

J. ALEX BAECHER



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EDUCATION

AUGUST 2024

INTERDISCIPLINARY ECOLOGY, PHD | UNIVERSITY OF FLORIDA

THESIS: *Influence of Global Change on Species' Behavior, Movement, and Ranges* [PDF](#)

ADVISOR: Brett R Scheffers

DECEMBER 2017

BIOLOGICAL SCIENCES, MS | EASTERN KENTUCKY UNIVERSITY

THESIS: *Environmental gradients in old-growth Appalachian forest predict habitat use, fine-scale distribution, co-occurrence, and density of woodland salamanders* [PDF](#)

ADVISOR: Stephen C Richter

MAY 2014

BIOLOGICAL SCIENCES, BS | UNIVERSITY OF ARKANSAS

THESIS: *Impact of Anthropogenic Land Use and Hydrologic Disturbance on Crayfish* [PDF](#)

ADVISOR: Daniel D Magoulick

EXPERIENCE

AUGUST 2019 – 2024

DOCTORAL PREEMINENCE RESEARCH FELLOW | UNIVERSITY OF FLORIDA

JANUARY 2018 – JULY 2019

CONSERVATION AND RESEARCH TECHNICIAN | MEMPHIS ZOO

MAY – AUGUST 2017

NSF REU RESEARCH COORDINATOR | EASTERN KENTUCKY UNIVERSITY

MAY 2015 – AUGUST 2017

GRADUATE TEACHING ASSISTANT | EASTERN KENTUCKY UNIVERSITY

AUGUST 2012 – MARCH 2015

UNDERGRADUATE RESEARCH ASSISTANT | UNIVERSITY OF ARKANSAS

FUNDING

AMOUNT	ORGANIZATION	AWARD NAME	YEAR
\$4,000	UF	Robin Nadeau Graduate Research Award	2019
\$195k	UF	Doctoral Preeminence Fellowship Award	2019
\$500	SSAR	Grant-in-Aid of Herpetological Research	2016
\$500	EKU	Dep. Biological Sciences Travel Stipend	2016
\$500	EKU	Div. Natural Areas Research Grant	2016
\$1,100	EKU	Marcia Athey Research Grant	2016
\$700 (x2)	SFS	Instars Fellowship	2013 – '14
\$5,000 (x2)	NSF	Research Experience for Undergraduates	2012 – '13

PUBLICATIONS

^{\$}MENTEE CO-AUTHOR [†]NATURAL HISTORY NOTE

- ...) **Baecher, JA**, DH Klinges, LJ Evans, BR Scheffers. *In prep*. *Informing species' range shifts with global connectivity*.
- ...) Evans, LJ, **JA Baecher**, J Cullen, C Romagosa, BR Scheffers. *In prep*. *An expert elicitation tool for mapping the prevalence and habitat suitability of invasive species*.
- ...) **Baecher, JA**, D Klinges, LJ Evans, C Romagosa, R Fletcher, BR Scheffers. *In review*. *Isolating what limits the spread of an invasive predator*. **Journal of Applied Ecology** [CODE](#) [PREPRINT](#)
- 14) Evans, LJ, **JA Baecher**, BR Scheffers. **Accepted**. *Invasion risk posed by the pet trade*. **Frontiers in Ecology and the Environment**
- 13) **Baecher, JA**. **2024**. *The environmental filtering paradigm and non-filtering community assembly processes*. **Journal of Biogeography** 51(7):31–8 [HTML](#) [PDF](#)
- 12) DH Klinges, **JA Baecher**, JJ Lembrechts, IMD Maclean, J Lenoir, C Greiser, M Ashcroft, LJ Evans, MR Kearney, J Aalto, IC Barrio, P De Frenne, J Guillemot, K Hylander, T Jucker, M Kopecký, M Luoto, M Macek, I Nijs, J Urban, L van den Brink, P Vangansbeke, J Von Oppen, J Wild, J Boike, R Canessa, M Nasetto, A Rubtsov, J Sallo-Bravo, BR Scheffers. **2024**. *Proximal microclimate: moving beyond spatiotemporal scale to improve predicted biological responses*. **Global Ecology and Biogeography** 33(7):e1–16 [HTML](#) [PDF](#) [CODE](#)
- 11) Comte, L, R Bertrand, S Diamond, LT Lancaster, ML Pinsky, BR Scheffers, **JA Baecher**, RMWJ Bandara, I-Ching Chen, JA Lawlor, NA Moore, BF Oliveira, J Murienne, J Rolland, MA Rubenstein, J Sunday, LM Thompson, F Villalobos, SR Weiskopf, J Lenoir. **2024**. *Bringing traits back in the equation: A roadmap to understand species redistribution*. **Global Change Biology** 30:e17271 [HTML](#) [PDF](#)
- 10) Lawlor, JA, L Comte, G Grenouillet, J Lenoir, **JA Baecher**, RMWJ Bandara, R Bertrand, I-Ching Chen, SE Diamond, LT Lancaster, NA Moore, J Murienne, BF Oliveira, GT Pecl, ML Pinsky, J Rolland, M Rubenstein, BR Scheffers, LM Thompson, B van Amerom, F Villalobos, SR Weiskopf, J Sunday. **2024**. *Mechanisms, detections, and impacts of species redistributions under climate change*. **Nature Reviews Earth & Environment** 5:351–368 [HTML](#) [PDF](#)
- 9) **Baecher, JA**, SA Johnson, EA Roznik, BR Scheffers. **2023**. *Experimental evaluation of how invasions and climate change interact to alter the vertical assembly of an amphibian community*. **Journal of Animal Ecology** 92(4):875–888 [HTML](#) [PDF](#)
[CODE](#) | [Press:](#) [Nature Climate Change](#) [Florida Today](#) [USGS](#)

