

JONATHAN WILLIAMS LOPEZ, PH.D.

Curriculum Vitae: updated October 2023

Department of Biological Sciences, University of Alabama, Tuscaloosa, AL, USA, 35401

Email: jwlopez@ua.edu, Phone: 980-297-8852, Website: <http://jonathanwlopez.weebly.com/>**EDUCATION**

- 2022 Ph.D. in Ecology and Evolutionary Biology, University of Oklahoma; Advisor: Dr. Caryn Vaughn
- 2015 B.S. in Biological Sciences with concentration in Ecology, Evolution, and Conservation Biology, North Carolina State University

APPOINTMENTS

- 2023–Present National Science Foundation Postdoctoral Fellow, University of Alabama, Tuscaloosa, AL, USA. Research project: NSF PRFB – Impacts of animal aggregations on stream carbon cycles: Linking evolutionary history, species traits, and environmental context to predict ecosystem function.
- 2022–2023 Postdoctoral Research Associate, Department of Biological Sciences, University of Alabama, Tuscaloosa, AL, USA. Research project: NSF CAREER – Functional diversity and ecosystem function provisioning by a guild of macrofaunal consumers in riverine ecosystems.
- 2019–2022 Graduate Research Assistant, Department of Biology & Oklahoma Biological Survey, University of Oklahoma, Norman, OK, USA. Research project: Oklahoma Department of Wildlife Conservation Federal Aid Grant – Status Assessment for the Southern Hickorynut in Oklahoma.
- 2017–2022 Graduate Teaching Assistant, Department of Biology & Oklahoma Biological Survey, University of Oklahoma, Norman, OK, USA. Dissertation: Subsidy intermediaries: The role of aquatic plants in storing and transferring resources from aquatic biogeochemical hotspots to terrestrial ecosystems.
- 2016 Field Technician, Department of Applied Ecology, North Carolina State University, Ft. Bragg, NC, USA. Research project: Habitat restoration and captive breeding for the endangered St. Francis Satyr butterfly.
- 2016 Lab Technician, Department of Applied Ecology, North Carolina State University, Raleigh, NC, USA. Research project: Classification and databasing of bee specimens collected at the Rocky Mountain Biological Laboratory.
- 2015–2016 Aquatic Invertebrate Technician, North Carolina Museum of Natural Sciences, Raleigh, NC, USA. Research project: Curation of freshwater and marine mollusk specimens.

STUDENTS MENTORED

- Matthew Lodato (PhD Student), University of Alabama. Dissertation: Cross-scale drivers of the reciprocal impacts among freshwater mussels, hydrology, and the floodplain on river biogeochemistry.
- Lauren Morris (PhD Student), University of Alabama. Dissertation: Untitled as of August 2023.
- Taylor Kelley (MS Student), University of Alabama. Research project: Observing the interactions between freshwater clams and native juvenile mussels.
- Tayton Alvis (National Science Foundation Research Experiences for Undergraduates), University of Alabama. Research project: NSF REU – Comparison of biofiltration by a native freshwater mussel species (*Lampsilis fasciola*) and an invasive bivalve (*Corbicula fluminea*).
- Ian Brunetz (Undergraduate Research Assistant), University of Alabama. Research project: What is the

effect of flow on freshwater mussel growth rates across multiple river basins?
 Parsa Lessani (Undergraduate Research Volunteer), University of Oklahoma.
 Courtney Cole (Undergraduate Research Volunteer), University of Oklahoma.

