

## KELLEY A. FRITZ

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Assistant Professor

kfritz@semo.edu

Department of Biology

Southeast Missouri State University, MO

### EDUCATION

- 2011 – 2017 Ph.D. in Zoology, Zoology Department, Southern Illinois University Carbondale
- 2009 – 2011 M.S. in Biology, Biology Department, Clarion University of Pennsylvania
- 2005 – 2009 B.S. in Biology, Biology Department, University of Pittsburgh at Johnstown

### PROFESSIONAL EXPERIENCE

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|----------------|---|---|
| 2020 - Present | Assistant Professor                         | Southeast Missouri State University, MO |
| 2018 - 2020    | Postdoctoral Researcher                     | Murray State University, KY             |
| 2017 - 2018    | Adjunct Professor                           | University of Alaska Anchorage, AK      |
| 2017 - 2018    | Adjunct Professor                           | Matanuska-Susitna College, AK           |
| 2013 - 2016    | Graduate Teaching Assistant                 | Southern Illinois University, IL        |
| 2013 - 2017    | Graduate Research Assistant                 | Southern Illinois University, IL        |
| 2011 - 2013    | NSF Watershed Science & Policy IGERT Fellow | Southern Illinois University, IL        |
| 2010 - 2011    | Graduate Research Assistant                 | Clarion University of Pennsylvania, PA  |
| 2009 - 2010    | Graduate Teaching Assistant                 | Clarion University of Pennsylvania, PA  |

### PUBLICATIONS

- Dewey, L. **K.A. Fritz**, L.J. Kirschman, M. Feden, H. Whiteman. (*in review*). Beaver recolonization influences aquatic insect emergence. *Freshwater Science*.
- Kirschman, L.J., **K.A. Fritz**, H.M. Reish, A.N. Tyler, K. Abt, P. Durbin, J.L. Sprague, R.F. Witty and Y. Zhang. (2024). Subsidies of Long-Chain Polyunsaturated Fatty Acids, Not Energy Subsidies, Strengthen Immune Responses in a Terrestrial Predator. *Freshwater Science* 43(3).
- Wright, M. L. Oleson, R. Witty, **K.A. Fritz**, and L.J. Kirschman. (2023). Infection causes trade-offs between development and growth in larval amphibian. *Physiological and Biochemical Zoology*.
- Yohe, E., **K.A. Fritz**, T. Bening. 2022. *Trachemys scripta elegans* (Red-eared Slider). Diet. *Herpetological Review* 53(4): 673.

- Fritz, K.A.**, and M.R. Whiles 2021. Reciprocal subsidies between temporary ponds and riparian forests. *Limnology and Oceanography* 66(8): 3149-3161.
- Fritz, K.A.**, J.T. Trushenski, and M.R. Whiles. 2019. Subsidies of long-chain polyunsaturated fatty acids from aquatic to terrestrial environments via amphibian emergence. *Freshwater Biology* 64(5): 832-842.
- Fritz, K.A.**, and M.R. Whiles. 2018. Amphibian-mediated nutrient fluxes across aquatic-terrestrial boundaries of temporary wetlands. *Freshwater Biology* 63(10):1250-1259.
- Fritz, K.A.**, L.J. Kirschman, S.D. McCay, J.T. Trushenski, R.W. Warne, and M.R. Whiles. 2017. Subsidies of essential nutrients from aquatic environments correlate with immune function in terrestrial consumers. *Freshwater Science* 36(4):893-900.
- Kirschman, L.J., J.G. Palis, **K.A. Fritz**, and R.W. Warne. 2017. Two ranavirus associated mass-mortality events among larval amphibians in Illinois, USA. *Herpetological Review* 48(4).
- Kirschman, L.J., S. Haslett, **K.A. Fritz**, M.R. Whiles, and R.W. Warne. 2016. Influence of physiological stress on nutrient stoichiometry in larval amphibians. *Physiological and Biochemical Zoology* 89(4): 313-321.
- Bennett, M.G., **K.A. Fritz**, A. Hayden-Lesmeister, J.P. Kozak, and A. Nickolotsky. 2016. An estimate of basin-wide denitrification based on floodplain inundation in the Atchafalaya River Basin, Louisiana. *River Research and Applications* 32(3): 429-440.
- Rantala, H.M., A.M. Nelson, J.N. Fulgoni, M.R. Whiles, R.O. Hall, Jr., W.K. Dodds, P. Verburg, A.D. Huryn, C. M. Pringle, K. R. Lips, S.S. Kilham, K.R. Lips, C. Colon-Gaud, A.T. Rugenski, S.D. Peterson, **K. Fritz**, K.E. McLeran, and S. Connelly. 2015. Long-term changes in structure and function of a tropical headwater stream following a disease-driven amphibian decline. *Freshwater Biology* 60(3): 575-589.
- Kozak, J.P., M.G. Bennett, A. Hayden-Lesmeister, **K.A. Fritz**, and A. Nickolotsky. 2015. Using flow-ecology relationships to evaluate ecosystem service trade-offs and complementarities in the nation's largest river swamp. *Environmental Management* 55(6): 1327-1342.