- 8) Basham, EW, [JA Baecher](#), DH Klings, BR Scheffers. **2022**. *Vertical stratification patterns of tropical forest vertebrates: A meta-analysis*. **Biological Reviews** 98(1):99–114 [HTML](#) [PDF](#) [CODE](#)
- 7) Basham, EW, M González-Pinzón, A Romero-Marcucci, N Carl, [JA Baecher](#), BR Scheffers. **2022**. *Large, old trees define the vertical, horizontal, and seasonal distributions of a poison frog*. **Oecologia** 199:257–269 [HTML](#) [PDF](#) [CODE](#)
- 6) Swartwout, M, PN Vogrinc, [JA Baecher](#), CS Kross, JD Willson. **2020**. *Prey Size and Growth Rate do not Influence Trophic Morphology of Juvenile Water Snakes Nerodia sipedon*. **Herpetologica** 76(1):53–60 [HTML](#) [PDF](#)
- 5)[†] [Baecher, JA](#), [§]E Jones, SC Richter. **2020**. *Tail bifurcation in two species of Desmognathus salamander Caudata: Plethodontidae in southeastern Kentucky, USA*. **Herpetological Bulletin** 150:29–30 [HTML](#) [PDF](#)
- 4) Hinkson, KM, [JA Baecher](#), S Poo. **2019**. *Cryopreservation and hormonal induction of spermic urine in the smooth-sided toad Rhaebo guttatus*. **Cryobiology** 89:109 – 111 [HTML](#) [PDF](#) | [Press:](#) [The Commercial Appeal](#) [USA Today](#)
- 3) [Baecher, JA](#), SC Richter. **2018**. *Environmental gradients in an old-growth Appalachian Forest predict fine-scale distribution, co-occurrence, and abundance of woodland salamanders*. **Ecology and Evolution** 8(24):12940–12952 [HTML](#) [PDF](#) [CODE](#)
- 2) [Baecher, JA](#), PH Vogrinc, JC Guzy, CS Kross, JD Willson. **2017**. *Herpetofaunal Communities in Restored and Unrestored Remnant Tallgrass Prairie and Associated Wetlands in Northwest Arkansas*. **Wetlands** 38:157–168 [HTML](#) [PDF](#)
- 1)[†] [Baecher, JA](#), PH Vogrinc, JC Guzy, JC Neal, JD Willson. **2014**. *Lithobates areolatus, Predation*. **Herpetological Review** 45(4):681–682 [PDF](#)

