

John David Curlis, Jr.

Doctoral Candidate, University of Michigan

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Education

- 2018– **Ph.D. in Ecology and Evolutionary Biology**
University of Michigan, Ann Arbor, MI
Dissertation: Color evolution across squamate signaling systems
Advisor: Alison R. Davis Rabosky
- 2015–2017 **M.S. in Biology**
Georgia Southern University, Statesboro, GA
Thesis: Evolutionary linkage of mimetic and non-mimetic color traits in a coral snake mimicry complex
Advisor: Christian L. Cox
- 2011–2014 **B.A. in Biology**
Specialization in Biological and Environmental Conservation
University of Virginia, Charlottesville, VA

Peer-Reviewed Publications

*directly mentored student †undergraduate student ‡graduate student

In Preparation

24. **JD Curlis**, DJ Nicolson[‡], MA Hirst[‡], HL Crowell[‡], E Connolly-Randazzo[‡], N Gripshover[‡], WO McMillan, CL Cox, ML Logan, AR Davis Rabosky. Spatial distribution of *Anolis* dewlap morphs reflects differences in light environment. In prep. for *The American Naturalist*.
23. **JD Curlis**, DJ Nicolson[‡], MA Hirst[‡], HL Crowell[‡], E Connolly-Randazzo[‡], N Gripshover[‡], A Rosso[‡], E Folfas[‡], B Casement, M Gallegos-Koyner[†], L Neel[‡], CE Williams[‡], WO McMillan, CL Cox, ML Logan, AR Davis Rabosky. What makes a morph? Anoles with divergent dewlap colors show little genetic differentiation and do not differ in morphology, physiology, or behavior. In prep. for *Evolution*.
22. **JD Curlis** and HL Crowell[‡] (co-first authors), AR Davis Rabosky. How to leverage fluid-preserved museum specimens for analyses of color. In prep. for *Zoology*.
21. HL Crowell[‡] and **JD Curlis** (co-first authors), H Weller[‡], AR Davis Rabosky. Widespread UV reflectance across the snake tree of life is structured by ecology and ontogeny. In prep. for *Science*.

In Review

20. DJ Nicholson[‡], RJ Knell, R McCrea, LK Neel[‡], **JD Curlis**, CE Williams[‡], AK Chung[‡], WO McMillan, TWJ Garner, CL Cox, ML Logan. Climate anomalies and competition reduce establishment success during biological invasion. Submitted to *Oikos*.
19. C Williams[‡], J Kueneman, DJ Nicholson[‡], A Rosso[‡], E Folfas[‡], B Casement, M Gallegos-Koyner[†], L Neel[‡], **JD Curlis**, WO McMillan, CL Cox, ML Logan. Sustained drought, but not short-term warming, alters the gut microbiome of wild *Anolis* lizards. Submitted to *Applied and Environmental Microbiology*.
18. DJ Nicholson[‡], RJ Knell, TWK Garner, WO McMillan, LK Neel[‡], Z Degon[†], M DuBois[†], X Ortiz-Ross[†], AK Chung[‡], **JD Curlis**, T Thurman, CL Cox, ML Logan. Behavioral shifts lead to rapid morphological change in novel environments. Submitted to *Journal of Animal Ecology*.
17. AA Rosso[‡], ML Logan, B Casement[†], AK Chung[‡], **JD Curlis**, E Folfas[†], M Gallegos[†], LK Neel[‡], DJ Nicholson[‡], C Williams[†], WO McMillan, CL Cox. Gene expression and physiology respond plastically to temperature change in a tropical ectotherm. Submitted to *The American Naturalist*.