#### PRESENTATIONS

- Dewey, L., **K.A. Fritz**, L.J. Kirschman, H. Whiteman (2024). How beaver recolonization influence insect emergence. Faculty Scholarship and Creativity Showcase. Southeast Missouri State University. Cape Girardeau, MO. [Poster].
- Yohe, E. D. Siegel, L.J. Kirschman, **K.A. Fritz** (2023). Population demographic analyses: A species of conservation concern in southeast Missouri. Midwest Partners in Amphibian and Reptile Conservation 2023 Annual Conference. Carbondale, IL. [Poster].

- Dewey, L., **K.A. Fritz**, L.J. Kirschman, H. Whiteman (2023). How beaver recolonization influence insect emergence. 31<sup>st</sup> Annual Student Research Conference (SRC). Southeast Missouri State University. Cape Girardeau, MO. [Poster].
- Wright, M., L. Oleson, R. Witty, **K.A. Fritz**, L.J. Kirschman (2023). Larval metabolic rate varies with developmental stage and does not predict disease susceptibility. Society for Integrative and Comparative Biology. Austin, TX. [Oral Presentation].
- Waltmon, NA., K.A. Baumann, **K.A. Fritz**, M.B. Flinn. (2022). Insect emergence patterns on restored wetlands across western Kentucky. Watershed Studies Institute (WSI) Research Symposium at Murray State University. Murray, KY. [Oral Presentation].
- Waltmon, NA., K.A. Baumann, **K.A. Fritz**, M.B. Flinn. (2022). Insect emergence patterns on restored wetlands across western Kentucky. Sigma Xi. Murray, KY. [Poster].
- Waltmon, NA., K.A. Baumann, **K.A. Fritz**, M.B. Flinn. (2022). Insect emergence patterns on restored wetlands across western Kentucky. Joint Aquatic Sciences Meeting (JASM). Grand Rapids, MI. [Poster].
- Fritz, K.A.** (2021). Energy and nutrient subsidies across the boundaries of aquatic habitats. Austin Peay State University Seminar Series, Clarksville, TN [Invited Talk].
- Waltmon, NA., K.A. Baumann, **K.A. Fritz**, M.B. Flinn. (2021). Insect emergence patterns on restored wetlands across western Kentucky. Society for Freshwater Science Meeting, Virtual Meeting [Poster].
- Waltmon, NA., K.A. Baumann, **K.A. Fritz**, M.B. Flinn. (2021). Insect emergence patterns on restored wetlands across western Kentucky. SUPERB Scholarship Program Conference. Cadiz, KY. [Poster].
- Fritz, K.A.** (2019). Resource subsidies across aquatic-terrestrial boundaries. Murray State Biology Seminar Series, Murray, KY [Talk].
- Fritz, K.A.**, M.L. Torres, T.L Anderson, M. Geile, A. Gilmore, J. Ames, Q. Bergman, and H. Whiteman (2019). From beavers to birds: The cascading effects of beaver recolonization of a degraded western stream on riparian bird communities. Ecological Society of America Meeting, Louisville, KY [Poster].
- Fritz, K.A.**, M.L. Torres, T.L Anderson, M. Geile, A. Gilmore, J. Ames, Q. Bergman, and H. Whiteman (2019). Beavers to birds: The influence of beaver recolonization on riparian bird communities. Society for Freshwater Science Meeting, Salt Lake City, UT [Poster].
- Fritz, K.A.**, M.R. Whiles (2018). Resource subsidies across aquatic-terrestrial boundaries of temporary ponds. Society for Freshwater Science Meeting, Detroit, MI [Talk].
- Fritz, K.A.**, J.T. Trushenski, and M.R. Whiles (2017). Subsidies of essential nutrients from aquatic to terrestrial environments via amphibian emergence. Society for Freshwater Science Meeting, Raleigh, NC [Talk, **runner-up best oral presentation in basic research**].

