

# Alexis V. Culley

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## EDUCATION

**Austin Peay State University**, Clarksville, TN (*expected graduation December 2023*)

- Degree: Masters of Science in Biology
- GPA: 3.7/4.0
- Relevant Coursework: Methods of Biology Research, Ichthyology, Topics in Biology, Seminar in Biology, Algal Ecology, Advanced Data Analytics, Contemporary Issues in Biology, Landscape Genetics

**Sweet Briar College**, Sweet Briar, VA (*May 2020*)

- Major: Environmental Science (B.S.)
- Minors: Biology
- Overall GPA: 3.3/4.0, Major GPA: 3.9/4.0
- Relevant Coursework: General Chemistry, Intro to Environmental Issues, Organic Chemistry I, Freshwater Systems, Applied Statistics, Intro to Organisms, Organic Chemistry II, Topics in Environmental Studies, Science Outreach, Field of Natural History, Quantitative and Analytical Chemistry, Environmental Policy Analysis, Conservation Biology

**Smithsonian-Mason School of Conservation**, Front Royal, VA (*Fall Semester 2019*)

- Program: Wildlife Ecology and Conservation
- Overall GPA: 3.3/4.0
- Relevant Coursework: Conservation Seminar, Monitoring and Assessment of Biodiversity, Landscape and Macrosystems Ecology, Research in Conservation

## RESEARCH EXPERIENCE

**Austin Peay State University**, Clarksville, TN

*Master's Thesis, Advisor Dr. Rebecca Blanton Johansen, August 2020 - Current*

- Conservation genetics of the Kentucky Arrow Darter
- Genetic monitoring used to compare current diversity metrics with past diversity metrics
- Landscape modeling applied to evaluate anthropogenic-induced environmental changes on genetic diversity

**University of South Dakota**, Vermillion, SD

*NSF REU, Sustainable RIVER, Advisor Dr. Jeff Wesner, May 2019-Current*

- Collected fish samples using seine net
- Conducted gut sampling procedures via gastric lavage on Missouri River fishes

- Analyzed gut samples in the lab to evaluate relationship between fish size and stage-structured diets of Missouri River fishes
- Identified aquatic macroinvertebrates and their life-stages
- Assisted in a mesocosm experiment with freshwater fishes
- Used R to analyze fish diets of Missouri River fishes

**Sweet Briar College, Sweet Briar, VA**

***Summer Honors Program, Advisor Dr. Sarah Cadieux, May 2018-July 2018***

- Designed experiment to monitor the invasive plant *Hydrilla* from Sweet Briar College's Lower lake
- Monitored the addition of 45 Grass Carp as a biomanagement tool for *Hydrilla* removal
- Collected water samples from lake using the Van Dorn water sampler
- Examined water samples using spectrophotometer to obtain total nitrogen and phosphorus levels in the lake
- Used Lowrance Fish Finder to create bathymetric map displaying vegetation biomass in the lake
- Recorded *Hydrilla* abundance using GPS location

**PROFESSIONAL EXPERIENCE**

**Austin Peay State University GIS Center, Clarksville, TN**

***Wetlands Scientist, July 2023 – Current***

- Perform wetland delineations
- Survey plant communities
- Sample soil for hydrological indicators
- Use Survey123 and FieldMaps to organize data
- Trained students in surveying methods

**Austin Peay State University Biology Department, Clarksville, TN**

***Research Assistant, August 2020 – Current***

- Extracted DNA from crayfish and fish
- Genotyped over four hundred individuals
- Assisted in aquatic workshops for undergraduates
- Trained students in genotyping methods

***Biology Teaching Assistant, Fall 2020***

- Assisted with Biology 1120/1121
- Helped set up labs
- Met with students
- Lead lectures
- Graded assignments

**Sweet Briar College, Sweet Briar, VA**

***Environmental Science Peer Mentor, August 2018 - May 2019***

- Assisted students with completing homework and preparing for exams

***Chemistry Teaching Assistant, August 2017 – December 2017***

- Organized chemical stockroom and inventory
- Managed equipment in laboratory
- Assisted students with assignments and lab procedure
- Graded lab reports and pre-lab assignments for professor
- Prepared chemicals for organic and inorganic chemistry laboratories

***Explore Environmental Science Weekends, 2017-2018***

- Assisted in environmental science activities for high school girls

**Powhatan State Park, Virginia State Parks, Powhatan, VA**

***Americorps Park Interpreter, May 2017 - September 2017***

- Volunteered over 450 hours
- Learned interpretation techniques for Virginia's natural resources and history
- Practiced proper environmental stewardship ethics
- Connected park guests with local culture, history, and environmental resources
- Performed outreach programs to recruit more park volunteers
- Organized and participated in park clean up days
- Furthered personal education of the natural world

**RELEVANT SKILLS**

- ArcMap/GIS
- Extensive use of Microsoft Excel, PowerPoint, and Word
- Extracted DNA from tissues
- Performed PCR
- Prepared PCR product for sequencing
- Scored microsatellite sequencing data
- Performed population genetic analyses
- Developed rasters for landscape modeling
- Performed modeling between landscape variables and genetic data
- Extensive use of R for data organizing and analysis
- Seine and backpack shocked for fish surveys
- Participated in a long-term salamander survey project
- Practiced multiple forestry surveys on pine plantation plots
- Studied bat bioacoustics to survey local bat population
- Used trap cameras to examine deer population size
- Developed conservation management plan for the endangered bog turtle
- Used radio telemetry to locate box turtles
- Participated in endangered wood turtle surveys