In Print

16. **JD Curlis**, R Scott[‡], E Evans[‡], M Cawthorn, R Chandler, L McBrayer, J Roberts. 2022. Biodiversity between buildings: Results of a two-year vertebrate survey on a university campus. *Urban Naturalist* (in press).
15. **JD Curlis** and T Renney*[†] (co-first authors), AR Davis Rabosky, TY Moore. 2022. Batch-Mask: Automated image segmentation for organisms with limbless or non-standard body forms. *Integrative and Comparative Biology* (early-access published).
14. L Wilson[‡], G Lonsdale[‡], **JD Curlis**, EA Hunter, CL Cox. 2022. Predator-based selection and the impact of edge sympatry on components of coral snake mimicry. *Evolutionary Ecology*, 36(1): 135–149.
13. **JD Curlis**, CL Cox, RM Cox. 2021. Sex-specific population differences in resting metabolism are associated with intraspecific variation in sexual size dimorphism of brown anoles. *Physiological and Biochemical Zoology*, 94(4): 205–214.
12. LK Neel[‡], ML Logan, DJ Nicholson[‡], C Miller[‡], AK Chung[‡], I Maayan[‡], Z Degon[†], M DuBois[†], **JD Curlis**, Q Taylor[†], K Keegan, WO McMillan, JB Losos, CL Cox. 2021. Habitat structure mediates vulnerability to climate change through its effects on thermoregulatory behavior. *Biotropica*, 53(4): 1121–1133.
11. **JD Curlis**, AR Davis Rabosky, IA Holmes[‡], TJ Renney[†], CL Cox. 2021. Genetic mechanisms and correlational selection structure trait variation in a coral snake mimic. *Proceedings of the Royal Society B*, 288(1947): 20210003.

10. CL Cox, J Bowers[†], C Obialo[‡], **JD Curlis**, JW Streicher. 2021. Spatial and temporal dynamics of exuberant color polymorphism in the southern cricket frog. *Journal of Natural History*, 54(35-36): 2249–2264.
9. ML Logan, LK Neel[‡], DJ Nicholson[‡], AJ Stokes[†], CL Miller[‡], AK Chung[‡], **JD Curlis**, KM Keegan, AA Rosso[‡], I Maayan[‡], E Folfas[†], CE Williams[†], B Casement[†], MA Gallegos Koyner[†], DJ Padilla Perez[‡], CH Falvey[†], SM Alexander[†], KL Charles, ZA Graham[‡], WO McMillan, JB Losos, CL Cox. 2021. Sex-specific microhabitat use is associated with sex-biased thermal physiology in *Anolis* lizards. *Journal of Experimental Biology*, 224(2): jeb235697.
8. AA Rosso[‡], DJ Nicholson[‡], ML Logan, AK Chung[‡], **JD Curlis**, ZM Degon[†], RJ Knell, TWJ Garner, WO McMillan, CL Cox. 2020. Sex-biased parasitism and expression of a sexual signal. *Biological Journal of the Linnean Society*, 131(4):785–800.
7. CL Cox, HO Tribble[†], S Richardson[†], AK Chung[‡], **JD Curlis**, ML Logan. 2020. Thermal ecology and physiology of an elongate and semi-fossorial arthropod, the bark centipede. *Journal of Thermal Biology*, 94: 102755.
6. CL Cox, S Alexander[†], B Casement[†], AK Chung[‡], **JD Curlis**, Z Degon[†], M DuBois[†], C Falvey[†], Z Graham[‡], E Folfas[†], M Gallegos[†], LK Neel[‡], DJ Nicholson[‡], DJ Padilla Peréz[‡], X Ortiz-Ross[†], AA Rosso[‡], Q Taylor[†], TJ Thurman, C Williams[†], WO McMillan, ML Logan. 2020. Ectoparasite extinction in simplified lizard assemblages during experimental island invasion. *Biology Letters*, 16(8): 20200474.
5. **JD Curlis**, EC Fisher[†], WK Muhic[†], J Moy, M Garro-Cruz, JJ Montero-Ramírez. 2020. A survey of the reptiles and amphibians at the University of Georgia Costa Rica field station in San Luis de Monteverde, Costa Rica. *Check List*, 16(6): 1433–1456.
4. LK Neel[‡], **JD Curlis**, CT Kinsey[‡], CL Cox, LD McBrayer. 2020. Acclimation in the physiological performance of an introduced ectotherm. *Journal of Experimental Biology*, 223(6): jeb201517.
3. ML Logan, **JD Curlis**, AL Gilbert[‡], DB Miles, AK Chung[‡], JW McGlothlin, RM Cox. 2018. Thermal physiology and thermoregulatory behaviour exhibit low heritability despite genetic divergence between lizard populations. *Proceedings of the Royal Society B*, 285(1878): 2018097.
2. **JD Curlis**, R Davis[†], E Zetkovic[†], CL Cox. 2017. Condition dependence of shared traits differs between sympatric *Anolis* lizards. *Journal of Experimental Zoology Part A*, 327: 110–118.
1. **JD Curlis**, DC Macklem[†], R Davis[†], CL Cox. 2016. Sex-specific antipredator response to auditory cues in the black spiny-tailed iguana. *Journal of Zoology*, 299(1): 68–74.

