

JESSICA L. TINGLE

ASSISTANT PROFESSOR, BROWN UNIVERSITY
ECOLOGY, EVOLUTION AND ORGANISMAL BIOLOGY
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PROFESSIONAL APPOINTMENTS

Assistant Professor, Brown University Department of Ecology, Evolution and Organismal Biology	7/2025–present
NSF Postdoctoral Fellow, University of Akron Department of Biology Sponsoring scientist: Henry Astley	9/2023–6/2025
Postdoctoral Researcher, University of Akron Department of Biology Advisor: Henry Astley	10/2021–8/2023

EDUCATION

Ph.D. Evolution, Ecology, and Organismal Biology University of California, Riverside; Advisor: Theodore Garland, Jr.	2021
B.S. Biological Sciences Cornell University; Cum Laude and Distinction in Research	2012

PEER-REVIEWED PUBLICATIONS

- 15 **Tingle, J.L.** 2025. A conceptual framework for integrative work in organismal biology, bioinspired design, and beyond. *Integrative and Comparative Biology* xx(xx): xx-xx.
- 14 **Tingle, J.L.,** K.L. Garner, and H.C. Astley. 2025. Fluoromicrometry reveals minimal influence of tendon elasticity during snake locomotion. *Journal of Experimental Biology* 228(5): jeb249259.
- 13 **Tingle, J.L.,** K.L. Garner, and H.C. Astley. 2024. Functional diversity of snake locomotor behaviors: A review of the biological literature for bioinspiration. *Annals of the New York Academy of Sciences* 1533(1): 16-37.
- 12 Garner, K.L., J.M. Ryan, **J.L. Tingle,** C.A.M. Hickerson, C.D. Anthony. 2024. Covariation and repeatability of aggressive and risk-taking behaviors in a terrestrial salamander (*Plethodon cinereus*). *Animal Behaviour* 213: 1-10.

- 11 **Tingle, J.L.**, B.M. Sherman, and T. Garland, Jr. 2023. Locomotor kinematics on sand vs. vinyl flooring in the sidewinder rattlesnake *Crotalus cerastes*. *Biology Open* 12: bio060146.
- 10 **Tingle, J.L.**, D.J. Jurestovsky, and H.C. Astley. 2023. The relative contributions of multiarticular snake muscles to movement in different planes. *Journal of Morphology* 284(6): e21591.
- 9 Jurestovsky, D.J., **J.L. Tingle**, and H.C. Astley. 2022. Corn snakes show consistent sarcomere length ranges across muscle groups and ontogeny. *Integrative Organismal Biology* 4(1): obac040.
- 8 **Tingle, J.L.**, B.M. Sherman, and T. Garland, Jr. 2022. Scaling and relations of morphology with locomotor kinematics in the sidewinder rattlesnake *Crotalus cerastes*. *Journal of Experimental Biology* 225(7): jeb243817.
- 7 Rieser, J.M., T-D. Li, **J.L. Tingle**, D.I. Goldman, and J.R. Mendelson III. 2021. Functional consequences of convergently-evolved microscopic skin features on snake locomotion. *Proceedings of the National Academy of Sciences* 118(6): e2018264118.
- 6 **Tingle, J.L.** and T. Garland, Jr. 2021. Morphological evolution in relationship to sidewinding, arboreality, and precipitation in snakes of the family Viperidae. *Biological Journal of the Linnean Society* 132(2):328-345.
- 5 **Tingle, J.L.** 2020. Facultatively sidewinding snakes and the origins of locomotor specialization. *Integrative and Comparative Biology* 60(1):202-214.
- 4 **Tingle, J.L.**, G.E.A. Gartner, B.C. Jayne, and T. Garland, Jr. 2017. Ecological and phylogenetic variability in the in the spinalis muscle of snakes. *Journal of Evolutionary Biology* 30(11):2031-2043.
- 3 **Tingle, J.L.** and T. Slimani. 2017. Snake charming in Morocco. *Journal of North African Studies* 22(4):560-577.
- 2 **Tingle, J.L.**, S.C. Cook-Patton, and A.A. Agrawal. 2016. Spillover of a biological control agent (*Chrysolina quadrigemina*) onto native St. Johnswort (*Hypericum punctatum*). *PeerJ* 4:e1886.
- 1 **Tingle, J.L.** 2012. Field observations on the behavioral ecology of the Madagascan leaf-nosed snake, *Langaha madagascariensis*. *Herpetological Conservation and Biology* 7:442-448.

