

Brittany Latrice McCall, PhD

Assistant Professor of Biology
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Education

- Doctor of Philosophy, Environmental Sciences 2023
Arkansas State University – Jonesboro, AR
Dissertation: “The potential use of madtom catfishes (Ictaluridae: *Noturus*) as conservation tools for headwater streams of the southeastern United States”
Advisor: Dr. Brook Fluker
- Master of Science, Biology 2017
Arkansas State University – Jonesboro, AR
Thesis: “Stability at low densities or endangered? Spatiotemporal population dynamics of the Caddo Madtom (*Noturus taylori*)”
Advisor: Dr. Brook Fluker
- Bachelor of Science, Biology 2014
Austin Peay State University – Clarksville, TN
SURF thesis: “Seeking taxonomic resolution: Is *Orconectes cf. barrenensis* from the Red River (Cumberland River) of Tennessee a distinct species of crayfish?”
Advisor: Dr. Rebecca Blanton-Johanson

Research Interest

Freshwater aquatic ecology; Population genomics; Phylogeography; Conservation

Publications

- McCall, Brittany L** and Fluker, BL. 2023. Aspects of distribution, abundance, habitat, and life history of the Caddo Madtom (*Noturus taylori*), a narrow endemic of the Ouachita Highlands. *Southeastern Fishes Council Proceedings*, 1: 15-36.
- McCall, Brittany L** and Fluker, BL. 2022. Population characteristics of *Etheostoma pallididorsum* Distler and Metcalf (Paleback Darter), a narrowly distributed endemic in the Ouachita Highlands, Arkansas. *Southeastern Naturalist*, 21: 140-157. DOI: 10.1656/058.021.0208
- McCall, Brittany L** and Fluker, BL. 2021. Conservation genetic assessment of the Paleback Darter (*Etheostoma pallididorsum*), a narrowly distributed endemic in the Ouachita Highlands. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 31: 1817-1830. DOI: 10.1002/aqc.3510
- McCall, Brittany L** and Fluker, BL. 2020. Spatiotemporal population dynamics of the Caddo Madtom (*Noturus taylori*), a narrow endemic of the Ouachita Highlands. *Conservation Genetics*, 21: 431-442. DOI: 10.1007/s10592-020-01260-y
- Bloom, Erin T, **McCall, BL**, Schuster, GA, and Blanton, RE. 2019. Systematics and description of a new species of *Faxonius*, Ortmann, 1905 (Decapoda: Astacidea: Cambaridae) from the Red River system of Kentucky and Tennessee, USA. *Journal of Crustacean Biology*, 39: 40-53. DOI: 10.1093/jcabi/ruy100

Manuscripts in peer-review (available upon request)

- McCall, Brittany L**, Cooper, R, and Fluker, BL. Comparative acclimation capacity and thermal tolerance of a narrow endemic and a broadly distributed madtom catfish from the Ozark–Ouachita Mountain region, USA. *Journal of Thermal Biology*
- Horve, Zach, **McCall, BL**, Reisner, M. Riparian vegetation structural diversity as an indicator of riparian zone functioning in a rural to urban stream gradient. *Urban Ecosystems*

Manuscripts in-prep (available upon request)

- McCall, Brittany L**, Egge, J, and Fluker, BL. Genus-level phylogenomics resolve ambiguous relationships among madtom catfishes (Siluriformes: Ictaluridae: *Noturus*) *In-prep for Molecular Phylogenetics and Evolution*

Other publications

- McCall, Brittany L**. Book review: Fishes of Arkansas, 2nd Edition. *Ichthyology & Herpetology*, 110: 425-428. DOI: 10.1643/t2022011

Unpublished Reports

- Fluker, Brook L and **McCall, BL** (2021) Occupancy modeling, detection probability, and thermal tolerance of the Caddo Madtom. Arkansas Game and Fish Commission Section 6 Grant Program
- Fluker, Brook L and **McCall, BL** (2017) Status survey and population characteristics of the Paleback Darter (*Etheostoma pallididorsum*) and the Caddo Madtom (*Noturus taylori*). Arkansas Game and Fish Commissions

Funding (last 10 years)

