

# Morgan Renee Muell, PhD

## Postdoctoral Researcher

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Department of Integrative Biology

College of Natural Sciences

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## Appointments

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2026-present	Postdoctoral Researcher, University of Texas, Austin, TX <i>PI: Dr. Becca Young</i>
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## Education

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2020-2025	Ph.D., Biological Sciences, Auburn University, Auburn AL <i>PI: Dr. Daniel A. Warner</i> <i>PI: Dr. Jamie R. Oaks</i> Dissertation: The comparative evolution of developmental plasticity across <i>Anolis</i> lizards	GPA: 4.0/4.0
2018-2020	M. S., Zoology, Southern Illinois University, Carbondale IL <i>PI: Dr. Jason L. Brown</i> Thesis: Phylogenomic analysis of evolutionary relationships in <i>Ranitomeya</i> poison frogs (Amphibia: Dendrobatidae) using ultraconserved elements	GPA: 4.0/4.0
2018	B. S., Biology, Iowa State University, Ames IA <i>With Honors</i> Minors: Anthropology and Animal Ecology <i>PI: Dr. Fredric J. Janzen</i>	GPA: 3.78/4.0

## Honors and Awards

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	8 graduate student research grants (3 external)	\$40,712.20 awarded
	6 graduate student awards for excellence	
	4 graduate student fellowships (2 external)	
	5 conference travel awards	
2025	PhD Student Dean's Research Award – Auburn University College of Science and Mathematics (\$250)	
	Biological Sciences Outstanding Research Award – Auburn University (\$500)	
2024	Henry Leigh Fellowship – Organization for Tropical Studies (\$1,631.20)	
	Emily P. Foster Fellowship – Organization for Tropical Studies (\$1,631.20)	
	Lewis and Clark Fund – American Philosophical Society (\$5,000)	
	Guy V. Bullock Endowed Fund for Excellence in Conservation (\$2,000) – AUMNH	
	Auburn University Museum of Natural History Volunteer Award (\$150)	
	Graduate Student Council Conference Travel Award (\$400)	
2023	Margaret McNeal Arant Memorial Award for Outstanding Achievement in Zoology (\$500)	
	Gaige Fund (\$1,000) – American Society of Ichthyologists and Herpetologists	
	Nanette Chadwick Memorial Award (\$500) – Auburn Department of Biological Sciences	
	Meredith Ann Birchfield Endowed Fund for Excellence (\$2,100) – AUMNH	

2022	Auburn College of Science and Mathematics Travel Award (\$500)
	Society for the Study of Amphibians and Reptiles Roger Conant Grant (\$500)
	Guy V. Bullock Endowed Fund for Excellence in Conservation (\$2,000) – AUMNH
2022, '23, '24	Charlotte Mangum Support Award – Society for Integrative and Comparative Biology
2021	Alan Woolf Outstanding Masters Student (\$300) – Cooperative Wildlife Research Lab, Southern Illinois University - Carbondale
2021	Meredith Ann Birchfield Endowed Fund for Excellence (\$1,750) – AUMNH
2020	H. William Allsup Fellowship (\$5,000) – College of Sciences and Mathematics, Auburn University
2019-2020	NSF S.U.P.E.R.B. Scholar – Students United in Preserving Exploring and Researching Biodiversity (\$10,000)
2019	SIUC Zoology Summer Graduate Scholarship (\$3,000)
2017	Diane Marie Heimbuch Scholarship (\$1,000) – Department of Genetics, Developmental, and Cell Biology, Iowa State University
2016	Sophomore Success Scholarship (\$1,000)
2014-2018	Iowa State University Honors Program

## Publications

3 manuscripts in review

11 published works – 7 as first-author

208 citations

[Google Scholar](#)

*h-index* = 5

**Muell, M. R.**, Jackson, K. M., Strength, A. L., Harrington, M. B., Cox, C. L., Warner, D. A. In review. Limited geographic variation in developmental plasticity of thermal physiology across the latitudinal range of a temperate lizard (*Anolis carolinensis*). *The American Naturalist*.

Geralds, B., Twomey, E., Guillory, W. X., **Muell, M. R.**, Chávez, G., Brown, J. L. In review. Hybrid speciation of a montane poison frog. *Molecular Phylogenetics and Evolution*.

Rubio, A. O., **Muell, M. R.**, Dye, A. M., Summers, K. In review. The escape artist: pre-emptive deimatic behavior in a South American grasshopper, *Paramastax nigra*. *Journal of Insect Science*.