INVITED PERSPECTIVES

- 3 Deitloff, J.M., R.E. Espinoza, and **J.L. Tingle**. 2023. The History of SSAR's Diversity, Equity, and Inclusion Committee. *Herpetological Review* 54(1):52-57.
- 2 **Tingle, J.L.** 2020. Cultivating inclusive communities in taxon-focused societies. *Herpetological Review* 51(3):663-665.
- 1 **Tingle, J.L.** 2013. Developing an undergraduate herpetology club at Cornell University. *Herpetological Review* 44(2):185-187.

GRANTS AND FELLOWSHIPS

TOTAL: \$492,056

Postdoctoral Research Fellowship in Biology, Award #2305218 National Science Foundation	\$240,000 , 2023–26
NSF Division of Environmental Biology Award #2016872 Diversity, Equity, and Inclusion in Herpetology and Ichthyology <i>* Co-wrote the proposal, but listed as Senior Personnel because NSF rules prohibit graduate students from serving as co-PIs</i>	\$46,586* , 2020
Symposium sponsorship grants for the Joint Meeting of Ichthyologists and Herpetologists (JMIH) Society for the Study of Reptiles and Amphibians, \$2,000 Herpetologists League, \$2,000 American Society of Ichthyologists and Herpetologists, \$1,500	\$5,500 , 2019
Dissertation Year Fellowship University of California, Riverside	\$7,200 , 2019
Spieth Memorial Graduate Award in Biology UCR Department of Evolution, Ecology, and Organismal Biology	\$1,000 , 2019
Graduate Dean's Dissertation Research Grant UC Riverside Graduate Division	\$800 , 2019
E.E. Williams Research Grant Herpetologists' League	\$1,000 , 2018
Vaughan H. Shoemaker Graduate Fellowship UCR Department of Evolution, Ecology, and Organismal Biology	\$750 , 2017
Fellowship for Graduate Student Travel Society for Integrative and Comparative Biology	\$1,400 , 2017
Graduate Research Fellowship National Science Foundation	\$138,000 , 2015–2020
Chancellor's Distinguished Fellowship University of California, Riverside	\$25,000 , 2015–2016
Fulbright Scholarship (Morocco) U.S. Department of State	\$15,220 , 2014
Critical Language Enhancement Award (Arabic) U.S. Department of State	\$7,600 , 2013–2014

Hughes Scholars Program
Howard Hughes Medical Institute

\$2,000, 2010

HONORS AND AWARDS

Outstanding Teaching Assistant Award	2019/2020
UC Riverside Graduate Division	2017/2018
James and Margaret Lesley Annual Prize, \$675	1/2020
UC Riverside College of Natural and Agricultural Sciences	
First place, Grad Slam Finalists at UCR Palm Desert, \$500	4/2019
UC Riverside Palm Desert campus	
Second runner up, Grad Slam Finals, \$1,000	3/2019
UC Riverside Graduate Division	
James Merrill and Adeline Wallace Annual Prize, \$2,000	2/2019
UC Riverside College of Natural and Agricultural Sciences	
First place, Science Slam, \$500	11/2018
UC Riverside College of Natural and Agricultural Sciences	
First runner up, Graduate Research Award, \$250	7/2018
Herpetologists' League	
First place (tie), GradFest Student Presentation Competition, \$50	3/2018
UC Riverside Department of Evolution, Ecology, and Organismal Biology	
First place, Student Research Presentation Competition, \$75	2/2017
Southwest Herp Fest (regional conference)	