- Fritz, K.A.**, L.J. Kirschman, and M.R. Whiles (2016). Influence of amphibians on energy and nutrient fluxes across aquatic-terrestrial boundaries of temporary ponds. Joint Meeting of Ichthyologists and Herpetologists, New Orleans, LA [Talk].
- Fritz, K.A.**, L.J. Kirschman, and M.R. Whiles (2016). Nutrient flows and subsidies across aquatic-terrestrial boundaries of temporary ponds via amphibian migrations. Society for Freshwater Science Meeting, Sacramento, CA [Talk, **runner-up best oral presentation in basic research**].
- Brooks, J., **K. Fritz**, J. Fulgoni, K. McLeran, R. Goldkuhl, and M.R. Whiles (2016). Effects of an in-stream restoration project on mobile riparian predators. Society for Freshwater Science Meeting, Sacramento, Ca [Poster].
- Fritz, K.A.**, L.J. Kirschman, and M.R. Whiles (2015). Energy flows and subsidies across aquatic-terrestrial boundaries of temporary ponds via amphibian migrations. Society for Freshwater Science Meeting, Milwaukee, WI [Talk].
- McCay, S., **K. Fritz**, L. Kirschman, and M.R. Whiles (2015). Emerging amphibians as a potential source of essential fatty acids for riparian predators. Society for Freshwater Science Meeting, Milwaukee, WI [Talk].
- Fritz, K.**, L. Kirschman, R. Warne, and M. Whiles (2014). Physiological stress affects nutrient stoichiometry of excreta and tissues of larval amphibians. Joint Aquatic Sciences Meeting: Society for Freshwater Science, Phycological Society of America, Association for the Sciences of Limnology and Oceanography, Society of Wetland Sciences, Portland, OR [Talk].
- Fritz, K.**, M. Bennett, A. Hayden-Lesmeister, J. Kozak, and A. Nickolotsky (2013). Trade-offs and synergies among ecosystem services in response to flow regime in the Nation's largest river swamp. Society for Freshwater Science Meeting, Jacksonville, FL [Poster].
- Kozak, J., M.G. Bennett, **K. Fritz**, A. Hayden-Lesmeister, and A. Nickolotsky (2013). Multi-Use management in the Atchafalaya River Basin: Research at the confluence of public policy and ecosystem science. NSF – IGERT Video and Poster Competition, online.
- Fritz, K.**, and M. Whiles (2013). Quantifying energy subsidies between ephemeral ponds and surrounding forest. Research Town Meeting and Fair, Carbondale, IL [Poster].
- Hayden-Lesmeister, A., M. Bennett, **K. Fritz**, J. Kozak, and A. Nickolotsky (2012). Integrated management of the Atchafalaya Basin: Resources for scientists and policymakers. Geological Society of America Meeting, Charlotte, NC [Poster].
- Bennett, M., **K. Fritz**, A. Hayden-Lesmeister, J. Kozak, and A. Nickolotsky (2012). A tool for visualizing trade-offs among ecosystem services with changes in water management in the Atchafalaya River Basin, the nation's largest river swamp. Illinois Water Conference, Champaign, IL [Poster].
- Bennett, M., **K. Fritz**, A. Hayden, J. Kozak, and A. Nickolotsky (2012). Watershed management challenges in the Yangtze River Basin, China: Impacts of Three Gorges Dam. Research Town Meeting and Fair, Carbondale, IL [Poster].