TEACHING AND INSTRUCTION

INSTRUCTOR OF RECORD

UNIVERSITY OF FLORIDA | SCHOOL OF NATURAL RESOURCES AND ENVIRONMENT

[ENVIRONMENTAL SCIENCE LAB \(EVS 3000L\)](#)

FALL 2022 & 2023

1 section per week (3 hrs in-class); 14 student cap

Teaching evaluations >4.5 / 5 across all categories; eval reports: [2022](#) [2023](#)

TEACHING ASSISTANT

EASTERN KENTUCKY UNIVERSITY | DEPARTMENT OF BIOLOGY

[HUMAN ANATOMY AND PHYSIOLOGY LAB \(BIO 307\)](#)

SPRING & FALL 2022 & 2023

2 – 3 sections per week (4-6 hrs in-class); 25 students

Teaching evaluations > 90% overall satisfaction

GUEST LECTURES AT UNIVERSITY OF FLORIDA:

- 4) [Baecher, JA](#). **2021**. Achieving landscape connectivity under rapid global change. *The Ecology of Climate Change* (WIS 3410) [SLIDES](#)
- 3) [Baecher, JA](#). **2020**. Restoration ecology of grasslands and associated herpetofauna. *Wildlife of Florida* (WIS 3402) [SLIDES](#)
- 2) [Baecher, JA](#). **2020**. Salamander diversity and conservation in the Southeastern USA. *Wildlife of Florida* (WIS 3402) [SLIDES](#)
- 1) [Baecher, JA](#). **2020**. Amphibian diversity. *Wildlife of Florida* (WIS 3402) [SLIDES](#)

HOSTED WORKSHOPS:

- 3) Fletcher, RJ, [JA Baecher](#), M Iezzi, A Marx. **2023**. Application of connectivity modeling to identify and predict movement and range redistribution. *Species On The Move*. Bonita Springs, FL [SLIDES](#)
- 2) [Baecher, JA](#), L Evans, BR Scheffers. **2022**. Expert elicitation of key invasive species habitat requirements, prevalence, and life history attributes. *Austin Carey Forest*. Gainesville, FL [SLIDES](#)
- 1) Fletcher, RJ, [JA Baecher](#), M Iezzi, A Marx. **2021**. Expanding the scope of connectivity modeling with Markov chains: perspectives and applications in R. *Annual Meeting of the International Association of Landscape Ecologists*. Virtual [VIDEO](#)

PRESENTATIONS

[†]TALK [‡]POSTER [§]MENTEE

- 35) [†][Baecher, JA](#), L Evans, ... BR Scheffers. **2024**. Toward knowledge co-production in invasion modeling: Developing novel interactive expert-elicitation software. *Invasive Species Research Institute Conference*. Gainesville, FL [SLIDES](#)
- 34) [†]Evans, L, [JA Baecher](#), BR Scheffers. **2024**. An Integrated Approach for Robust Invasive Species Risk Assessments. *Invasive Species Research Institute*. Gainesville, FL
- 33) [†][Baecher, JA](#), D Klinges, L Evans, BR Scheffers. **2023**. Informing Species Range-shifts with Preliminary Global Connectivity. *Species On The Move*. Ft Myers, FL [SLIDES](#)
- 32) [†]Scheffers, BR, [JA Baecher](#), E Basham. **2023**. Vertical Collapse in Assemblage Complexity Due to Shifts in Precipitation and Novel Biotic Interactions. *Species On The Move*. Ft. Myers, FL
- 31) [†]Evans, L, [JA Baecher](#), BR Scheffers. **2023**. Invasion Risk Posed by the Pet Trade. *Species On The Move*. Ft. Myers, FL
- 30) [†]Klinges, DH, J Lembrechts, IMD Maclean, [JA Baecher](#), J Lenoir, BR Scheffers. **2023**. Climate Variability and Change Across Scales Using a Novel Global Microclimate Database. *Species On The Move*. Ft. Myers, FL