Medeiros de Andrade, T., Wayne, S. M., **Muell, M. R.**, Eduardo de Carvalho, J., Warner, D. A. 2025. Maternal nest-site choice in response to saline substrates differs between island and inland populations of lizards. *Biological Journal of the Linnean Society* 146:blaf080. [\[link\]](#)

**Muell, M. R.**, Hall, J. M., Smith, K. M., Oaks, J. R., Wolak, M. E., Warner, D. A. 2025. Comparison of thermal developmental plasticity among seven species of recently sympatric *Anolis* lizards: insights into the evolution of reaction norms. *Evolution* qpa104. [\[link\]](#)

**Muell, M. R.**, Brown, J. L. 2024. Integrating ecological niche modeling and rates of evolution to model geographic regions of mimetic color pattern selection. *Evolutionary Ecology* 2024:1–24. [\[link\]](#)

**Muell, M. R.**, and Gross, I. P. 2023. Deformed tail and hind limb on laboratory-bred offspring of wild-caught knight anole (*Anolis equestris*). *Herpetology Notes* 16:923–926.

Warner, D. A., Zanzot, J. W., Folkerts, D., Yawn, N., **Muell, M.**, Jackson, K., Strength, A., McGrew, A., Cobb, H., Preston, K., and David, K. 2023. *Smilisca baudinii* and *Agalychnis callidryas*. *Herpetological Review* 54(3).

**Muell, M. R.**, Chávez, G., Prates, I., Guillory, W. X., Kahn, T. R., Twomey, E. M., Rodrigues, M. T., Brown, J. L. 2022. Phylogenomic analysis of evolutionary relationships in *Ranitomeya* poison frogs (Family Dendrobatidae) using ultraconserved elements. *Molecular Phylogenetics and Evolution* 168:107389. [\[link\]](#)

**Muell, M. R.**, Carter, A. L., Janzen, F. J. 2021. Modeling onset of hourly nesting activity in a freshwater turtle using abiotic variables and physiological capacity. *Journal of Herpetology* 55(1):11–20. [\[link\]](#)

**Muell, M. R.** Guillory, W. X., Kellerman, A., Rubio, A. O., Scott-Elliston, A., Morales, O. J., Eckhoff, K., Barfknecht, D., Hartstock, J., Weber, J. J., and Brown, J. L. 2020. Gaming natural selection: using board games as simulations to teach evolution. *Evolution* 74(3):681–685. doi:10.1111/evo.13 [\[link\]](#)

Guillory, W. X., **Muell, M. R.**, Summers, K., Brown, J. L. 2019. Conservation and phylogenomic reconstruction of the Neotropical poison frogs (Dendrobatidae). *Diversity* 11(8):126 doi:[10.3390/d11080126](#) [\[link\]](#)

Adams, C. I., Hoekstra, L. H., **Muell, M. R.**, Janzen, F. J. 2019. A brief review of non-avian reptile environmental DNA (eDNA), with a case study of painted turtle (*Chrysemys picta*) eDNA under field conditions. *Diversity* 11(4):50. doi:[10.3390/d11040050](#). [\[link\]](#)

**Muell, M. R.** 2016. Geographic distribution: *Lampropeltis triangulum triangulum* (Eastern Milksnake). *Herpetological Review* 47(4):630.

## Presentations

18 presentations – 13 as primary presenter

\*Undergraduate Mentees

**Muell, M. R.** Parental effects and developmental plasticity: applications to climate change. Guest lecture for Auburn University Course BIOL 5440/6440: Climate Change Physiology and Evolution. October 7<sup>th</sup>, 2025.

**Muell, M. R.**, Jackson, K. M.\*, Cox, C. L., and Warner, D. A. Landscape-level variation in developmental plasticity is trait-dependent across a temperate latitudinal gradient of lizards (*Anolis carolinensis*). June 24, 2025. Evolution Meeting. Athens, Georgia, USA. Oral presentation.

**Muell, M. R.** Research Abroad: Field Biology at La Selva Biological Station in Costa Rica. January 31, 2025. Auburn University Department of Biological Sciences Morning Talk Series. Oral Presentation.

**Muell, M. R.**, Jackson, K. M.\*, and Warner, D. A. Spatial covariance in GxE interactions influences local adaptation in green anole lizards. January 5, 2025. Society for Integrative and Comparative Biology Meeting. Atlanta, Georgia, USA. Oral Presentation. \*\*\***Finalist for the Division of Ecology and Evolution Best Student Presentation Huey Award**

Bhowmik, S., Lee, B., **Muell, M. R.**, Benedict, M., Yates, S., Beatty, A., and Schwartz, T. S. Genetic variation causes structural variation in the IGF1 protein among *Anolis* lizards. January 5, 2025. Society for Integrative and Comparative Biology Meeting. Atlanta, Georgia, USA. Poster presentation.

**Muell, M. R.** July 25, 2024. Models and mechanisms of phenotypic diversity in tropical herpetology. Guest Speaker: Organization for Tropical Studies Tropical Ecology Course. Oral presentation.