Soergel, D.C., S.C. Harris, **K.A. Fritz**, H.M. Edenborn, and J.I. Sams (2012). Impact of oil and gas development on aquatic macroinvertebrate populations in the Allegheny National Forest. Society of Freshwater Science Meeting, Louisville, KY [Poster].

**Fritz, K.A.**, S.C. Harris, H.M. Edenborn, and J.I. Sams (2011). Impacts of sedimentation from oil and gas development on stream macroinvertebrates in two adjacent watersheds of the Allegheny National Forest of Northwestern Pennsylvania. 87<sup>th</sup> Annual Meeting of the Pennsylvania Academy of Science, Altoona, PA [Poster].

**Fritz, K.A.** (2009). Survey of aquatic insects of a restored wetland. University of Pittsburgh at Johnstown Symposium for the Promotion of Academic and Creative Inquiry, Johnstown, PA [Poster].

**Fritz, K.A.** (2009). Lycophyta and Equisetophyta: The club mosses, spike mosses, and horsetails. University of Pittsburgh at Johnstown Symposium for the Promotion of Academic and Creative Inquiry, Johnstown, PA [Poster].

#### TEACHING EXPERIENCE

2024	Biology for Living	Southeast Missouri State University, MO
2023 - 2024	Nature Journaling	Southeast Missouri State University, MO
2022 - 2024	Aquatic Entomology	Southeast Missouri State University, MO
2022	Internship in Biology	Southeast Missouri State University, MO
2021 - 2024	Career Development in Biology	Southeast Missouri State University, MO
2021 - 2024	Ecology & Management of Wetlands	Southeast Missouri State University, MO
2020 - 2024	Evolution & Ecology	Southeast Missouri State University, MO
2022 - 2024	Evolution & Ecology lab coordinator	Southeast Missouri State University, MO
2021 - 2023	Freshwater Ecology	Southeast Missouri State University, MO
2020 - 2024	Conservation Biology	Southeast Missouri State University, MO
2018 - 2020	Principles of Ecology	Murray State University, KY
2018	Human Anatomy and Physiology II	University of Alaska Anchorage, AK
2018	Human Anatomy and Physiology II	Matanuska-Susitna College, AK
2017-2018	Human Anatomy and Physiology I	University of Alaska Anchorage, AK
2017	Human Anatomy and Physiology I	Matanuska-Susitna College, AK
2017	Principles of Genetics	University of Alaska Anchorage, AK
2015-2016	Cell, Molecular Biology, Genetics, & Evolution	Southern Illinois University, IL
2013-2014	Freshwater Invertebrates	Southern Illinois University, IL
2009-2010	Principles of Biology I	Clarion University of Pennsylvania, PA

#### GRADUATE STUDENT MENTORING

2022 - Present	Dylan Horton	The effects of timing of inundation and hydroperiod on aquatic insect and amphibian emergence from temporary ponds [MS Project; SEMO]
2021 - 2023	Lindsey Dewey	How beaver recolonization influences insect emergence [MS Project; SEMO]
2021 - 2023	Liz Yohe	Demographic analyses of a species of conservation concern in southeastern Missouri [MS Project; SEMO]