PUBLICATIONS

Peer-reviewed publications

1. **Lopez, JW**, RN Harnett, TB Parr, & CC Vaughn. (2023) Ecosystem bioelement variability is associated with freshwater animal aggregations at the aquatic-terrestrial interface. *Oecologia*. <https://link.springer.com/article/10.1007/s00442-023-05437-3>
2. Atkinson, CL, GW Hopper, DA Kreeger, **JW Lopez**, AN Maine, A Schwalb, CC Vaughn. (2023) Gains and gaps in knowledge surrounding freshwater mollusk ecosystem services. *Freshwater Mollusk Conservation Biology*, 26(1), 20-31. https://molluskconservation.org/PUBLICATIONS/FMBC/FMBC_Vol26/26-1-articles/frmc-26-01-20.pdf.
3. **Lopez, JW**, & CC Vaughn. (2023) Herbivore damage and riparian shade constrain biomass distribution in American water willow (*Justicia americana*). *Aquatic Botany*, 186, 103617. <https://doi.org/10.1016/j.aquabot.2023.103617>.
4. **Lopez, JW**, DC Allen, CC Vaughn. (2022) White-tailed deer consumption of emergent macrophytes mediates aquatic-to-terrestrial nutrient flows. *Ecology and Evolution*. 12(9), e9257. <https://doi.org/10.1002/ece3.9257>.
5. **Lopez, JW**, TP DuBose, CC Vaughn, AJ Franzen, CL Atkinson. (2022). Long-term monitoring shows that drought-sensitivity and riparian land use change coincide with freshwater mussel declines. *Aquatic Conservation: Marine and Freshwater Ecosystems*. 32(10), 1571-1583. <https://doi.org/10.1002/aqc.3884>.
6. **Lopez, JW**, & CC Vaughn. (2021) A review and evaluation of the effects of hydrodynamic variables on freshwater mussel communities. *Freshwater Biology*, 66, 1665-1679. <https://doi.org/10.1111/fwb.13784>.
7. **Lopez, JW**, TB Parr, DC Allen, & CC Vaughn. (2020). Animal aggregations promote emergent aquatic plant production at the aquatic-terrestrial interface. *Ecology*, 101(10), 1–8. <https://doi.org/10.1002/ecy.3126>.

In preparation

Lopez, JW, CL Atkinson, AK Burrow, GW Hopper, WR Haag. Secondary production and biomass increase with species richness and drainage area. *In preparation*.

Technical reports

1. Vaughn, CC, **JW Lopez**, TP DuBose, AJ Franzen. (2022). Status assessment for the Southern Hickorynut in Oklahoma (Report No. T-111). Oklahoma Department of Wildlife Conservation.
2. Cayton, H, V Amaral, E Brammer-Robbins, E Henry, E Kiekebush, **J Lopez**, N Haddad. (2016). Research for the Conservation and restoration of an endangered butterfly, the St. Francis' Satyr (Report No. 10839861). DoD, Department of the Army, DPW-ESP (Endangered Species Branch).

GRANTS AND AWARDS

Grants awarded

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| 2023 | National Science Foundation, Postdoctoral Research Fellowships in Biology. Impacts of animal aggregations on stream carbon cycles: Linking evolutionary history, species traits, and environmental context to predict ecosystem function. PI: JW Lopez . (\$240,000), Sponsoring scientist: CL Atkinson. |
| 2023 | Freshwater Mollusk Conservation Society, Early Career Travel Award. (\$465) |

- 2022 Robberson Travel Grant, University of Oklahoma, Graduate College (\$750)
 2022 Board of Directors Travel Award, Society for Freshwater Science (\$500)
 2019 Robberson & Wethington Scholarship, University of Oklahoma, Graduate College \$1,250
 2019 General Endowment Award, Society for Freshwater Science (\$1,000)
 2019 Oklahoma Department of Wildlife Conservation, State Wildlife Grant. *Status assessment for the Southern Hickorynut in Oklahoma*. PI: CC Vaughn, Co-PIs: TP DuBose, **JW Lopez**. (\$101,692.99)
 2019 Sigma Xi Grants-in-Aid of Research (\$954)
 2018–2022 OU Graduate Student Senate Travel Grant (5 awards—\$3,138.40 total)
 2018–2021 OU Graduate Student Senate Research Grant (7 awards—\$4,537.50 total)
 2018–2021 Hill Fund, University of Oklahoma, Biology Department (4 awards—\$1,900 total)
 2018–2019 Adams Scholarship, University of Oklahoma, Biology Department (2 awards—\$2,500 total)
 2018 PRS® Probe Research Award, Western Ag Innovations (\$1,200)

Grants not awarded

- Conservation for climate: Carbon-conscious management of the North American beaver. Funding source: Smith Conservation Fellowship Program (declined 2022)
 Spatial zoogeochemistry: Integrating organismal behavior with ecosystem biogeochemistry and environmental gradients to predict animal impacts on the carbon cycle. Funding source: National Science Foundation Postdoctoral Research Fellowships in Biology (declined 2022)
 Ecological intermediaries: the role of aquatic plants in storing and transferring aquatic-derived resources to terrestrial ecosystems. Funding source: National Academies Ford Foundation Fellowships (declined 2020)
 The ecological role of *Justicia americana*: Impacts of a native aquatic plant on wildlife and game species. Funding source: South Carolina Aquatic Plant Management Society Phillip M. Fields Scholarship (declined 2019).
 Freshwater mussels: Effects on water quality through biofiltration of bacterial pathogens. Funding source: Conchologists of America Grants to Malacology (declined 2019).
 Do freshwater biodiversity hotspots benefit their terrestrial neighbors? A field study of resource exchange in the Ouachita Highlands. Funding source: American Philosophical Society Lewis and Clark Fund for Exploration and Field Research (declined 2018)