INVITED TALKS

Society for Integrative and Comparative Biology	1/2025
Symposium: <i>From evolution to innovation: Bridging biology and engineering through bioinspired design.</i>	
Society for the Study of Amphibians and Reptiles	6/2024
Symposium: <i>Functional morphology of amphibians and reptiles: New theory and technology in the post-Gans era.</i>	
Georgia Institute of Technology	3/2024
School of Biological Sciences seminar	
Northern Kentucky University	10/2023
Department of Biological Sciences seminar series	

Case Western Reserve University Department of Biology seminar series	9/2023
Syracuse University Biology Department seminar series	4/2023
Loma Linda University Biology seminar series	2/2022
California Academy of Sciences Speaker series for a special event: <i>Snake Patrick's Day</i>	3/2021
Society for Integrative and Comparative Biology Symposium: <i>Long limbless locomotors: the mechanics and biology of elongate, limbless vertebrate locomotion.</i>	1/2020

SELECTED CONTRIBUTED CONFERENCE PRESENTATIONS

- Oral presentation at the Society for Integrative and Comparative Biology annual meeting:** *An in vivo examination of snake muscle shortening and vertebral column curvature using X-ray video.* (January 2024; Seattle, WA)
- Poster presentation at the American Society of Biomechanics annual meeting:** *A mathematical modelling approach to the mechanics of multiarticular muscles.* (August 2023; Knoxville, TN)
- Oral presentation at the Society for Integrative and Comparative Biology annual meeting:** *Contributions of multiarticular snake muscles to movement in different planes.* (January 2023; Austin, TX)
- Oral presentation at the Joint Meeting of Ichthyologists and Herpetologists:** *Stereotype threat as a barrier to belonging, and what we can do about it.* (July 2022; Spokane, WA)
- Oral presentation at the Society for Integrative and Comparative Biology annual meeting:** *Relating morphology, kinematics, and performance in the sidewinder rattlesnake (*Crotalus cerastes*).* (January 2022; Phoenix, AZ)
- Oral presentation at the Society for Integrative and Comparative Biology annual meeting:** *Morphological evolution in relation to sidewinding, arboreality, and precipitation in snakes of the family Viperidae.* (January 2021; virtual)
- Poster presentation at the Joint Meeting of Ichthyologists and Herpetologists:** *What determines vertebral count in snakes?* (July 2019; Snowbird, UT)
- Oral presentation at the Society for Integrative and Comparative Biology annual meeting:** *Body size and shape influence kinematics of sidewinding locomotion in the rattlesnake *Crotalus cerastes** (January 2019; Tampa, FL)

Oral presentation at the Joint Meeting of Ichthyologists and Herpetologists: *Scaling of morphology and locomotion in the sidewinder rattlesnake, Crotalus cerastes* (July 2018; Rochester, NY)

Oral presentation at the Society for Integrative and Comparative Biology annual meeting: *Effects of body size and morphology on sidewinding kinematics in the rattlesnake Crotalus cerastes* (January 2018; San Francisco, CA)

Oral presentation at the Joint Meeting of Ichthyologists and Herpetologists: *Morphological correlates of locomotor specialization in vipers* (July 2017; Austin, TX)

TEACHING AND MENTORSHIP

TEACHING EXPERIENCE

Seminar Guest for E&EB 850: Macroevolution of Squamates spring 2025
Yale University

- Session on locomotor diversity and evolution

Guest Lecturer for BIOL 3345: Herpetology spring 2024
Schreiner University

- Undergraduate course
- Guest lecture on snake biomechanics and functional morphology

Guest Lecturer for BIOL 701: Research Techniques in Integrated Bioscience fall 2023
University of Akron

- Graduate course
- Two lectures covering experimental design, data quality, and statistical analysis

Guest Lecturer for BIOL 797: Integrated Bioscience Colloquium spring 2022
University of Akron

- Graduate seminar
- Lecture: "Single-species and comparative approaches to specialized snake locomotion"