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| \$7,500 | Internal grants at Augustana College; 2024 - present |
| \$27,669 | Scott County Regional Authority (SCRA) Watershed Fish Community Biodiversity Partnership; 2024 |
| \$83,000 | Augustana College Diversity Fellowship; 2022 |
| \$93,547 | United States Fish Wildlife Services Section 6 Research Grant; 2021
<i>Though I was not the PI, this was a grant that I wrote and was supported by my PI, Dr. Brook Fluker.</i> |
| \$20,000 | Southern Regional Education Board (SREB) Doctoral Fellowship; 2020 |
| \$30,000 | Upper Delta Region Biodiversity Scholarship (renamed SUPERB); 2017 |
| \$16,000 | Arkansas Game and Fish Commission Conservation Scholarship; 2016 |

Invited Talks and Presentations

Invited symposiums

- Joint Meeting of Ichthyologists and Herpetologists: DEI Symposium Spokane, WA, July 2022
- McCall, Brittany L**. Code-switching: countering identity-based discrimination in fieldwork.

Conference oral presentation (last 5 years)

- Southeastern Fishes Council Athens, GA, November 2022

McCall, Brittany L, Sweat, S, and Fluker, BL. The potential use of madtom catfishes as conservation tools for southeastern U.S. headwater streams.
Hale, Clayton W, **McCall, BL**. Utilizing genetically informed habitat suitability models to delineate hybridization zones between Chattahoochee and Alabama bass.
Southeastern Fishes Council Columbus, GA, November 2021
McCall, Brittany L, Egge, J., and Fluker, BL. An evolutionary analysis of lineage diversification among madtom catfishes (Siluriformes: Ictaluridae: *Noturus*).
McCall, Brittany L and Fluker, BL. Occupancy of the Caddo Madtom (*Noturus taylori*): the good, the bad, and the unknown.
Hale, Clayton W., and **McCall, BL**. Modeling habitat suitability for the globally imperiled Etowah Darter (*Etheostoma etowahae*).
Southern Division of the American Fisheries Society Virtual Conference, April 2021
McCall, Brittany L, Sweat, S., and Fluker, BL. The effect of climate change on southeastern U.S. headwater systems.

Conference poster presentations (last 5 years)

Southeastern Fishes Council; MRRC | Chattanooga, TN, November 2023; La Crosse, WI, April 2024
Barcus, Alia, **McCall, BL**. Potential Ecological Impacts of Microplastic Assimilation in Fishes
Southeastern Fishes Council; MRRC | Chattanooga, TN, November 2023; La Crosse, WI, April 2024
Fukuoka, Naoto, **McCall, BL**. Dynamics of Microplastic Contamination in the Sediment of Streams in Scott County, Iowa
Southeastern Fishes Council Chattanooga, TN, November 2023
Horve, Zack, **McCall, BL**, and Reisner, M. Investigating the relationship between riparian structural diversity and in-stream biological diversity in the Duck Creek watershed
Southeastern Fishes Council Chattanooga, TN, November 2023
Regn, Orithea Z, Wood, KA, **McCall, BL**, and Fluker, BL. Seasonal differences in thermal tolerance of the Black River madtom (*Noturus maydeni*)
Joint Meeting of Ichthyologist and Herpetologist Spokane, WA, July 2022
McCall, Brittany L, Egge, J, and Fluker, BL. An evolutionary analysis of lineage diversification among madtom catfishes (Siluriformes: Ictaluridae: *Noturus*).
Joint Meeting of Ichthyologist and Herpetologist Norfolk, VA, July 2020
Field, Emily, **McCall, BL**, and Neuman-Lee, LA. Detection of snake fungal disease in Arkansas before 2006 using historical museum specimens.
Joint Meeting of Ichthyologist and Herpetologist Norfolk, VA, July 2020
McCall, Brittany L, Wijerante, A, Egge, J, and Fluker, BL. We are all mad here: an evolutionary analysis of lineage diversification among madtom catfishes (Ictaluridae: *Noturus*).
Catfish Symposium Little Rock, AR, February 2020
McCall, Brittany L and Fluker, BL. Applications of hydrologic-climatic, genetically informed species distribution modeling for headwater conservation.