**Muell, M. R.** April 26, 2024. Thermal traits and their developmental plasticity: evidence of limited geographic variation in the green anole lizard (*Anolis carolinensis*). Auburn University Department of Biological Sciences Morning Talk Series. Oral presentation.

Jackson, K. M.\*, **Muell, M. R.**, and Warner, D. A. Life history traits vary on the basis of phylogeny across seven species of *Anolis* lizards. January 4, 2024. Society for Integrative and Comparative Biology Meeting. Seattle, Washington, USA. Poster Presentation.

**Muell, M. R.**, Jackson, K. M.\*, Cox, C. L., and Warner, D. A. Thermal developmental plasticity varies across geography in green anoles (*Anolis carolinensis*). January 4, 2024. Society for Integrative and Comparative Biology Meeting. Seattle, Washington, USA. Oral Presentation. \*\*\***Second runner-up for the Division of Ecology and Evolution Best Student Presentation Huey Award**

Reid, R. L.\*, **Muell, M. R.**, and Warner, D. A. Testing the heat hardening hypothesis in CTmax of juvenile brown anole lizards (*Anolis sagrei*). July 22, 2023. LS-PAC MODELS Diversity in STEM Conference. Baton Rouge, Louisiana, USA. Poster presentation.

**Muell, M. R.** January 27, 2023. DEI in your classroom: how to create inclusive teaching spaces as a graduate teaching assistant. Auburn University Department of Biological Sciences Morning Talk Series. Oral presentation.

**Muell, M. R.**, Jackson, K. M.\*, Strength, A. L., Harrington, M. B., Cox, C. L., and Warner, D. A. January 2023. Geographic variation in thermal developmental plasticity in the green anole (*Anolis carolinensis*). Society for Integrative and Comparative Biology Meeting, Austin, TX, USA. Oral presentation.

Schwartz, T.S., Beatty A., **Muell, M.**, and Blacksher, K. 2022. Evolution of gene expression patterns of paralogous hormones (IGF1 and IGF2) and paralogous receptors (IGF1R and INSR) across amniotes. June 2022. Population, Evolutionary, and Quantitative Genetics Conference, Pacific Grove, CA, USA. Poster presentation.

**Muell, M. R.** Feb 11, 2022. Phylogenomics of *Ranitomeya* poison frogs and their geographic implications. Auburn Department of Biological Sciences Morning Talk series. Oral presentation.

**Muell, M. R.**, Oaks, J. R., and Warner, D. A. 2022. The evolution of thermal developmental plasticity across *Anolis* lizards – a comparative approach. Society for Integrative and Comparative Biology Meeting, Phoenix, AZ, USA. Oral presentation. \*\*\***Finalist for Best Student Talk in Division of Phylogenetics and Comparative Biology**

**Muell, M. R.**, and Brown, J. L. 2019. Phylogenomic and phylogeographic analysis of color pattern evolution in *Ranitomeya* poison frogs (Amphibia: Dendrobatidae). Natural Sciences Student Research Symposium, Carbondale, IL, USA. Oral presentation.

**Muell, M. R.**, and Brown, J. L. 2019. Phylogenomic analysis of color pattern evolution in *Ranitomeya* poison frogs (Amphibia: Dendrobatidae). Evolution Meeting, Providence, RI, USA. Oral presentation.

**Muell, M. R.** 2018. Evaluating evolution acceptance: a case study of Iowa State University Honors students. Honors Research Symposium, Iowa State University, Ames, IA, USA. Poster presentation.

Waldman, J. R. S., **Muell, M. R.**, Salsbery, M. E., Debinski, D. M., Adams, D. C. 2015. Ways to wing it: correlation of wing shape with habitat preferences, toxicity and migration in butterflies. Iowa Academy of Sciences annual meeting, Iowa City, IA, USA. Poster presentation.

## Media

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| 2025 | News article – Celebrating Excellence at COSAM’s Research and Innovation Celebration <a href="#">[link]</a><br>News article – Auburn’s museum brings biodiversity to life at Wehle Nature Center <a href="#">[link]</a><br>Blog Post – Anole Annals. <i>SICB 2025: How Green Anoles Adapt to Local Climates.</i> <a href="#">[link]</a> |
| 2024 | Blog Post – American Philosophical Society. <i>Lewis and Clark Field Report: Lizard Development in Costa Rica.</i> ” <a href="#">[link]</a>   |

## Reviews Provided For

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*10 manuscripts; 2 grant and fellowship panels*

- 2024 Reptiles and Amphibians; Tennessee Journal of Herpetology; Auburn University Undergraduate Research Fellowship Proposals; AU Department of Biological Sciences Graduate Students Grants
- 2023 BioEssays; Ecology and Evolution; Reptiles and Amphibians
- 2022 Reptiles and Amphibians
- 2020 Comparative Biochemistry and Physiology: Part A; Museum of Comparative Zoology; Oikos
- 2019 Canadian Journal of Zoology