#### GRADUATE STUDENT THESIS/DISSERTATION COMMITTEES

2024	Frank Irovic	Habitat trait influences on nesting success of hooded mergansers (Aves: Anatidae) utilizing artificial nest boxes [MS Project; SEMO]
2020 - Present	Andrew Seiler	Quantification of ant rain and its role in nutrient cycling in a tropical forest [PhD Project; University of Louisville, KY]
2020 - 2024	Caleb Pemberton	Evaluating catfish population demographics in southeast Missouri's mid-sized rivers [MS Project; SEMO]
2022- 2023	Nguvan M. Agaigbe	Distribution and space use of game birds in a Sudan Savanna Landscape [MS Project; SEMO]
2021 - 2022	Samantha Trame	Morphology of External Nasal Glands of <i>Eurycea bislineata</i> [MS Project; SEMO]

#### GRADUATE STUDENT NON-THESIS COMMITTEES

2023	Jason Gill	Conservation Biology
2022	Jake Cadwell	Conservation Biology
2022	Jennie Paul	Conservation Biology
2022	Aline Taylor	Freshwater Ecology & Conservation Biology

#### UNDERGRADUATE RESEARCH MENTORING

2024	Adian Decker	How beaver activity influences aquatic-terrestrial food web connectivity; SEMO
2023	Isabel Bira, Madison Lingleo, Adian Decker	Identifying terrestrial insect subsidies into temporary ponds; SEMO

2022 - 2023	Jaylen Tinsley	Aquatic insect emergence and bat activity at the Cache River, IL; SEMO
2022	Hannah Porter, Malcolm DeBroeck	Tiger salamander demographics in southeast MO sand prairie; SEMO
2021 - 2022	Amber Garris, Logan Oleson, Kelly Haggerty, Matthew Wilson	Terrestrial insect subsidies into temporary ponds; SEMO
2015	Jacey Brooks	Effects of an in-stream restoration project on mobile riparian predators [REU; Poster: Society for Freshwater Science; SIU]
2015	Valerie Herzog	Benthic organic matter in temporary ponds of southern Illinois [Senior Project; SIU]
2015	Chase Latour	Wolf spiders ( <i>Tigrosa georgicola</i> ) as recipients of contaminant subsidies from aquatic to terrestrial food webs [Oral Presentation: Junior Science and Humanities Symposia; 2 <sup>nd</sup> place in state competition; SIU]
2014	Shelby McCay	Emerging amphibians as a potential source of essential fatty acids for riparian predators [REU; Oral Presentation: Society for Freshwater Science; SIU]
2013	Tyler Berndt	Essential fatty acid export from temporary wetlands via amphibian metamorph emergence [SSRO; Senior Project; SIU]
2013	Nicole Baccus	Leaf litter inputs in temporary ponds [Senior Project; SIU]

#### PROFESSIONAL SERVICE

2023 - Present	Society for Freshwater Science - Hynes Award Selection Subcommittee member
2023	Society for Freshwater Science - Early Career Committee Member
2023	William's Award grant reviewer for the Herpetologists' League
2017	Undergraduate Awards and Presentations Judging; Society for Freshwater Science Meeting, Raleigh, NC
2016	Special Session Co-chair – Temporary Wetlands; Society for Freshwater Science Meeting, Sacramento, CA
2015	Special Session Co-chair – Temporary Wetlands; Society for Freshwater Science Meeting, Milwaukee, WI
2014 - 2017	Collaborator – Shedd Aquarium Amphibians exhibit collection and development

#### DEPARTMENTAL & UNIVERSITY SERVICE

2022 - Present	Long Range Academic Planning Committee
2021 - Present	Faculty advisor for Stream Team of SEMO
2020 - Present	Faculty advisor for The Wildlife Society – SEMO Chapter
2020 - Present	Chair of Budget Committee – Department of Biology
2021 - 2022	Library Liaison for Department of Biology
2021 - 2022	Recruitment & Retention Committee – Department of Biology
2021 - 2022	Mammalogist search committee
2020 - 2021	Botanist search committee