Natural History & Geographic Distribution Notes

8. **JD Curlis**, MA Hirst[‡], A Curlis, D Curlis. 2022. Natural history note: *Anolis carolinensis* (Green Anole) habitat use. *Herpetological Review*, 52(3): 316–317.

7. **JD Curlis**, P Cerda[‡], AR Davis Rabosky, M Grundler[‡], I Holmes[‡], B Sealey[‡], C Whitcher[†], M Grundler[‡], E Westeen[‡]. 2020. Geographic distribution note: *Rhadinella kinkelini* (Kinkelin's Graceful Brownsnake). *Herpetological Review*, 51(4): 783.
6. **JD Curlis**, P Cerda[‡], AR Davis Rabosky, M Grundler[‡], I Holmes[‡], B Sealey[‡], C Whitcher[†], M Grundler[‡], E Westeen[‡]. 2020. Geographic distribution note: *Bromeliohyala bromeliacia* (Bromeliad Treefrog). *Herpetological Review*, 51(4): 768.
5. **JD Curlis**, P Cerda[‡], AR Davis Rabosky, M Grundler[‡], I Holmes[‡], B Sealey[‡], C Whitcher[†], M Grundler[‡], E Westeen[‡]. 2020. Geographic distribution note: *Sibon dimidiatus* (Slender Snail Sucker). *Herpetological Review*, 51(4): 783.
4. G. Lonsdale[‡], **J. D. Curlis**, TW Brown[‡], T Martin. 2020. Natural history note: *Oedipina tomasi* (El Cusuco Worm Salamander) predation. *Herpetological Review*, 51(2): 293.
2. **JD Curlis**, MA Hirst[‡], MD Baiz[‡]. 2019. Second observation of *Dermatemys mawii* in the upper Yucatán peninsula: a new population or an old individual? *The Herpetological Bulletin*, 149: 47–48.
2. TW Brown[‡], **JD Curlis**, G Lonsdale[‡], C Thorpe[†], A Hoad[†]. 2018. Color change in the gorgetal scales of an anole, *Anolis amplisquamosus* (Squamata: Dactyloidae). *IRCF Reptiles & Amphibians*, 25(2): 127–128.
1. **JD Curlis**, DC Macklem[†]. 2017. Geographic distribution note: *Agalychnis spurrelli* (Gliding Leaf Frog). *Herpetological Review*, 48(3): 582–583.

Awards

2022	Most Outstanding EEB Graduate Student Publication <i>Department of Ecology and Evolutionary Biology, University of Michigan</i>
2018–2019	Program in Biology Teaching Excellence Award [2-time recipient] <i>Program in Biology, University of Michigan</i>
2017	Jack N. Averitt Award for Excellence in Graduate Research <i>College of Graduate Studies, Georgia Southern University</i>

Grants, Fellowships, & Funding

2021	Edwin H. Edwards Scholarship in Biology [\$12,770] <i>Department of Ecology and Evolutionary Biology, University of Michigan</i>
2020	Hinsdale & Walker Scholarship [\$4,000] <i>University of Michigan Museum of Zoology (UMMZ)</i>
2019–2022	Charles F. Walker Scholarship [3-time recipient, total \$9,965] <i>University of Michigan Museum of Zoology (UMMZ)</i>
2019–2022	Departmental Research Award [2-time recipient, total \$500] <i>Department of Ecology and Evolutionary Biology, University of Michigan</i>
2019–2022	STRI Short-term Fellowship [3-time recipient, total \$4,250] <i>Smithsonian Tropical Research Institute</i>