Facilitator for the GradEdge/JumpStart NSF GRFP Workshop Series summer 2020
University of California, Riverside; Graduate Writing Center summer 2021

- Non-credit eight-week fellowship writing program for incoming graduate students; two sections per week

TA for BIOL 005B: Introduction to Organismal Biology spring 2020
University of California, Riverside

- Two labs per week, online due to COVID-19

TA for BIOL 161A & 161B: Functional Anatomy of the Vertebrates University of California, Riverside	winter 2020 fall 2018 fall 2017
<ul style="list-style-type: none"> • Four discussion sections per week 	
TA for BIOL 163: Evolutionary Ecology of the Terrestrial Vertebrates University of California, Riverside	fall 2019
<ul style="list-style-type: none"> • One lab section and one field trip per week, including two overnight field trips 	
Guest Seminar Facilitator for EEOB 210: Organismal Biology University of California, Riverside	spring 2018
<ul style="list-style-type: none"> • Graduate seminar; facilitated two separate discussions 	
Guest Lecturer for BIOL 005B: Introduction to Organismal Biology University of California, Riverside	spring 2017
<ul style="list-style-type: none"> • Lecture: “Muscles and Movement Part 1: Animal Locomotion” 	

TRAINING/CERTIFICATIONS

Including Indigenous Peoples in Research and Pedagogy Society for Integrative and Comparative Biology	11/2022
Certified Master Tutor, Level III College Reading & Learning Association International Tutor Training Program	2020
University Teaching Certificate Program University of California, Riverside	1–6/2019
Graduate Student Diversity Certificate Program University of California, Riverside	3–6/2018
BIOL 301: Teaching Biology at the College Level University of California, Riverside	9–12/2017
Teaching Development Day University of California, Riverside	5/2017
ENTOM 3350: Naturalist Outreach Practicum Cornell University	1–5/2012

MENTORSHIP AND SUPPORT ROLES

Founder and Coordinator, SSAR Graduate Student Mentorship Program Society for the Study of Amphibians and Reptiles	9/2024– present
Graduate Committee Member, Kelsey Garner University of Akron	9/2024– present

Mentor for graduate students University of Akron	10/2021– 6/2025
Panelist, Grad School 101 Workshop Científico Latino	
Panelist, Pre-College Scholars Program: “Inclusive Herpetology” Society for the Study of Amphibians and Reptiles	3/2023
STEM Coordinator, Graduate Student Mentorship Program University of California, Riverside	8/2020– 6/2021
<ul style="list-style-type: none"> Designed mentorship programming to enhance first year graduate student retention and success efforts across departments Created a successful application for program accreditation through the College Reading & Learning Association 	
Mentor, EEB Mentor Match Administered by Samniqueka Halsey and Terry McGlynn	2020; 2022
Mentor to undergraduate and high school research assistants University of California, Riverside	1/2017– 5/2021
Consultant, Graduate Writing Center University of California, Riverside	9/2019– 9/2020
Presenter, Graduate Writing Center Workshop: “Applying for Fellowships” University of California, Riverside	5/2020
Invited speaker, Physics Organization for Womxn and the Under-Represented UC Riverside Physics Department	3/2020
<ul style="list-style-type: none"> Talk: “Broadening participation in STEM by reducing stereotype threat” 	
Presenter, Graduate Writing Center Workshop: “Writing Concisely” University of California, Riverside	1/2020
Mentor, SICB Broadening Participation Mentorship Program Society for Integrative and Comparative Biology annual meeting	2020; 2021; 2023
Mentor, JMIH Mentorship Program Joint Meeting of Ichthyologists and Herpetologists	7/2019; 7/2022
Invited speaker, Graduate Student Diversity Certificate Program University of California, Riverside	5/2019
<ul style="list-style-type: none"> Talk: “Mitigating stereotype threat through growth mindsets” 	
Presenter, Teaching Development Day University of California, Riverside	5/2019
<ul style="list-style-type: none"> Talk: “Mitigating stereotype threat through growth mindsets” 	