Honors

- 2021 Best Student Lightning Presentation, Freshwater Mollusk Conservation Society
 2019 Alumnus, Cary Institute of Ecosystem Studies: Fundamentals of Ecosystem Ecology
 2019 NSF GRFP Honorable Mention
 2011 International Baccalaureate (IB) Diploma
 2009 Eagle Scout

PROFESSIONAL PRESENTATIONS

Invited seminars

- Animal impacts on stream ecosystems and the aquatic-terrestrial interface. Georgia Southern University. 2023 April 24.
 Mussel mania: Ecological research in rivers and streams. Stillman College. 2023 March 28.
 Subsidy intermediaries: The role of aquatic plants in storing and transferring resources from aquatic biogeochemical hotspots to terrestrial ecosystems. University of Oklahoma. 2022 February 28.

Contributed oral presentations as presenting author

1. **Lopez, JW**, CC Vaughn. High and low flows place hydrodynamic constraints on freshwater mussel communities. American Malacological Society. 2023 August 3.

2. **Lopez, JW**, CL Atkinson, AK Burrow, GW Hopper, WR Haag. Biodiversity and drainage area interact with freshwater mussel assemblage composition to drive secondary production. *Freshwater Science* 2023. 2023 June 5.
3. **Lopez, JW**, CL Atkinson, AK Burrow, GW Hopper, WR Haag. Freshwater mussel-generated secondary production is mediated by watershed position and life history strategies. *Freshwater Mollusk Conservation Society*. 2023 April 12.
4. **Lopez, JW**, CL Atkinson, AK Burrow, GW Hopper, WR Haag. Testing ecological predictions with quantitative freshwater mussel survey data. University of Alabama. 2023 March 22.
5. **Lopez, JW**, CC Vaughn, TB Parr, DC Allen, RN Hartnett. Are mussels mediators between macrophytes and mammals? Joint Aquatic Sciences Meeting. 2022 May 16.
6. **Lopez, JW**, CC Vaughn. Go with the flow: The physics of life in air and water. University of Oklahoma. 2021 October 27.
7. **Lopez, JW**, RN Hartnett, TB Parr, CC Vaughn. Mussels in their Element: Freshwater mussels associated with macro- and micronutrient availability. Society for Freshwater Science. 2021 May 23.
8. **Lopez, JW**, RN Hartnett, TB Parr, CC Vaughn. Mussels in their Element: Freshwater mussels associated with macro- and micronutrient availability. *Freshwater Mollusk Conservation Society*. 2021 April 12.
9. **Lopez, JW**, TB Parr, DC Allen, CC Vaughn. The Ecological Role of Water Willow: Impacts on wildlife and game species. South Carolina Aquatic Plant Management Society. 2019 October 2.
10. **Lopez, JW**, TB Parr, DC Allen, CC Vaughn. Density-dependent effects of freshwater mussels on growth of emergent macrophytes. Society for Freshwater Science. 2019 May 19.
11. **Lopez, JW**, TB Parr, DC Allen, CC Vaughn. Density-dependent effects of freshwater mussels on emergent aquatic plants. *Freshwater Mollusk Conservation Society Biennial Symposium*. 2019 April 14.
12. **Lopez, JW**, TB Parr, DC Allen, CC Vaughn. Density-dependent effects of freshwater mussels on emergent aquatic plants. University of Oklahoma. 2019 April 10.

Co-authored oral presentations

1. Atkinson, CL, AK Burrow, GW Hopper, **JW Lopez**, WR Haag. Secondary production and nutrient flows as mediated by freshwater mussel communities over time. *Freshwater Mollusk Conservation Society Biennial Symposium*. 2023 April 12.

Contributed poster presentations as presenting author

1. **Lopez, JW**, TB Parr, CC Vaughn. From the benthic to the riparian: Effects of unionoid mussel-derived nutrients on vascular plants at the aquatic-terrestrial interface. 2018 May 22.