- 2019 Tinker Field Research Grant [\$2,200]
Center for Latin American and Caribbean Studies, University of Michigan
- 2019 Rackham Pre-Candidate Research Grant [\$1,500]
Rackham Graduate School, University of Michigan
- 2018–2022 Departmental Travel Award [3-time recipient, total \$1,200]
Department of Ecology and Evolutionary Biology, University of Michigan
- 2018–2022 Rackham Conference Travel Grant [3-time recipient, total \$3,00]
Rackham Graduate School, University of Michigan
- 2017 Theodore Roosevelt Memorial Fund [\$2,500]
American Museum of Natural History
- 2016 Margaret Walton Scholarship [\$400]
Mountain Lake Biological Station, University of Virginia
- 2015–2017 Graduate Student Professional Development Fund [5-time recipient, total \$2,927]
College of Graduate Studies, Georgia Southern University

Conference Presentations

- 2022 **JMIH**, Spokane, WA, USA
Oral Presentation: What makes a morph? Tests of intraspecific variation in phenotypes and genotypes between anoles with divergent dewlap colors.
- 2020 **World Congress of Herpetology**, Dunedin, New Zealand
Oral Presentation: Experimentally testing the evolutionary drivers of a colorful signal in *Anolis* lizards.
- 2019 **SICB**, Tampa, FL, USA
Oral Presentation: Evolutionary linkage of mimetic and non-mimetic color traits in a coral snake mimicry complex.
Finalist for Raymond B. Huey Best Student Presentation Award in Division of Ecology and Evolution
- 2017 **SICB**, New Orleans, LA, USA
Poster Presentation: Spatial variation of mimetic and non-mimetic color polymorphism in the western ground snake.
- 2016 **Evolution**, Austin, TX, USA
Poster Presentation: Condition dependence of shared traits differs between sympatric *Anolis* lizards.
- 2016 **SICB**, Portland, OR, USA
Poster Presentation: Sex-specific population differences in metabolism are associated with intraspecific variation in sexual size dimorphism in brown anole lizards.

Teaching Experience

Courses Taught

- 2018–2019 **Introduction to Evolution, Genetics, and Ecology (BIO 171)**
Graduate Student Instructor, *University of Michigan*

- 2017 **Tropical Field Ecology in Costa Rica** (ECOL 3100)
Teaching Assistant, *University of Georgia*
- 2017 **Tropical Ecology Lab in Costa Rica** (ECOL 3510)
Teaching Assistant, *University of Georgia*
- 2017 **Herpetology** (BIOL 5445)
Teaching Assistant, *Georgia Southern University*
- 2016 **Field Herpetology at Mountain Lake Biological Station** (BIOL 4754)
Teaching Assistant, *University of Virginia*
- 2015–2016 **Environmental Biology Lab** (BIOL 1210)
Teaching Assistant, *Georgia Southern University*

Guest Lectures

- 2017 **Principles of Physiology** (BIOL 3131), *Georgia Southern University*
- 2016 **Wildlife Biology** (BIOL 5530), *Georgia Southern University*
- 2016 **Field Biology** (BIOL 3440), *Georgia Southern University*

Research & Curatorial Assistantships

- 2022 **UMMZ Division of Fishes Curatorial Assistant**
University of Michigan Museum of Zoology (UMMZ)
- 2021 **UMMZ Division of Birds Curatorial Assistant**
University of Michigan Museum of Zoology (UMMZ)
- 2020–2022 **UMMZ Division of Reptiles & Amphibians Curatorial Assistant**
University of Michigan Museum of Zoology (UMMZ)
- 2016–2017 **Vertebrate Biodiversity Survey Research Assistant**
Georgia Southern University

