

## Madeline Ball

Email: [mpball@uoregon.edu](mailto:mpball@uoregon.edu); [maddieball60@gmail.com](mailto:maddieball60@gmail.com)

Phone: (937) 594-8741

### Education

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**2024- Ph.D. Student, Earth Sciences**

University of Oregon

Advisor: Samantha Hopkins

**2023 B.S. Evolution and Ecology**

with Research Distinction and a minor in Biology, The Ohio State University

*Thesis: "The ecology and evolution of bite force in geomorph rodents"*

Advisor: Jonathan Calede

**2021 A.A. Associate of the Arts, The Ohio State University**

### Research Experience

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**2020-2023 The Ohio State University, Marion, OH**

**Department of Evolution, Ecology, and Organismal Biology**

Undergraduate Researcher

Advisor: Dr. Jonathan Calede ([jonathan.calede@gmail.com](mailto:jonathan.calede@gmail.com))

My research investigated the evolution and ecology of bite force in Geomyidae (pocket gophers), Heteromyidae (kangaroo rats/mice, pocket mice, spiny pocket mice), and their extinct relatives. Comparative and phylogenetic analyses such as ancestral character state reconstruction and phylogenetic ridge regression were used to improve our understanding of the evolution of bite force. I investigated its possible link with burrowing, dietary ecology, and sexual dimorphism. This research allowed for burrowing mode predictions in fossil gopher species.

### Teaching Experience

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**2024** Graduate Teaching Teaching Fellow; EARTH 101, Exploring Planet Earth, University of Oregon

**2023** Undergraduate Teaching Assistant; Form, Function, Diversity, and Ecology, The Ohio State University

### Funding and Awards (\$18,458)

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**2024, 2025** Lokey Graduate Science Award, \$3000

**2024** PBDB Workshop Grant, \$1000

- 2024** NAPC D&I and Student Travel Grant, \$500
- 2023** Margaret A. and Theodore A. Hendricks Travel Fund, \$2000
- 2022, 2023** Dean's Undergraduate Research Scholarship, The Ohio State University, \$500
- 2022** Conference Travel Award, The Ohio State University, \$625
- 2022** Undergraduate Research Apprentice Program, The Ohio State University, \$5473
- 2022** Stone Laboratory Scholarship, The Ohio State University, \$550
- 2022** Andy Vick and Charles River Laboratory Award for Biology and Chemistry, The Ohio State University, \$1000
- 2021** Conference Travel Award, The Ohio State University, \$760
- 2021** Charlotte Mangum Student Support Program, Society for Integrative and Comparative Biology (SICB)

### **Field Experience**

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- 2023** JURASSICA Museum International Field School

### **Professional Development**

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- 2024** North American Rodents: Landscapes, Ecology, and Evolution (NARLEE) Field Trip
- 2024** Paleobiology Database Summer Workshop, George Mason University, Fairfax, VA
- 2024** North American Rodents: Landscapes, Ecology, and Evolution (NARLEE) Workshop, Mammalian diversification and distribution dynamics on evolving landscapes

### **Professional Societies and Associations**

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- 2024-** The Paleontological Society

### **Presentations**

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**Ball, M.P.**, Poorboy, D.M., Caledo, J.J.-M. Exploring the evolution and ecology of geomorph rodents using bite force analysis and GIS.

- North American Paleontological Convention (2024), Ann Arbor, MI. [Poster]

**Ball, M.P.**, Poorboy, D.M., Caledo, J.J.-M. A Deep Time Perspective on Bite Force: A Case Study in Geomorph Rodents.

- Annual Meeting of the Society of Vertebrate Paleontology (2023), Cincinnati, OH. [Poster]

Hunt, M.E., **Ball, M.P.**, Claxton, A., Martin, R.A., Jimenez-Hidalgo, E., Caledo, J.J.-M. Contrasting body size evolution in entoptychine and geomyine gophers (Rodentia, Geomyidae).

- Annual Meeting of the Society of Vertebrate Paleontology (2023), Cincinnati, OH. [Poster] [Peer-reviewed]

**Ball, M.P.,** Poorboy, D.M., Socki, F., Calede, J.J.-M. The ecology and evolution of bite force in geomorph rodents.

- Great Lakes Student PaleoConference (2022), Chicago, IL. [Poster]
- LGBTQ-communities in Paleoscience (2023), The Ohio State University, Columbus, OH. [Poster]
- Spring Research Colloquium (2023), The Ohio State University at Marion, Marion, OH. [Poster]

**Ball, M.P.,** Poorboy, D.M., Socki, F., Calede, J.J.-M. A quantitative analysis of bite force in Geomyoidea: the influence of locomotion, sexual selection, and evolutionary history.

- Spring Research Colloquium (2022), The Ohio State University at Marion, Marion, OH. [Poster]

**Ball, M.P.,** Poorboy, D.M., Socki, F., Calede, J.J.-M. 2021. Bite force estimates in geomyoid rodents: ecological and evolutionary implications.

- Ohio State Autumn Undergraduate Research Festival (2021), Virtual. [Poster]
- Society for Comparative and Integrative Biology Annual Meeting (2022), Phoenix, AZ. [Poster]

### **Public Outreach, Science Communication, and Interviews**

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**2024** “The impact of undergraduate research opportunities at the regionals - A question-and-answer interview with Ohio State Marion alumna, Madeline Ball”, The Ohio State University, Marion, OH. (<https://osumarion.osu.edu/story/research-ball>)

**2024** Community of Scholars Talk: “Sinking my teeth into undergraduate research and digging up opportunities at OSU Marion”, The Ohio State University, Marion, OH.