- 29) [†]Evans, L, BR Scheffers, [JA Baecher](#). **2022**. *Invasion Risk Posed by the Pet Trade*. **NA Invasive Species Management Association Annual Conference**. Ft. Myers, FL
- 28) [†]Klinges, DH, [JA Baecher](#), J Lembrechts, IMD Maclean, BR Scheffers. **2022**. *Climate Variability and Change Across Scales Using a Novel Global Microclimate Database*. **Microclimate Ecology and Biogeography Conference**. Antwerp, Belgium
- 27) [†][Baecher, JA](#), BR Scheffers. **2022**. *Informing Species Range-shifts with Preliminary Global Connectivity*. **BIOSHIFTS Working Group**. Montpellier, France [SLIDES](#)
- 26) [†][Baecher, JA](#), L Evans, BR Scheffers. **2022**. *Predicting the spread of invasive Burmese pythons in South Florida*. **SERISCC Network Seminar Series**. (Virtual) [SLIDES](#) [VIDEO](#)
- 25) [†]Khazan, E ... [JA Baecher](#). **2022**. *Deconstructing functional diversity to better conservation research and applications using a case study of Colombian butterflies*. **Annual Meeting of the Association for Tropical Biology and Conservation**. Cartagena, Columbia
- 24) [†][Baecher, JA](#), ... BR Scheffers. **2022**. *Modeling spread of invasive Burmese pythons: integrating thermoregulation, behavior, and mortality*. **Annual Meeting of the International Association of Landscape Ecologists**. (Virtual) [SLIDES](#) [VIDEO](#)
- 23) [†]Evans, L, BR Scheffers, [JA Baecher](#). **2022**. *Invasion Risk Posed by the Pet Trade*. **Collaborative to Combat the Illegal Trade in Turtles**. (Virtual)
- 22) [†]Basham, EW, M González-Pinzón, A Romero-Marcucci, ..., [JA Baecher](#), BR Scheffers. **2021**. *Large, old trees define the vertical, horizontal, and seasonal distributions of a poison frog*. **International Canopy Science Conference**. (Virtual)
- 21) [†]Basham, EW, M González-Pinzón, A Romero-Marcucci, N Carl, [JA Baecher](#), BR Scheffers. **2021**. *Large, old trees define the vertical, horizontal, and seasonal distributions of a poison frog*. **Annual Meeting of the Ecological Society of America**. (Virtual)
- 20) [†]Basham, EW, [JA Baecher](#), BR Scheffers. **2021**. *Large, old trees define the vertical, horizontal, and seasonal distributions of a poison frog*. **European Meeting of Students in Evolutionary Biology**. (Virtual)
- 19) ^{†§}Jones, E, [JA Baecher](#), M James, A Braccia, SC Richter. **2019**. *Influence of Salamanders on Leaf Litter Decomposition in Appalachian Headwater Streams*. **Annual Meeting of the Association of Southeastern Biologists**. Memphis, TN
- 18) [†]Hinkson, KM, [JA Baecher](#), S Poo. **2019**. *Cryopreservation and hormonal induction of spermic urine in the smooth-sided toad (*Rhaebo guttatus*)*. **Annual Meeting of the Association of Southeastern Biologists**. Memphis, TN