Outreach, Service, & Mentoring Experience

- 2022 **Snake ambassador** at *Southwestern Research Station* outreach event
Taught Portal, AZ residents and visiting undergraduate class about kingsnakes and facilitated holding and/or touching of captive snakes.
- 2022 **Ambassador** for *Michigan DNA Day*
Taught students about DNA, genomics, and inheritance at Martin Luther King Jr. Senior High School in Detroit, Michigan.
- 2021–2022 **Mentor** for *University of Michigan* undergraduate thesis student Haley Martens
Mentored student in comparing anti-predator behaviors of coral snakes and their mimics, as well as guided them through the publishing process.
- 2021 **Contributor** to *University of Michigan EEB* “Science Fun Facts” page
Wrote blog post about *Anolis dewlap* color evolution.
- 2021 **Peer mentor** in *University of Michigan EEB* Big Sib/Little Sib Program
Mentored and guided incoming graduate student in EEB department.
- 2020–2021 **Mentor** for *University of Michigan* UROP students Meilyn Ward, Nicole Tseung, Teagan Walsh, and Haley Martens
Mentored students in using ethograms to quantify snake anti-predator behaviors.

- 2019–2021 **Member** of *University of Michigan EEB Seminar Committee*
Helped organize and handled logistics for EEB department’s Thursday seminars.
- 2018–2021 **Mentor** for *University of Michigan UROP student Timothy Renney*
Mentored student in creating and applying a neural network to isolate snakes in photographs, as well as guided them through the publishing process.
- 2018 **Snake specialist** for *Operation Wallacea*
Led students on herpetological surveys, gave lectures on coral snake biology and mimicry, and served as venomous snake handler/relocator in Cusuco National Park, Honduras.
- 2018 **Resident naturalist intern** at the *University of Georgia Costa Rica campus*
Led bilingual guided natural history walks and gave bilingual natural history focused lectures to student groups and eco-tourists in Monteverde, Costa Rica.
- 2017–present **Contributor** to *Anole Annals* (anole.annals.org) blog
Wrote and/or contributed to multiple blog posts concerning research on *Anolis* lizards.
- 2017–2018 **Mentor** for *Georgia Southern University* undergraduate student Kyle Sweeney
Mentored student in analyzing anole dewlap size and color.
- 2017 **Presenter** at Sustainability Showcase, *Georgia Southern University*
Gave public poster presentation on results of the Georgia Southern Vertebrate Biodiversity Survey.
- 2016–2017 **Reptile and amphibian ambassador** at STEMfest, *Georgia Southern University*
Taught children about reptiles and amphibians and facilitated holding and/or touching of captive snakes and lizards.
- 2016 **Mentor** for *Georgia Southern University* undergraduate student Chinonye Obialo
Mentored student in scoring snake specimens for the presence/absence of color traits.
- 2014 **Insect ambassador** at Kid*Vention, *Virginia Discovery Museum*
Taught children about invertebrates and facilitated holding and/or touching of captive insects.

Fieldwork

- 2022 **Southwestern Research Station, Arizona, USA** [10 days]
2021 **Texas, USA** [one week]
2019 **BFREE Field Station, Belize** [two weeks]
2018 **Cusuco National Park, Honduras** [two months]
2018 **San Luis, Monteverde, Costa Rica** [five months]
2017–2022 **Gamboa and Lake Gatún, Panama** [five trips, total of 10 months]
2016 **Missouri and New Mexico, USA** [two weeks]
2015–2016 **West Palm Beach, Florida, USA** [three trips, total of three weeks]
2015 **Charlotte, North Carolina, USA** [two months]
2014 **Costa Rica (multiple sites)** [four months]
2014 **Palm Coast, Florida, USA** [two weeks]
2012 **San Salvador, Bahamas** [three weeks]

Workshop Participation

2020 **Speciation-based Delimitation** at *University of Michigan*
2020 **Reproducible Data Analysis with R** at *University of Michigan*
2020 **Research Computing on the Great Lakes Cluster** at *University of Michigan*
2019 **Wilderness First Aid Training** at *University of Michigan*

Reviewer Service

Journal of Natural History
Journal of Herpetology

Membership in Professional Societies

Society for Integrative and Comparative Biology
Society for the Study of Evolution
American Society of Ichthyologists and Herpetologists
Society for the Study of Amphibians and Reptiles