

Sean M. Keogh

National Museum of Natural History
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Education

- 2023 **Ph.D.**, University of Minnesota
Ecology, Evolution, and Behavior
Dissertation: Natural selection & phenotypic plasticity shape freshwater mussel ecomorphological evolution
- 2018 **M.S.**, University of Minnesota
Conservation Sciences
Thesis: Integrative species delimitation of *Lampsilis teres* species complex (Bivalvia: Unionidae)
- 2014 **B.S.**, University of Minnesota
Fisheries, Wildlife, and Conservation Biology
Undergrad research: Population dynamics of imperiled freshwater mussels & their host fishes

Professional Experience

- 2025-Present Peter Buck Postdoctoral Fellow
Smithsonian Institution – National Museum of Natural History
- 2023-Present Museum Associate
Bell Museum of Natural History – University of Minnesota
- 2025-Present Collection Associate
Field Museum of Natural History
- 2023-2025 Collections Manager of Invertebrate Zoology
Field Museum of Natural History

Fellowships & Grants

Research Fellowships

- 2025 National Museum of Natural History – Peter Buck Fellowship. \$144,000
- 2022 Bell Museum of Natural History – Simons Fellowship in Systematic Biology. \$21,637
- 2021 National Museum of Natural History – Smithsonian Institution Predoctoral Fellowship. \$40,000
- 2020 UMN – Interdisciplinary Doctoral Fellowship. \$25,000
- 2020 UMN – Ecology, Evolution, and Behavior Summer Fellowship. \$6,461
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- 2019 Bell Museum of Natural History – Dayton Fellowship. \$25,000
- 2017 UMN – Moos Graduate Research Fellowship in Aquatic Biology. \$7,340
- 2016 Bell Museum of Natural History – Joyce Davenport Fellowship. \$5,917
- 2015 UMN – John Dobie Fellowship. \$16,218

Research Grants

- 2025 FMNH – Grainger Bioinformatics Center Research Award. \$8,500
- 2023 Linnean Society of London – LinnéSys: Systematics Research Fund. \$1,255
- 2021 National Museum of Natural History – Smithsonian Institution Predoc Research Grant. \$4,000
- 2021 Bell Museum of Natural History – Dayton Grant. \$2,000
- 2021 Society of Integrative & Comparative Biology – Grants-In-Aid of Research. \$1,000
- 2021 UMN – Ecology, Evolution, and Behavior Summer Award. \$1,500

- 2020 UMN – Ecology, Evolution, and Behavior Summer Award. \$1,500
 2020 UMN – Florence Rothman Research Grant. \$2,000
 2020 The Society for Systematic Biologists Graduate Research Award. \$2,000
 2020 Bell Museum of Natural History – Davenport Grant. \$2,500
 2019 Bell Museum of Natural History – Davenport Grant. \$2,500
 2019 UMN – Ecology, Evolution, and Behavior Summer Award. \$1,500
 2018 Minnesota Department of Natural Resources Research Contract 146124/3000139381. \$2,505
 2018 American Malacological Society – Melbourne R. Carriker Student Award. \$1,000
 2018 Conchologists of America Academic Grant. \$2,300
 2017 UMN – Wally Dayton Wildlife Fund. \$2,500
 2017 UMN – Moos Graduate Research Grant. \$2,000
 2016 Bell Museum of Natural History Dayton Grant. \$1,500
 2013 UMN – Undergraduate Research Opportunities Program Grant. \$1,700

Travel Grants

- 2024 FMNH – Negaunee Field Work Fund. \$5,000
 2022 UMN – Ecology, Evolution, and Behavior Travel Award. \$900
 2019 UMN – Ecology, Evolution, and Behavior Travel Award. \$900
 2018 UMN – Conservation Sciences Travel Grant. \$350
 2017 UMN – Conservation Sciences Travel Grant. \$350

Manuscripts in review or revision

*Undergraduate student, ^High school student

Keogh, S., *Chmielewski, E., Minerich, B., & Stapleton, S. Mesocosm experiments identify (some) ecological drivers of shell plasticity in a cohort of sibling freshwater mussels. *Submitted.*

Keogh, S., *Celli, S., & ^Ramos, A. Ecological interactions between imperiled molluscs: Spawning of *Somatogyrus* pebblesnails on freshwater mussels. *In review.*

*Mentored undergraduate student, ^Mentored high school student

Lopez, J., Hopper, G., Sánchez González, I., **Keogh, S.**, Bucholz, J., Lozier, J., & Atkinson, C. Leveraging the elementome and biogeochemical niche to test stoichiometric hypotheses in freshwater bivalve assemblages. *In review.*