- 17) [†]Baecher, JA, SB Reichling. **2018**. *Current Status of the Louisiana Pinesnake Captive Breeding Program at the Memphis Zoo*. **USFWS Working Group Meeting**. Shreveport, LA
- 16) ^{‡§}Jones, E, JA Baecher, M James, A Braccia, SC Richter. **2018**. *Influence of Salamanders on Leaf Litter Decomposition in Appalachian Headwater Streams*. **Kentucky Academy of Science**. Bowling Green, KY
- 15) [†]Gross, BA, Z Patton, JA Baecher. **2018**. *Evaluation of American Alligator Nuisance Management and Human-Alligator Conflict*. **25th Annual Crocodile Specialist Group**. Sante Fe, Argentina
- 14) [†]Baecher, JA, SC Richter. **2018**. *Natural Environmental Gradients Influence the Fine-scale Distribution and Abundance of Terrestrial Salamanders in an Old Growth Appalachian Forest*. **Joint Meeting of Ichthyology and Herpetology**. Rochester, NY
- 13) [†]Grap, P, S Harrel, ... JA Baecher. **2018**. *Habitat and community differences in the historic and current range of the Buck Darter (Etheostoma nebra)*. **Annual Meeting of the Association of Southeastern Biologists**. Myrtle Beach, SC
- 12) ^{†§}Peters, J, J Koslow, JA Baecher. **2018**. *Influences on the Presence of Invasive Plant Species within Old Growth Forest of Lilley Cornett Woods*. **Annual Meeting of the Association of Southeastern Biologists**. Myrtle Beach, SC
- 11) [†]Baecher, JA, SC Richter. **2017**. *Natural Environmental Gradients Influence the Fine-scale Distribution and Abundance of Terrestrial Salamanders in an Old Growth Appalachian Forest*. **University of Kentucky Center for Ecology, Evolution and Behavior**. Lexington, KY
- 10) ^{†§}Grap, P, S Harrel, D Black, JA Baecher. **2017**. *Habitat and community differences in the historic and current range of the Buck Darter (Etheostoma nebra)*. **Southeastern Fisheries Council Annual Meeting**. Chattanooga, TN
- 9) [‡]Baecher, JA, SC Richter. **2017**. *Modeling occupancy and abundance of terrestrial salamanders across natural environmental gradients in old growth forest*. **Southeastern Partners in Amphibian and Reptile Conservation Annual Meeting**. Little Rock, AR
- 8) [‡]Swartwout, M, P Vogrinc, JA Baecher, CS Kross, JD Willson. **2016**. *Growth and Phenotypic Plasticity of Nerodia sipedon in Response to Feeding Frequency and Prey Size*. **Joint Meeting of Ichthyology and Herpetology**. New Orleans, LA
- 7) [†]Baecher, JA, P Vongrinc, JD Willson. **2016**. *Herpetofauna of degraded and restored remnant tallgrass prairie*. **Joint Meeting of Ichthyology and Herpetology**. New Orleans, LA

- 6) †[Baecher, JA](#), DR Leasure, D Lynch, DD Magoulick. **2013**. *Impact of Anthropogenic Land Use and Hydrologic Disturbance on Crayfish Assemblages*. **Joint Meeting of Aquatic Sciences**. Portland, OR
- 5) †[Baecher, JA](#), DR Leasure, D Lynch, DD Magoulick. **2013**. *Impact of Anthropogenic Land Use and Hydrologic Disturbance on Crayfish Assemblages*. **Ecosystem Services Research Symposium**. Fayetteville, AR
- 4) †[Baecher, JA](#), DR Leasure, D Lynch, DD Magoulick. **2013**. *Impact of Anthropogenic Land Use and Hydrologic Disturbance on Crayfish Assemblages*. **Annual Meeting of the American Fisheries Society**. Little Rock, AR
- 3) †[Baecher, JA](#), J Ortega, SJ Beaupré. **2013**. *Use of Stable Isotope Analysis for Determining the Diet Breadth of the Western Cottonmouth (Agkistrodon piscivorus)*. **Society for Freshwater Science Annual Meeting**. Jacksonville, FL
- 2) †[Baecher, JA](#), J Ortega, SJ Beaupré. **2013**. *Use of Stable Isotope Analysis for Determining the Diet Breadth of the Western Cottonmouth (Agkistrodon piscivorus)*. **Arkansas Water Resource Conference**. Jacksonville, FL
- 1) †[Baecher, JA](#), J Ortega, SJ Beaupré. **2012**. *Use of Stable Isotope Analysis for Determining the Diet Breadth of the Western Cottonmouth (Agkistrodon piscivorus)*. **Ecosystem Services Research Symposium**. Fayetteville, AR

PEER REVIEW

JOURNAL (REVIEWED/REQUESTED):

BIOLOGICAL CONSERVATION (1/1); CONSERVATION SCIENCE AND PRACTICE (1/2); ECOGEOGRAPHY (1/1); ECOLOGY & EVOLUTION (4/5); HERPETOLOGICAL CONSERVATION BIOLOGY (3/5); HERPETOLOGICAL REVIEW (4/5); HYDROBIOLOGY (1/1); NATURAL AREAS JOURNAL (2/2); OECOLOGIA (1/2); SCIENTIFIC REPORTS (1/1); WILDLIFE SOCIETY BULL. (2/2)

MENTORSHIP

EASTERN KENTUCKY UNIVERSITY: [NATHAN MCGREGOR](#), [ASHLEY ALBINO](#), [EMILY JONES](#), [ALEX GIBSON](#), [MYESHA JAMES](#), [KELLEY HOEFER](#)