Panelist, STEM TA Roundtable University of California, Riverside	4/2019
Panelist, Grant Writing Workshop for EEOB 265: “Lunch Bunch” University of California, Riverside	4/2016
Science Surprises Part-Time Educator Ithaca Science Center	2–6/2013
<ul style="list-style-type: none"> • Provided an after-school enrichment program to K-6 children by preparing and delivering inquiry-based science activities at schools 	

PROFESSIONAL LEADERSHIP AND SERVICE

Co-Chair, Diversity, Equity, and Inclusion Committee Society for the Study of Amphibians and Reptiles	6/2020–present
<ul style="list-style-type: none"> • Spearheaded many of the action items listed here: https://ssarherps.org/ssar-actions-to-promote-diversity-equity-and-inclusion/ 	
Member, Long-Range Planning Committee Society for the Study of Amphibians and Reptiles	3/2019–present
Member, Symposium Committee American Society of Ichthyologists and Herpetologists	7/2024–6/2027
Conference Conduct Officer Society for the Study of Amphibians and Reptiles	7/2024
Judge, Hutchison Poster Competition for Graduate Students Society for the Study of Amphibians and Reptiles	7/2023
SSAR Representative for the AIBS IDEA Conference American Institute of Biological Sciences Society for the Study of Amphibians and Reptiles	10/2022 <i>three virtual sessions</i>
<i>Topic: Enabling Scientific Societies to Support Inclusive, Diverse, Equitable, and Accepting (IDEA) Scientific Environments</i>	
Symposium organizer: “Diversity, Equity, and Inclusion in Ichthyology and Herpetology” Joint Meeting of Ichthyologists and Herpetologists	7/2022 <i>postponed from 2020 due to COVID-19</i>
Website Coordinator Society for the Study of Amphibians and Reptiles	7/2019–10/2023
Judge, Grad Slam University of California, Riverside	2/2022

Chair, Student Participation Committee 7/2018–7/2021
Society for the Study of Amphibians and Reptiles

Graduate student representative, faculty hiring committee 7/2017–2/2018
University of California, Riverside

Peer reviewer

- Annals of the Brazilian Academy of Sciences
- Behavioral Ecology
- Bioinspiration & Biomimetics
- BMC Evolutionary Biology
- Communications Biology
- Ecology and Evolution
- Global Ecology and Biogeography
- Herpetological Review
- Integrative and Comparative Biology
- International Journal of Zoology
- Journal of Experimental Biology
- Journal of Herpetology
- Journal of the Royal Society Interface
- Journal of Zoology
- micropublication Biology
- Royal Society Open Science
- Scientific Reports
- Zoology

PROFESSIONAL DEVELOPMENT

GIS in R: Fundamentals and applications for ecologists Oct–Dec 2024
Smithsonian Mason School of Conservation

- Taught by Brian Evans and Tara Snedgen

Comparative Biology and Functional Morphology in the 21st Century June 25–27, 2024
University of Michigan

- Organized by U Michigan faculty and staff

From Postdoc to Principal Investigator Sept 13–14, 2023
An NSF IOS Virtual Colloquium

- Organized by NSF Program Officers for selected postdocs

Phylogenetic Comparative Methods for Biomechanists June 11–16, 2023
University of Oklahoma Biological Station

- Organized by Daniel Moen, Monique Simon, and Rafael Bovo

Evolutionary Quantitative Genetics Workshop June 3–9, 2018
Friday Harbor Labs

- Organized by Stevan Arnold and Joe Felsenstein

Workshop: Natural History and Morphology – Engines of Inspiration July 15, 2017
Joint Meeting of Ichthyologists and Herpetologists

- Organized by Stephanie Crofts and Adam Summers

Short course: Analysis of Diversification Rates from Phylogenies

June 22–23, 2017

Oregon State University

- Organized by Dan Rabosky and Brian Sidlauskas

EDUCATIONAL OUTREACH

Biomechanics Day: Animals in Motion

3/2024

Zoo Atlanta

3/2023

- Led an activity involving programmable snakelike-robots to help kids gain a hands-on experience to understand limbless locomotion