Franzen, A., Sansom, B., Pfeiffer, J., Goetz, F., **Keogh, S.**, & Vaughn, C. Testing Ortmann’s Law of Stream Position: Exploring shell morphology in mussels across hydrologic scales with micro-CT scanning and a fluvial experiment. *In review.*

Hopper, G., **Keogh, S.**, Atkinson, C., DuBose, T., Lozier, J., Pfeiffer, J., & Sánchez González, I. Linking body size, dispersal, range size, and fragmentation to assess extinction risk of freshwater mussels. *In review.*

Publications

- Keogh, S.**, Johnson, N., Smith, C., Sietman, B., Garner, J., Randklev, C., & Simons, A. 2025. Secondary contact erodes Pleistocene diversification in a wide-ranging freshwater mussel (*Quadrula*). *Molecular Ecology*, 34, e17572. <http://doi.org/10.1111/mec.17572>
- Keogh, S.**, Minerich, B., Ohlman, L., Pletta, M., Scheunemann, A., Schroeder, Z., Secrist, Z., Franzen, A., Sietman, B., & Simons, A. 2025. Phenotypic plasticity, multiple paternity, and shell shape divergence across lake-stream habitats in a freshwater mussel brood (*Pyganodon grandis*). *Freshwater Biology*, 70, e14358. <http://doi.org/10.1111/fw.14358>

5. Pfeiffer, J., DuBose, T., & **Keogh, S.** 2024. Synthesis of natural history collections data reveals patterns of US freshwater mussel diversity and decline. *Biological Conservation*, 291, 110462. <https://doi.org/10.1016/j.biocon.2024.110462> [Press](#) [MusselMapR](#)
4. **Keogh, S.**, Pfeiffer, J., Simons, A. & Edie, S. 2024. Riverine flow rate drives widespread convergence in the shell morphology of imperiled freshwater mussels. *Evolution*, 78, 39-52. <https://doi.org/10.1093/evolut/qpaa190>
3. Hopper, G., Bucholz, J., DuBose, T., Fogelman, K., **Keogh, S.**, Kubala, M., Lodato, M., Nichols, D., Sánchez González, I., Pfeiffer, J., Stoeckel, J., Lozier, J., & Atkinson, C. 2023. A trait dataset for freshwater mussels of the United States of America. *Scientific Data*, 10, 745. <https://doi.org/10.1038/s41597-023-02635-9>
2. **Keogh, S.**, Johnson, N., Williams, J., Randklev, C., & Simons, A. 2021. Gulf Coast vicariance shapes phylogeographic history of a North American freshwater mussel species complex (Bivalvia: Unionidae). *Journal of Biogeography*, 48, 1138-1152. <https://doi.org/10.1111/jbi.14066>
1. **Keogh, S.** & Simons, A. 2019. Molecules and morphology reveal ‘new’ widespread North American freshwater mussel species (Bivalvia: Unionidae). *Molecular Phylogenetics and Evolution*, 138, 182-192. <https://doi.org/10.1016/j.ympev.2019.05.029>

Non Peer-Reviewed Articles & Species Assessments

7. **Keogh, S.** 2026. *Nephronaias flucki*. *The IUCN Red List of Threatened Species*. *In Review*.
6. **Keogh, S.** 2026. *Nephronaias gundlachi*. *The IUCN Red List of Threatened Species*. *In Review*.
5. **Keogh, S.** 2026. *Nephronaias rowellii*. *The IUCN Red List of Threatened Species*. *In Review*.
4. White, D., Badgett, N., **Keogh, S.**, Stegmann, E., & Dunn, H. 2021. DNA confirmation of a reproducing population of federally endangered Winged Mapleleaf (*Quadrula fragosa*) in the Little River, Oklahoma. *Ellipsaria*, 23(2), 27-30.
3. Scheunemann, A., Sietman, B., Hove, M., **Keogh, S.**, Pletta, M., Ohlman, L., Carrow, K., Rounds, C., & Taylor, S. 2020. Suitable Host Fishes for the Canary Kingshell, *Lampsilis sietmani* Keogh and Simons 2019. *Ellipsaria*, 22(1), 26-28.
2. **Keogh, S.** & Simons, A. 2019. Species and distributional boundaries of *Tritogonia nobilis* (Conrad, 1854) (Bivalvia: Unionidae). *Minnesota Department of Natural Resources Report*. Executed contract 146124/3000139381.
1. Hove, M., Sietman, B., Berg, M., Bump, S., Davis, M., Hansen, H., **Keogh, S.**, Luebke, C., Marr, S., Maynard, A., Murphy, K., Secrist Z., and Hornbach, D. 2013. *Pleurobema sintoxia* Early Life History. *Ellipsaria*, 15(3), 14-16.