RHODES COLLEGE: [BILL HAUGE](#), [MADELINE ESTES](#)

UNIVERSITY OF FLORIDA: [SIERRA SCAUZILLO](#), [NOAH BOWEN](#)

NON-FUNDED PROPOSALS

AMOUNT	GRANT DESCRIPTION	DECISION	YEAR
\$235k	NSF: Postdoctoral Research Fellowship – Biology	<i>“Highly meritorious”</i>	2023
\$25k	The Wilderness Society: Gloria Barron Fellowship	<i>Declined</i>	2021
\$3,500	AmMusNatHist: Teddy Roosevelt Memorial Grant	<i>Declined</i>	2020
\$4,000	FCSal: Daniel M. Digiacomo Grant	<i>Declined</i>	2020
\$60k	Walt Disney Company: Disney Conservation Fund	<i>Inquiry declined</i>	2019
\$10k	NPS: James T. Tanner Memorial Fellowship	<i>Inquiry declined</i>	2019

VOLUNTEER AND OUTREACH ACTIVITIES

ACTIVITY EVENT (# OF ATTENDEES)	YEAR	CONT'D
<i>Outreach</i> UARK Sooi RSO Fair, AR (~300)	2013	<i>Hike leader</i> Maywoods Teach. Lab, KY (~100) 2015
<i>Outreach</i> UARK Razorbash, AR (~100)	2013	<i>Outreach</i> Floracliff Nature Sanct., KY (~35) 2015
<i>Outreach</i> Holt Middle School (~30)	2013	<i>Outreach</i> Model Elementary School, KY (~15) 2015
<i>Cleanup</i> Lake Fayetteville Watershed (~30)	2013	<i>Outreach</i> ECU Career Fair, KY (~150) 2016
<i>Outreach</i> Mt. Kessler Bioblitz, AR (~15)	2013	<i>Hike leader</i> Lilley Cornett Woods, KY (~20) 2016
<i>Clean up</i> Scull Creek, AR (~30)	2013	<i>Outreach</i> Water Quality Assessment, KY (~30) 2016
<i>Science Judge</i> NWA Sci. Eng. Fair (~50)	2013	<i>Hike leader</i> Lilley Cornett Woods, KY (~20) 2016
<i>Hike leader</i> Mt. Kessler Bioblitz, AR (~15)	2014	<i>Outreach</i> Rhodes College, TN (~25) 2017
<i>Hike leader</i> Ozark Nat. Sci. Center, AR (~30)	2014	<i>Outreach</i> Memphis Zoo, TN (~5) 2017
<i>Outreach</i> UARK Wildlife Society, AR (~40)	2014	<i>Outreach</i> Memphis Zoo, TN (~100) 2017
<i>Hike leader</i> Mt. Kessler Bioblitz, AR (~15)	2014	<i>Outreach</i> Memphis Zoo, TN (~200) 2018
<i>Hike leader</i> Woolsey Wet Prairie, AR (~10)	2014	<i>Outreach</i> Memphis Zoo, TN (~30) 2018
<i>Hike leader</i> Floracliff Nature Sanct., KY (~20)	2015	<i>Outreach</i> Memphis Zoo, TN (~15) 2019

PROFESSIONAL REFERENCES

BRETT R SCHEFFERS, Ph.D. | UNIVERSITY OF FLORIDA

ASSOCIATE PROFESSOR, Department of Wildlife Ecology and Conservation

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✉: brett.scheffers@ufl.edu

🌐: WEBSITE

ROBERT GURALNICK, Ph.D. | UNIVERSITY OF FLORIDA

CURATOR OF BIODIVERSITY INFORMATICS, Florida Museum of Natural History

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🌐: WEBSITE

STEPHEN C RICHTER, Ph.D. | EASTERN KENTUCKY UNIVERSITY

PROFESSOR, Department of Biological Sciences

DIRECTOR, Division of Natural Areas

EXECUTIVE DIRECTOR, Institute of Ag., Nat. Res., and the Envir.

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JOHN D ("JD") WILLSON, Ph.D. | UNIVERSITY OF ARKANSAS

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