

# Brittany Latrice McCall, PhD

Diversity Fellow, Environmental Studies  
Augustana College, Department of Environmental Studies  
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## Education

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- Doctor of Philosophy, Environmental Sciences August 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

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Freshwater aquatic ecology; Population genomics; Phylogeography; Conservation

## Publications

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- 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 pallidorsum* 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 pallidorsum*), 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/jcbiol/ruy100

***Manuscripts in review (available upon request)***

**McCall, Brittany L.**, Sweat, S, and Fluker, BL. Hydrologic-climatic MaxEnt models predict range retractions for headwater specialists and range expansions for headwater generalist freshwater communities. *Ecology of Freshwater Fishes*

***Manuscripts in development (available upon request)***

**McCall, Brittany L.**, Cooper, R, and Fluker, BL. Critical thermal maxima of two Interior Highland endemic catfishes, the Caddo Madtom (*Noturus taylori*) and the Black River Madtom (*Noturus maydeni*)

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

***Other publications***

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

**Unpublished Reports**

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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**

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*Total = \$242,547*

\$83,000 Augustana College Diversity Fellowship; 2022

\$93,547 United States Fish Wildlife Services Section 6 Research Grant; 2021  
*Though I am not the PI, this was a grant that I wrote and was supported by my PI, Dr. Brook Fluker.*

\$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

***Attempted funding sources***

Arkansas State Wildlife Grant, 2019

National American Native Fishes Association Grant, 2016

National Science Foundation Graduate Fellowship, 2015

**Invited Talks and Presentations**

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***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.  
 Arkansas Chapter of the American Fisheries Society Pine Bluff, AR, January 2018  
**McCall, Brittany L** and Fluker, BL. Status survey and conservation genetic assessment of the Paleback Darter (*Etheostoma pallididorsum*).

***Conference poster presentations (last 5 years)***

Southeastern Fishes Council Chattanooga, TN, November 2023  
 Greene, Fynn, **McCall, BL**, and Reisner, M. Parasite communities in freshwater aquatic ecosystems as possible bioindicators for urban streams.  
 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  
 Reagan, Briana **McCall, BL**, and Reisner, M. Analysis of microplastics in freshwater urban watersheds  
 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.  
 Southeastern Fishes Council McCormick, SC, November 2018  
 Canada, Hilary K, **McCall, BL**, and Fluker, BL. Phylogeographic analyses suggest cryptic diversity within the Bluntnose Darter, *Etheostoma chlorosoma*.

International Association of Astacology  
Bloom, Erin T, **McCall, BL**, Schuster, G, and Blanton, R. A new species of *Faxonius* crayfish from the Red River system of Kentucky and Tennessee.

Pittsburgh, PA, July 2018

### ***Invited speaker***

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**

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Southeastern Fishes Council Dave Etnier Best Student Oral Presentation, Awarded 3<sup>rd</sup> place: 2022

American Fisheries Society Best Graduate Student Poster: 2017

Southeastern Fishes Council Suttkus Best Poster Award, Awarded 3<sup>rd</sup> place: 2017; 2016; 2013

Southeastern Fishes Council Boschung Travel Award: 2022; 2021; 2019; 2017

### **Teaching Experience and Mentorship**

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#### ***Courses at Augustana College***

Augustana College, Rock Island, IL

BIOL 375 – Molecular Genetics SI: 4 credits, 10 students

January term 2024

BIOL 250 – Genetics: 4 credits, 27 students

Fall 2023

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

January term 2023

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

Spring 2022, 2023, 2024

#### ***Guest lecturer***

Arkansas State University, Jonesboro, AR, August 2020

Lecture topic: "Mapping and spatial models in R"

#### ***Courses as a teaching assistant at Arkansas State University***

Arkansas State University, Jonesboro, AR

BIO 4641 - Environmental Biology Laboratory: 1 credit, 15 students

Fall 2019

BIO 1001 - Biological Science Laboratory: 1 credit, 30 students

Spring 2021; Fall 2020; Fall 2015

BIO 4601/5601 - Limnology Laboratory: 1 credit, 15 students

Fall 2015

#### ***Mentored students***

Fynn Greene; 2023

Fynn is a sophomore at Augustana College that sought research experience to explore opportunities beyond the classroom. We are collaborating on a project assessing

aquatic parasite community structure and the utility of parasites as bioindicators of stream integrity for urban watersheds. Fynn’s research will be presented at regional conferences during the 2023-2024 conference circuit.

Zack Horve; 2023

Zack is a senior at Augustana College that sought research experience for graduate school. We are collaborating on a project assessing aquatic biodiversity and riparian zone structure of local urban streams to inform city management plans. Zack’s research will be presented at regional conferences during the 2023-2024 conference circuit.

Briana (Bri) Reagan; 2023

Bri is a junior at Augustana College that sought research experience to explore opportunities to bridge her interest of environmental studies and human dimensions. We are collaborating on a project assessing microplastic abundance in the water column, riverbed, and in the body of the top predator of urban headwater streams. Bri’s research will be presented at regional conferences during the 2023-2024 conference circuit.

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 will be presented at regional conferences during the 2023-2024 conference circuit. Kylee has been accepted to Lincoln Memorial University’s veterinary medicine school in 2023.

## **Services**

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### ***University/Department associations***

Biological Sciences DEI Committee Graduate Student Representative	2018 – 2021
Biology Department Graduate Student Representative	2016 – 2018
Graduate Student Council Member	2016 – 2021

### ***Professional associations***

American Association for the Advancement of Science	2019 – 2022
Arkansas Academy of Science	2017 – 2021
American Society of Ichthyologists and Herpetologists	2015 – present
Southeastern Fishes Council	2013 – present
DEI Committee	2021 – present
American Fisheries Society	2012 – present

### ***Community outreach***

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
Girls in STEM Summer Program Activity Leader – Arkansas State University, Jonesboro, AR; 2018

Natural history exhibition of fishes – STEM Festival; Jonesboro, AR; 2015; 2016