Co-authored poster presentations

1. *Brunetz, I, **JW Lopez**, GW Hopper, I Sánchez González, CL Atkinson. Growth rate in freshwater mussel species (*Cyclonaias tuberculata*) increases in a larger river. University of Alabama Undergraduate Research and Creative Activities Conference. 30 March 2023.

* = Student mentee presentation

SERVICE

Institutional leadership

University service

2020–2022 President, Biology Graduate Student Association, University of Oklahoma

2019–2020 Secretary, Biology Graduate Student Association, University of Oklahoma

Scientific society service

- 2023–present Chair, Field Studies and Ecosystem Services Committee, Freshwater Mollusk Conservation Society
- 2023–present Workshop Planning Committee, Freshwater Mollusk Conservation Society
- 2022–present Co-chair, Headwaters Leadership Academy, Society for Freshwater Science
- 2023 Session Moderator, American Malacological Society Annual Meeting
- 2023 Meeting Planning Committee, American Malacological Society
- 2022–2023 Board of Directors, Society for Freshwater Science
- 2021–2022 Chair, Student Resources Committee, Society for Freshwater Science
- 2020–2021 Chair, Merchandise Subcommittee, Society for Freshwater Science
- 2019–2020 Chair, Student Workshop Subcommittee, Society for Freshwater Science
- 2018–2019 Live Auction Subcommittee, Society for Freshwater Science

Diversity, equity, and inclusivity

Reviewer, NSF Emerge Program in Partnership with the Society for Freshwater Science
Diversity, Equity, and Inclusivity Reading Group, University of Alabama

Ad hoc reviewer

Botany, Ecology and Evolution, Ecosphere, Freshwater Mollusk Biology and Conservation, Freshwater Science, Functional Ecology, Hydrobiologia, Journal of Animal Ecology, Science of the Total Environment

OUTREACH

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- 2023 Alabama Museum of Natural History, Tuscaloosa, AL, USA.
Junior Naturalist Program. *Freshwater Mussel Biodiversity and Biology*.
Junior Naturalist Program. *Pollinators*.
- 2022–2023 Annual Homecoming Parade, University of Alabama. *Freshwater Mussels of Alabama*.
- 2017–2022 BioReach graduate student-led STEM outreach, University of Oklahoma
Community After School Program, Norman Public Schools, Norman, OK. *The Hungry Games*.
Community After School Program, Norman Public Schools, Norman, OK. *The Adaptation Relay.z*
- 2017–2020 Hands on Brain neurobiology outreach, University of Oklahoma
ScienceFest Oklahoma, Oklahoma City, OK, USA
Shawnee Middle School, Shawnee, OK, USA

TEACHING**Instructor**University of Alabama

2023 BSC 695: Biological Sciences Professional Development

University of Oklahoma

2019–2022 BIOL 3101: Principles of Physiology (7 semesters)

2018 BIOL 4073: Entomology

2018 BIOL 1134: Ecology, Evolution and Diversity

2017–2018 BIOL 1121: Introductory Zoology (2 semesters)

Invited lectures

2023 NSF Postdoctoral Research Fellowships in Biology. BIOS 67672: Navigating the NSF. University of Notre Dame.

2021 Energy and chemical flows from streams to terrestrial ecosystems. BIOL 4423: Stream Ecology, University of Oklahoma.

PROFESSIONAL AFFILIATIONS

Alabama Water Institute (AWI)

Ecological Society of America (ESA)

ESA Southeast Chapter

Freshwater Mollusk Conservation Society (FMCS)

Society for Freshwater Science (SFS)

SFS Southeast Chapter

REFERENCES

1. **Dr. Caryn Vaughn**, George Lynn Cross Research Professor and Presidential Professor of Biology, University of Oklahoma, Relationship: Doctoral Advisor, Email: cvaughn@ou.edu
2. **Dr. Carla Atkinson**, Associate Professor of Biological Sciences, University of Alabama, Relationship: Postdoctoral Advisor, Email: carla.l.atkinson@ua.edu
3. **Dr. Allison Roy**, Unit Leader and Research Associate Professor of Environmental Conservation, US Geological Survey Massachusetts Cooperative Fish and Wildlife Research Unit, University of Massachusetts, Relationship: Former SFS Vice President, Email: aroy@eco.umass.edu