Presentations

Invited Seminars

- 2026 Howard University – Department of Biology
- 2024 Minnesota Zoo – Department of Conservation and Research
- 2023 University of Illinois – Department of Natural Resources and Environmental Sciences
- 2023 Chicago Shell Club
- 2023 Smithsonian National Museum of Natural History – Department of Invertebrate Zoology (*Virtual*)
- 2022 Field Museum of Natural History (*Virtual*)
- 2021 Harvard University – Museum of Comparative Zoology (*Virtual*)

- 2021 Regis University – Department of Biology
- 2019 Smithsonian National Museum of Natural History – Department of Invertebrate Zoology
- 2019 Auburn University Museum of Natural History
- 2018 University of Minnesota – Conservation Sciences

Conference Presentations

- 2025 Freshwater Mollusk Conservation Society. Ann Arbor, MI.
- 2023 Freshwater Mollusk Conservation Society. Portland, OR.
- 2022 Society for Integrative & Comparative Biology. Phoenix, AZ. (*Virtual*)
- 2020 Society for Integrative & Comparative Biology. Austin, TX. (*Poster*)
- 2019 Freshwater Mollusk Conservation Society. San Antonio, TX. (*Oral & Poster*)
- 2018 American Malacological Society. Oahu, HI. **Runner-up: Best Student Presentation Award**
- 2017 Freshwater Mollusk Conservation Society. Cleveland, OH. (*Poster*)

Teaching

Guest Instructor

- American University – Research Methods in Biological Sciences – Spring 2026
 - Two class sessions on how natural history museums & phylogenetic comparative methods are used to study organismal responses to environmental change
- Shedd Aquarium – Freshwater Ecology – Fall 2023
 - Full day session lecturing on freshwater mussel natural history, leading students in a mini collections-based project, and touring Field Museum collections

Laboratory Instructor (Teaching Assistant)

- UMN – Ornithology – Spring 2020 (2 sections)
 - Taught undergraduate and graduate students avian systematics, anatomy, natural history, and species identification
 - Transitioned lab sessions online during COVID-19 pandemic
- UMN – Ichthyology – Fall 2018 (2 sections)
- UMN – Ichthyology – Fall 2017 (2 sections)
- UMN – Ichthyology – Fall 2016 (2 sections)
 - Taught undergraduate and graduate students fish evolution, anatomy, and identification
 - Restructured and rewrote lab manual

Diversity & Inclusion

- Women in Science (WIS) Internship – Summer 2025
 - Lead and designed a six week internship for Santina Celli and Ariana Ramos on DNA extraction, amplification, and sequencing in the Pritzker Lab at the Field Museum.
- Illinois Louis Stokes Alliances for Minority Participation (ILSAMP) Internship – Summer 2024
 - Lead and designed a twelve week internship for Kaylynn Wilson (Chicago State University) on collections-based research in the Invertebrate Zoology Collection at the Field Museum.
- Bell Museum High School Career Exploration Program – Summer 2021
 - Co-lead and co-designed inaugural six week paid internship program for six high school students from underrepresented racial and ethnic backgrounds in STEM. I worked with three other mentors to facilitate Bell Museum collections-based biodiversity research with lab and field focused projects.

Mentorship

Graduate Students

- 2025- Kussum Ghimire – Loyola University Chicago (MS committee)
- 2025 Camilo Mejía-Rivera – FMNH Visiting Scholar (\$3900 awarded to CMR)

Undergraduate Students

- 2025 Santina Celli – Miami University (WIS intern)
- 2024 Kaylynn Wilson – Chicago State University (ILSAMP intern)
- 2019 Saskia Sackner-Bernstein – Macalester College
- 2019 Max Nord – Macalester College
- 2018 Alex Franzen – University of Minnesota
- 2018 Adam Rogowski – Macalester College
- 2017 Michelle Buse – Macalester College
- 2017 Matthew Glasenapp – Macalester College
- 2017 Jose Fernandez – Macalester College

High School Interns

- 2025 Ariana Ramos – FMNH Women in Science Intern
- 2025 Liam Gallaga – FMNH Behind-the-Scenes Intern
- 2025 Mariana De Alba – FMNH Behind-the-Scenes Intern
- 2024 Sam Morales – FMNH Behind-the-Scenes Intern
- 2024 Maura Hanley – FMNH Behind-the-Scenes Intern
- 2024 Miles Jung – FMNH Behind-the-Scenes Intern