- Used eDNA to confirm bull frog presence in lake
- Aided in CWD testing of local white-tailed deer

## **FIELD EXPERIENCE**

- Identify and remove invasive species
- Participated in a long-term salamander survey project
- Practiced multiple forestry surveys on pine plantation plots
- Studied bat bioacoustics to survey local bat population
- Used trap cameras to examine deer population size
- Developed conservation management plan for the endangered bog turtle
- Used radio telemetry to locate box turtles
- Participated in endangered wood turtle surveys
- Used eDNA to confirm bull frog presence in lake
- Aided in CWD testing of local white-tailed deer
- Performed algal sampling to evaluate algal community of lentic environments
- Sampled for the imperiled *Etheostoma spilotum* for genetics research
- Collected *Chrosomus erythrogaster* for coloration analyses
- Sampled for *Semotilus atromaculatus* for use in behavior study
- Participated in western Kentucky fishes sampling with Kentucky Department of Wildlife Resources
- Sampled for *Etheostoma duryi*, *E. flavum*, and *E. occidentale* for use in phylogenetics study

## **PUBLICATIONS**

Lebkuecher, J., **Alexis Culley**, Brittney Georgic, Erin Hohman, Holly Latta, Nicole Salman, Taiwo Sennuga, Dakota Spruill, Anthony Zorney, Jenna Atma (2022). Physical and Algal Characteristics of Liberty Park Reservoir in Clarksville, Tennessee. *Phytoneuron* 2022-5: 1–8.

## **PRESENTATIONS**

**Culley, A. V.**, River A. Watson, Catherine Haase, Matthew R. Thomas, Stephanie L. Brandt, Michael A. Floyd, and Rebecca E. Blanton. Effects of anthropogenic landscape features on population connectivity of a small-bodied, benthic, headwater specialist fish, Austin Peay State University, Clarksville, TN. Oral Presentation. Joint Meeting of Ichthyologist and Herpetologists, Norfolk, Virginia, July 2023.

**Culley, A. V.**, River A. Watson, Matthew R. Thomas, Stephanie L. Brandt, Michael A. Floyd, and Rebecca E. Blanton. The Effects of Surface Mining on Population Connectivity and Genetic Diversity of *Etheostoma sagitta spilotum*, the Kentucky Arrow Darter, Austin Peay State University, Clarksville, TN. Oral Presentation. Southeastern Fisheries Council Meeting, Athens, Georgia, November 2022.

**Culley, A. V.**, River A. Watson, Matthew R. Thomas, Stephanie L. Brandt, Michael A. Floyd, and Rebecca E. Blanton. The Effects of Surface Mining on Population Connectivity and Genetic

Diversity of *Etheostoma sagitta spilotum*, the Kentucky Arrow Darter, Austin Peay State University, Clarksville, TN. Oral Presentation. Joint Meeting of Ichthyologists and Herpetologists, Spokane, Washington, July 2022.

**Culley, A. V.**, River A. Watson, Matthew R. Thomas, Stephanie L. Brandt, Michael A. Floyd, and Rebecca E. Blanton, The effects of surface mining on population connectivity and genetic diversity of *Etheostoma sagitta spilotum*, the Kentucky Arrow Darter, Austin Peay State University, Clarksville, TN. Poster Presentation. Southeastern Fisheries Council Meeting, Columbus, Georgia, November 2021.

**Culley, A. V.**, Kanz, A., Wesner, J. S. Relationship between body size and stage-structured predation in freshwater fishes. Poster Presentation. Undergraduate Research Symposium, Sioux Falls, South Dakota, August 2019.

**Culley, A. V.** and Cadieux, S.B. Controlled Monitoring of *Hydrilla* in Lower Lake, Sweet Briar College, Virginia. Poster Presentation. Geological Society of America, Indianapolis, Indiana, November 2018.

### **GRANTS**

Segal AmeriCorps Education Award | Americorps | Summer 2017 (\$1,600)

Virginia Foundation for Independent Colleges Fellowship | Summer 2018 (\$2,000)

Honors Summer Research Grant | Sweet Briar College | Summer 2018 (\$2,000)

Sustainable RIVER REU | National Science Foundation | Summer 2019 (\$5,500)

Research Award | SCION | Fall 2020 (\$1,000)

### **HONORS/AWARDS**

Biology Department's Outstanding Thesis-Track Graduate Student Award | Austin Peay State University | 2022

Dave Etnier Best Student Oral Presentation (2<sup>nd</sup>) | Southeastern Fisheries Council Meeting | 2022

Royal Suttikus Best Student Poster | Southeastern Fisheries Council Meeting | 2021

Juliet Halliburton Davis Environmental Science Undergraduate Award | Sweet Briar College | 2020

Betty Bean Black Scholarship | Sweet Briar College | 2016-2020

Presidential Scholarship | Sweet Briar College | 2016-2020

Summer Honors Research Program | Sweet Briar College | 2018

ODAC All-Academic Team | Sweet Briar College | 2018-2019