Invited speaker

Glenview Middle School, East Moline, IL; June 2024
I was invited to host a summer workshop event where we met at a local stream to learn about fisheries techniques and local biodiversity.
Blytheville Elementary School, Blytheville, AR; March 2018
I was invited to discuss my career and research experience to teach about different career options as a biologist.
Arkansas Tech University, Russellville, AR; March 2018
I was invited to present my research for ATU's Biology Seminar Series.

Awards and Honors

Arkansas State University Outstanding Graduate Student in Environmental Sciences: 2023
Southeastern Fishes Council Dave Etnier Best Student Oral Presentation, Awarded 3rd place: 2022
American Fisheries Society Best Graduate Student Poster: 2017
Southeastern Fishes Council Suttikus Best Poster Award, Awarded 3rd place: 2017; 2016; 2013
Southeastern Fishes Council Boschung Travel Award: 2022; 2021; 2019; 2017

Teaching Experience and Mentorship

Courses at Augustana College

Augustana College, Rock Island, IL

BIOL 130 – Molecules to Cells: 4 credits, 30 students

Fall 2024; Spring 2025

BIOL 375 – Molecular Genetics Senior Inquiry: 4 credits, 18 students

BIOL 250 – Genetics: 4 credits, 27 students

ENVR 150 – Variation and Conservation: 4 credits, 20 students

January term 2023

ENVR 100 – Introduction to Environmental Studies and lab: 4 credits, 30 students

Guest lecturer

Arkansas State University, Jonesboro, AR, August 2020

Lecture topic: “Mapping and spatial models in R”

Mentored students

Alia Barcus; 2024

Alia is a sophomore at Augustana College and sought research experience to expand her CV for graduate school. We are collaborating on a project assessing microplastics in local watersheds to better understand the input, transport, and assimilation of microplastics among aquatic organisms in developed watersheds. Alia’s research will be presented at regional conferences during the 2024-2025 conference circuit.

Naoto Fukuoka; 2024

Naoto is a sophomore at Augustana College and sought research experience to expand her CV for graduate school. We are collaborating on a project assessing microplastics in local watersheds to better understand the input, transport, and assimilation of microplastics among aquatic organisms in developed watersheds. Naoto’s research will be presented at regional conferences during the 2024-2025 conference circuit.

Fynn Greene; 2023

Fynn is a sophomore at Augustana College and sought research experience to explore opportunities beyond the classroom. We collaborated on a project assessing aquatic parasite community structure and the utility of parasites as bioindicators of stream integrity for urban watersheds. Fynn’s research was presented at regional conferences during the 2023-2024 conference circuit.

Zack Horve; 2023

Zack was a senior at Augustana College and sought research experience for graduate school. We collaborated on a project assessing the riparian zone structure in urban watersheds and its association and influence of urban aquatic biodiversity to inform city management plans. Zack’s research was presented at regional conferences during the 2023-2024 conference circuit, and we are actively working on developing the manuscript for publication.

Kylee Wood; 2021 – 2022

Kylee was an undergraduate student at Arkansas State University and sought research

experience for veterinary school. We collaborated on a thermal tolerance experiment assessing the thermal range of several madtom catfishes that are species of greatest conservation need for Arkansas to inform conservation management decisions for these imperiled species. Kylee’s research was presented at regional conferences during the 2023-2024 conference circuit and her contribution to the project is included in the developing manuscript for the project

Services

Professional associations

American Society of Ichthyologists and Herpetologists	2015 – present
Southeastern Fishes Council	2013 – present
DEI Committee	2021 – present
American Fisheries Society	2012 – present

Community outreach

- Interview with community experts – Glenwood Middle School, East Moline, IL; 2023
- Girls in STEM Activity Leader – University of Central Arkansas, Conway, AR; 2020
- Career Day – Brookland Middle School; Brookland, AR; 2019
- Career Preview Night – Health, Wellness, & Environmental Studies JPS Magnet School; Jonesboro, AR; 2019
- NEA Regional Science Fair Judge – Northeast Arkansas high schools; 2018; 2019