Volunteers

- 2025 Caryn Stein – FMNH Invertebrate Zoology Volunteer (Digitization)
- 2025 Laura Lewis – FMNH Invertebrate Zoology Volunteer (Digitization)
- 2024-25 Ariadna Sánchez – FMNH Invertebrate Zoology Volunteer (Digitization)
- 2023-25 Gerard Gagne – FMNH Invertebrate Zoology Volunteer (Imaging)
- 2023-25 Tom Durica – FMNH Invertebrate Zoology Volunteer (Curation)
- 2023-25 Connie Bonbrest – FMNH Invertebrate Zoology Volunteer (Curation)

Community Engagement

Citizen science

- 2025- [Snail Scribe Archive](#) – Zooniverse: Digitizing FMNH Invert Zoology Collection records

Outreach events

- 2026 Georgetown University Department of Biology – Career spotlight lunch & learn
- 2025 Educator Open House at Field Museum – Freshwater mussels: the livers of our rivers
- 2025 Meet a Scientist at Field Museum Science Hub – Freshwater mussels: the livers of our rivers
- 2025 Field Museum Members’ Night – Discover the vast diversity of invertebrate zoology
- 2024 Field Museum Learning Center – Incorporating snail shells into K-12 education
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- 2019 Conservation Corps Youth Outdoors Career Day – Bell collection tours & career discussion
- 2018 Conservation Corps Youth Outdoors Career Day – Bell collection tours & career discussion
- 2018 Science Sunday – Public engagement at Bell Museum mollusk exhibit
- 2017 Conservation Corps Youth Outdoors Career Day – Bell collection tours & career discussion
- 2017 Bell Museum Lake Pepin Freshwater Mussel Exhibit – Assisted design of display
- 2016 Conservation Corps Youth Outdoors Career Day – Bell collection tours & career discussion
- 2016 Saturday with a Scientist – Public engagement of aquaponics at Bell Museum
- 2015-25 50+ Collection tours – Field Museum & Bell Museum

Online resources

- 2023 [MusselMapR](#) – R shiny web app for plotting US freshwater mussel distributions

School visits

- 2025 Natural history of freshwater mussels – School of Northern Lights
- 2018 Cedar Creek Eco-Extravaganza – Jackson Middle School
- 2016 Cedar Creek Eco-Extravaganza – Jackson Middle School

Professional Development

- 2024 Leadership Training – Field Museum of Natural History
- 2023 Strategic Planning for Biodiversity Collections – iDigBio
- 2020 ECR²: Command-Line Bioinformatics – American Society of Naturalists Graduate Council
- 2019 RADCamp (library prep, sequencing, & bioinformatics of 3RAD data) – Columbia University
- 2012 PADI Search and Rescue SCUBA certification

Service

Service committees

- 2026 Central American Freshwater Mollusc Panel – IUCN Red List Review
Antigua Guatemala: 27-30 April 2026
- 2025- Co-Chair of Genetics Committee – Freshwater Mollusk Conservation Society
- 2025 Collections Manager of Insects Search Committee – Field Museum
- 2024-25 Science & Scholarship Funding Committee – Field Museum
- 2023 Invertebrate Zoology Collections Assistant Job Search – Field Museum
- 2023-25 Invertebrate Zoology Collections Administrative Committee – Field Museum
- 2023 Assistant Professor & Curator of Ichthyology Search Committee – University of Minnesota
- 2023- Diversity, Equity, and Inclusion Committee – Freshwater Mollusk Conservation Society
- 2018 Conservation Sciences Seminar Committee – University of Minnesota
- 2017 Conservation Sciences Seminar Committee – University of Minnesota

Reviewer

Aquatic Conservation: Marine and Freshwater Ecosystems, Conservation Genetics, Diversity and Distributions, Ecology and Evolution, Evolutionary Applications, Freshwater Mollusk Biology and Conservation, Hydrobiologia, Journal of Fish Biology, Journal of Molluscan Studies, Malacologia, Scientific Reports, Zoological Journal of the Linnean Society, Zoomorphology

Fieldwork

Domestic

- 2012-25 Minnesota, Wisconsin
- 2023-25 Illinois
- 2022 Maryland
- 2018 Alabama, Missouri
- 2017 Illinois, Iowa
- 2016 Alabama, Arkansas, Illinois, Iowa, Mississippi, Tennessee
- 2014 Oregon

International

- 2026 Honduras – 15 day expedition (42 collection sites)
- 2024 Costa Rica – Co-led 14 day expedition (43 collection sites)
- 2023 Panama – 14 day expedition (38 collection sites)
- 2015 Canada

Society Memberships

American Genetic Association

American Malacological Society

Freshwater Mollusk Conservation Society

Society for Integrative & Comparative Biology