#### GRANTS AND FELLOWSHIPS

2024	SEMO Grants and Research Funding Committee (GRFC); Impacts of aquatic Subsidies on upper trophic level of terrestrial food webs – <b>Awarded</b> \$3,965
2024	Missouri Department of Conservation (MDC) Cooperative Agreement; Population genetics of Eastern Tiger Salamander ( <i>Ambystoma tigrinum</i> ) in the southeast Missouri sand prairie priority geography – <b>Awarded</b> \$6,500
2023	National Science Foundation (NSF): Building Research Capacity of New Faculty in Biology (BRC-BIO); Subsidies of long-chain polyunsaturated fatty acids and their effects on consumer physiology and life history. Dr. Kelley Fritz & Dr. Lucas Kirschman (Co-PIs) – <b>Not Funded</b>
2022	National Science Foundation (NSF): Building Research Capacity of New Faculty in Biology (BRC-BIO); Subsidies of long-chain polyunsaturated fatty acids and their effects on consumer physiology and life history. Dr. Kelley Fritz & Dr. Lucas Kirschman (Co-PIs) – <b>Not Funded</b>
2022	Dan M. DiGiacomo Foundation for the Conservation of Salamanders (FCSal) Small Grant; Demographic analyses of a species of conservation concern in southeastern Missouri – <b>Not Funded</b>
2021	SEMO Grants and Research Funding Committee (GRFC); Importance of terrestrial insect subsidies to temporary pond food webs – <b>Awarded</b> \$2,321
2021	SEMO Grants and Research Funding Committee (GRFC); Evaluating the impacts of beaver recolonization on aquatic insect emergence – <b>Awarded</b> \$3,723
2017	NSF Postdoctoral Research Fellowship in Biology; Assessing aquatic-terrestrial subsidies of essential nutrients and their effects on immune function – <b>Not Funded</b>
2017	Ford Foundation Postdoctoral Fellowship; Assessing aquatic-terrestrial subsidies of essential nutrients and their effects on immune function – <b>Not Funded</b>



2011 - 2013 NSF Watershed Science and Policy IGERT Fellowship – **Awarded** 3 years of stipend and educational allowance

2009 Clarion University Graduate Research Grant; Surveying aquatic insects in the Allegheny National Forest - **Awarded** \$800

#### AWARDS

2023 CoSTEM Teaching Award; SEMO

2023 Provost Award for Teaching Excellence – Excellence in Supporting Graduate Research; SEMO

2017 Runner-up – Best Oral Presentation in Basic Research; Society for Freshwater Science

2016 Runner-up – Best Oral Presentation in Basic Research; Society for Freshwater Science

#### OUTREACH AND PUBLIC EDUCATION

2024 Served on the committee for the Southeast Missouri Regional Science Fair

2023 - 2024 Served as a judge for the Southeast Missouri Regional Science Fair

2023 Day on the River – Hosted by Missouri Department of Conservation

2023 Southeast Missouri Regional Science Fair judge

2019 ZoFest – Hosted by Murray State University Biology Department

2018 Discovery Through Experimentation Summer Camp – Hosted by Matanuska-Susitna College

2018 Kids2College – Hosted by University of Alaska Anchorage

2018 Science Night – Hosted by Lake Hood Elementary

2015 Scouting for Wildlife – Hosted by Crab Orchard National Wildlife Refuge

2014 - 2016 Cache River Nature Fest – Hosted by Friends of the Cache River Watershed at Cypress Creek National Wildlife Refuge

2013 18<sup>th</sup> Annual Insect Awareness and Appreciation Day – Hosted by the Illinois Audubon Society Shawnee Chapter

#### PROFESSIONAL MEMBERSHIPS

2010 - Present Society for Freshwater Science (formerly NABS)

2019 - 2020 Ecological Research as Education Network (EREN)

2016 - 2017 Society for the Study of Amphibians and Reptiles (SSAR)

MANUSCRIPT REVIEWS

PLOS ONE

Environmental Toxicology & Chemistry

Frontiers in Ecology and Evolution

Freshwater Science

Oecologia

Food Webs

Biological Invasions

Landscape Ecology

Mammal Research (formerly Acta Theriologica)