Biomimicry outreach

10/2023

Bio-Med Science Academy, Ravenna, OH

- Assisted with a presentation and activity on biomimicry for 5th-graders

Snake Robot Outreach

2/2023

Akron Public Schools East Community Learning Center

- Helped guide 7th-graders through an activity involving programmable snakelike-robots to demonstrate principles of limbless locomotion

Science Ambassador Program

5/2021

University of California, Riverside

- Presented research and discussed career trajectory at a meeting of UCR's undergraduate Science Ambassador Program

Success in Science and Technology: Engagement with Role Models (SISTERS)

4/2021

University of California, Riverside

- Facilitated a meeting for the SISTERS program, which serves middle-school girls who will be first-gen high-school or college graduates

STEAM Storytime at the Riverside Public Library

2/2020

- Taught pre-K through elementary school students about reptiles with a story, live animals, and hands-on activities

5/2018

UC Riverside science event

6/2019

- Hosted a booth to teach ~90 second-graders about snake biology

Science fair judging

2/2019

Riverside Unified School District and St. Catherine of Alexandria, Riverside, CA

1/2019

Society for Integrative and Comparative Biology outreach event:

1/2019

What is a scientist?

Stewart Magnet Middle School, Tampa, FL

- Familiarized students in two classes with general goals and specific activities of scientists, then led a miniature research project

Herpetology Hotline Responder	9/2017– 8/2019
<ul style="list-style-type: none"> Answered 155 questions via the Society for the Study of Amphibians and Reptiles online hotline, which is accessible to the general public 	
Animal adaptations presentation	5/2018
Columbia Elementary School, Perris, CA	3/2017
<ul style="list-style-type: none"> Taught elementary school students (eleven classes total on three visits) about animal adaptations using hand-on activities 	12/2016
Reptiles outreach at after-school science club	3/2018
REACH Leadership Academy, Riverside, CA	11/2016
<ul style="list-style-type: none"> Used live animals to instill knowledge of and appreciation for reptiles in elementary school students 	
Science Olympiad mentorship	12/2017– 2/2018
On-campus at the University of California, Riverside	
<ul style="list-style-type: none"> Led workshops to prepare high school students for the Science Olympiad competition 	
Upward Bound Math and Science Program	4/2017
Vista del Lago High School, Moreno Valley, CA	
<ul style="list-style-type: none"> Discussed academic opportunities and science careers with low-income high school students 	
UC Riverside Science Day	2/2017
<ul style="list-style-type: none"> Led activities for ~200 fourth-grade students to learn about animal diversity and adaptation 	
Video: “Reptiles: Diversity, Feeding, Defense”	2012
<ul style="list-style-type: none"> Developed and presented educational video with a fellow student as part of the Cornell University Naturalist Outreach Program http://www.cornell.edu/video/naturalist-outreach-reptiles---diversity-feeding--defense 	
Educational pamphlet: “Basic Biology of Reptiles & Amphibians”	2012
<ul style="list-style-type: none"> Developed educational pamphlet with a fellow student as part of the Cornell University Naturalist Outreach Program http://calscomm.cals.cornell.edu/naturalist/Naturalist-Outreach-Reptile-diversity-feeding-defense.pdf 	
Cornell Herpetological Society	3/2009– 5/2012
<ul style="list-style-type: none"> Conducted dozens of educational outreach events for undergraduates, elementary school students, and community members in and around Ithaca, NY 	

PROFESSIONAL SOCIETY MEMBERSHIP

Society for Integrative and Comparative Biology (SICB)

American Society of Biomechanics (ASB)

American Association for Anatomy (AAA)

Society for the Study of Amphibians and Reptiles (SSAR)

American Society for Ichthyologists and Herpetologists (ASIH)

Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)