 5 undergraduate research projects in the natural history collection

**Mentor** 4994 *Undergraduate Research* 2018-2019

- Mentored 2 undergraduate independent research projects
- One student presented a poster at a regional conference, the other has a manuscript in prep

**Teaching Assistant** 2324 *Wildlife Field Biology* 2016-2018

- Taught lecture and lab to 40 undergraduates
- Coordinated grading, labs, and field trips typically with a team of 3 undergraduate TAs

### Guest Lectures

<i>Animal Behavior</i> , Department of Biology, Randolph College	2023
<i>Herpetology</i> , Department of Fish and Wildlife Conservation, Virginia Tech	2021-2023
<i>Wildlife Biology</i> , Department of Biology, Randolph College	2022
<i>Graduate Seminar</i> , Department of Fish and Wildlife Conservation, Virginia Tech	2019-2022

## CURATION EXPERIENCE

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**Collections Manager**, *Vertebrate Natural History Collection* 2015-2019

Department of Fisheries and Wildlife Conservation, Virginia Tech

- Coordinated loans with on average 3 lab courses each semester, and handled 4-5 loan and tour requests each month
- Trained on average 6 undergraduate and 2 graduate teaching assistants each semester in care and use of the collection and health and safety
- Increased the museum's visibility through outreach events, press releases, blog posts, and developing a website for the collection

## TRAINING AND CERTIFICATES

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Anti-Racist Teaching, Virginia Tech	2022
Creating an Inclusive Workplace, Virginia Tech	2022
AIBS Writing for Impact and Influence Workshop, online	2020
PIT Tag Methodologies Workshop, Virginia Tech	2020
Natural History Collections Club Network Workshop, Chicago Field Museum	2019
Certificate of Professional Development, Virginia Tech	2019
Reducing Implicit Bias and Stereotype Threat in the Classroom, Virginia Tech	2019
Advancing Diversity Workshop, Virginia Tech	2019
Preparing the Future Professoriate Certificate, Virginia Tech	2018
Carl Gans Workshop on Best Practices in Natural History Collections	2018
Advancing Diversity Workshop, Virginia Tech	2018
Disrupting Academic Bullying Workshop, Virginia Tech	2018
Graduate Education Development Institute Pedagogy Certificate, Virginia Tech	2017

## PROFESSIONAL SERVICE

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- Acted as the web developer and guest speaker chair for the Fish and Wildlife department's Graduate Student Assembly (FIWGSA) at Virginia Tech, 2016-2019
- Peer-reviewed articles for *The American Naturalist*, *Functional Ecology*, *Herpetologica*, *Hydrobiologia*, *Ichthyology and Herpetology* (formerly *Copeia*), *Journal of Wildlife Management*, *PeerJ*, and *Proceedings of the Southeastern Association of Fish and Wildlife Agencies*.

### Societal Memberships

British Herpetological Society	2019-present
Herpetologists League	2012-present
Society for the Study of Amphibians and Reptiles	2012-present
Society of Systematic Biologists	2020-present

### Broader Impacts

- Helped to found the Natural History Collections Club (NHCC) at Virginia Tech in 2017. Coordinated various museum events for the NHCC and the Virginia Tech chapter of the Wildlife Society (TWS), the Virginia Tech Science Festival, local 4-H groups, and preschoolers from the Virginia Tech Child Development Center for Learning and Research.
- Taught wildlife field techniques and natural history to high-schoolers as part of the Philadelphia ZooCREW's summer field course at Mountain Lake Biological Station, 2017-2018.
- I have published six series of essays, written for the general public, ranging in topics from evolutionary theory to the future of higher education. They are all available on my [website](#).

## FIELD EXPERIENCE

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### Virginia

- Surveys to assess the population status of Bog Turtles (*Glyptemys muhlenbergii*)

### Florida

- Drift fence and dipnet for Reticulated Flatwoods Salamanders (*Ambystoma bishopi*)
- Sampling invertebrate communities of ephemeral wetlands in longleaf pine forests
- Wetland restoration in longleaf pine flatwoods
- Tree coring to create dendrochronological references for trees in degraded wetlands
- Frog Call surveys on Eglin Air Force Base

### Europe

- Air and water quality monitoring at landfill sites across southern England
- Great Crested Newts (*Triturus cristatus*) surveys for Surrey Amphibian and Reptile Group
- Herpetofaunal surveys in England for the National Amphibian and Reptile Recording Scheme
- Behavioral study of waterfowl breeding ecology in South Yorkshire
- Heathland restoration prior to reintroduction of Sand Lizards (*Lacerta agilis*) in England
- Manipulative experimental study of plant-pollinator interactions in southern Portugal

### Alabama

- Took blood from Eastern Fence Lizards (*Sceloporus undulatus*) in experimental field enclosures
- Collected tissue samples from map turtles (*Graptemys* spp.)
- Radiotelemetry of reintroduced Eastern Indigo Snakes (*Drymarchon couperi*)
- Coordinated the field component of Auburn University's graduate herpetology course