**Professional Organizations**

- 2021-present Society for Integrative and Comparative Biology
- 2020-present American Society of Ichthyologists and Herpetologists
- 2020-present Herpetologists' League
- 2019-present Society for the Study of Amphibians and Reptiles
- 2019-present Society for the Study of Evolution

**Teaching Experience**

- 2024-2025 Herpetology – Graduate Teaching Assistant (2 semesters)
- 2 sections per semester of 12–14 undergraduate and graduate students each
  - Lab curriculum design, lab prep/facilitation, field trip organization, grading
- 2020-2023 Vertebrate Biodiversity Graduate Teaching Assistant (4 semesters)
- 3 sections per semester of 12 undergraduate students each
  - Lab curriculum design, lab prep/facilitation, field trip organization, grading
- 2022 Herpetology – Co-instructor (1 semester)
- 24 undergraduate students
  - Lectures, full curriculum design, lab prep/facilitation, field trip organization, grading
- 2021 Introduction to Organismal Biology Laboratory Graduate Teaching Assistant (1 semester)
- 3 sections of 30 undergraduate students each
  - Lab facilitation, lab supervision, grading
- 2018-2020 Introduction to Cell Biology and Genetics GTA – Bioskills Recitation (4 semesters)
- 3 sections of 8–24 undergraduate students per semester
  - Active learning facilitation, activity prep, grading
- 2019 Seminar in Ecology: Imperfect Simulations – Co-instructor (1 semester)
- 1 section of 8 graduate students
  - Curriculum design, activity facilitation
- 2018 Introduction to Cell Biology and Genetics Laboratory Teaching Assistant (1 semester)
- 2 sections of 24 undergraduate students each
  - Lab preparation, lab facilitation, grading
- 2016 Undergraduate Teaching Assistant – Ecology; Principles and Biology (2 semesters)
- 2 sections of 24 undergraduate students each
  - Lab preparation, lab facilitation, field trip assistance, grading

**Outreach and Service*****Committees and leadership******8 leadership positions***

- 2023-present Division of Ecology and Evolution Representative for Student and Postdoctoral Affairs Committee – Society for Integrative and Comparative Biology
- 2024-2025 Seminar Committee – Auburn University Department of Biological Sciences
- 2023-2024 Collections Committee – Auburn University Museum of Natural History
- 2023-2025 Chair – Department of Biological Sciences Engagement, Community and Opportunity Community: Classroom Efforts
- 2022-2023 Graduate Student Representative – DBS ECO Committee: Classroom Efforts

2021-2023 Morning Talk Organizer – Biological Sciences Graduate Student Association  
 2019-2020 President – Diversify STEM Organization, Southern Illinois University  
 2019-2020 Zoology Seminar Series Organizer – Zoology Department at Southern Illinois University

**Outreach:****252 total outreach hours****\*Event Conducted in Spanish**

2025 Wehle Nature Explorers Camp Counselor – Auburn University Museum of Natural History  
 Curious Curators Camp Counselor – Auburn University Museum of Natural History  
 Azalea Festival – Auburn University Museum of Natural History Volunteer

2024 \*Meet a Biologist – High School and College Visits at La Selva Biological Station (3 events)  
 \*Annual Festival – La Selva Biological Station, Sarapiquí, Costa Rica  
 Curious Curators Camp Counselor – Auburn University Museum of Natural History  
 Visiting Scientist – Auburn University STEM Summer Bridge Program  
 Vetfest – Auburn University Museum of Natural History Volunteer 2023  
 AUMNH Open House – Volunteer  
 Jr. Mad Scientist – Graduate Women in Science  
 COSAM Tailgate – Auburn University Museum of Natural History Volunteer  
 COSAM Campfire – Auburn University Museum of Natural History Volunteer  
 Natural History Museum Booth – Gogue Summer Movie Series  
 Reptile Wranglers – STEM Outreach Day at Auburn University  
 Visiting Scientist – Auburn University STEM Summer Bridge Program

2022 AUMNH Museum Open House – Volunteer  
 Gross Out Camp Counselor – Fresh Air Family

2021 Undergraduate Research Fair Judge – Auburn University

2018 Hunting and Fishing Days – Graduate Research Assistants Supporting Science  
 West Elementary S.T.E.M. after-school program

2016 Sawyer Elementary Science Night

2015 St. Cecilia Elementary S.T.E.M. after-school program

2015-2017 Urbandale High School Science Fair Judge (3 events)

**Other qualifications**

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- First Aid and CPR Certified – American Red Cross (2025-2027)
  - CEFR Spanish Score: 93