

CARSON HEDBERG

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I am an ecologist interested in how biodiversity influences ecosystem function. Specifically, I want to understand how anthropogenically mediated species loss and introductions impact ecological function and community structure. I employ theoretical, field, and lab-based methods in my research including functional diversity analysis and fecal DNA metabarcoding. My research bridges insights from the fossil record with modern conservation and ecological restoration.

I. EDUCATION

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|--------------|--|---|
| Ph.D. | University of New Mexico , Albuquerque, NM Department of Biology Primary Advisor: Dr. Felisa Smith | August 2018- May 2024 (<i>Expected</i>) |
| M.S. | University of New Mexico , Albuquerque, NM Department of Biology Primary Advisor: Dr. Felisa Smith | August 2018- May 2021 |
| B.A. | Vanderbilt University , Nashville, TN College of Arts and Sciences Major: Earth and Environmental Science; Minor: Environmental Studies GPA: 3.8, <i>cum laude</i> and major honor | August 2012- May 2016 |

II. FELLOWSHIPS & GRANTS

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|-----------|---|-----------|
| 2023 | University of New Mexico, <i>Student Conference Award</i> | \$600 |
| 2023 | UNM Biology Department, <i>Joseph Gaudin Award</i> | \$2,150 |
| 2023 | American Society of Mammalogists, <i>Student Travel Award</i> | \$600 |
| 2022 | UNM Graduate Student Association, <i>New Mexico Research Grant</i> | \$5,000 |
| 2022 | American Society of Mammalogists, <i>Grant-in-aid of research</i> | \$1,500 |
| 2022 | UNM Graduate Studies, <i>Doctoral Conference Presentation Award</i> | \$1,200 |
| 2022 | Turner Enterprises, Inc., <i>Research grant</i> | \$9,630 |
| 2022 | Sevilleta LTER, <i>Summer Research Fellowship</i> | \$4,000 |
| 2022 | UNM Biology Department, <i>Joseph Gaudin Award</i> | \$3,500 |
| 2022 | UNM Graduate Student Association, <i>Student Research Grant</i> | \$500 |
| 2022 | Biology Graduate Student Association, <i>Research Grant</i> | \$560 |
| 2021 | Sevilleta LTER, <i>Summer Research Fellowship</i> | \$4,000 |
| 2021 | UNM Biology Department, <i>Joseph Gaudin Award</i> | \$3,000 |
| 2021 | UNM Biology Department, <i>Summer Research Award</i> | \$1,000 |
| 2021 | Biology Graduate Student Association, <i>Research Grant</i> | \$300 |
| 2020 | University of New Mexico, <i>Research Coaching Fellowship</i> | \$2,000 |
| 2019 | International Biogeography Society, <i>Student Travel Grant</i> | \$220 |
| 2018-2022 | National Science Foundation, <i>Graduate Research Fellowship</i> | \$138,000 |

III. AWARDS & HONORS

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| 2021 | CPEG, <i>Graduate Student Presentation Award, 1st place</i> | \$675 |
| 2021 | American Society of Mammalogists, <i>A. Brazier Howell Honoraria</i> | \$2,000 |
| 2019 | Paleontology Society, <i>Graduate Student Poster Award, 2nd place</i> | \$450 |

IV. PUBLICATIONS

1. Smith, F., Elliott Smith, E., **Hedberg, C.**, Lyons, S., Pardi, M., & Tomé, C. (2023). After the mammoths: The ecological legacy of late Pleistocene megafauna extinctions. *Cambridge Prisms: Extinction*, 1-55.
2. **Hedberg, C. P.**, Lyons, S. K., & Smith, F. A. (2021). The hidden legacy of megafaunal extinction: Loss of functional diversity and resilience over the Late Quaternary at Hall's Cave. *Global Ecology and Biogeography*, 31, 294-307.
3. **Hedberg, C. P.**, & DeSantis, L. R. G. (2017). Dental microwear texture analysis of extant koalas: clarifying causal agents of microwear. *Journal of Zoology*, 301(3), 206-214.
4. DeSantis, L. R. G., & **Hedberg, C. P.** (2017). Stable isotope ecology of the koala (*Phascolarctos cinereus*). *Australian Journal of Zoology*, 64 (5), 353-359.

V. SELECTED PRESENTATIONS

ORAL PRESENTATIONS

Hedberg, C., S.K. Lyons, Smith, Felisa A., "Know thy neighbor: Unpacking patterns in mammal functional and phylogenetic diversity in the Anthropocene." June 2022. American Society of Mammalogists Annual Meeting. Tucson, AZ.

Hedberg, C., S.K. Lyons, Smith, Felisa A., "Know thy neighbor: Unpacking patterns in mammal functional and phylogenetic diversity in the Anthropocene." June 2022. International Biogeography Society Biennial Conference. Vancouver, BC.

Hedberg, C., Smith, Felisa A. "Know thy neighbor: Unpacking functional and phylogenetic diversity gradients in the Anthropocene." October 2021. International Biogeography Society Early Career Biogeographers Conference (virtual).

Hedberg, C., S. K. Lyons, Smith, Felisa A. "The hidden legacy of megafaunal extinction: Functional diversity and ecosystem resilience loss over the Late Quaternary." September 2021. 2nd Crossing the Paleontological Ecological Gap Conference (virtual).

Hedberg, C., S. K. Lyons, Smith, Felisa A. "The hidden legacy of megafaunal extinction: Functional diversity and ecosystem resilience loss over the Late Quaternary." June 2021. American Society of Mammalogists Annual Meeting (virtual).

Hedberg, C., S. K. Lyons, Smith, Felisa A. "The hidden legacy of megafaunal extinction: A fine-scale examination of functional diversity over the Late Quaternary." October 2020. Society for Vertebrate Paleontology Annual Meeting (virtual).

Rovelli, R. C., A. J. Cotter, C. H. Dwyer, N. A. Freymueller, K. H. Gaines, **C. P. Hedberg**, J. S. Keller, J. S. Silviria, J. D. Witts, J. R. Moore, and C. E. Myers. 2019. "Using PaleoENM to predict patterns of

survivorship in the Hell Creek Formation across the K/Pg mass extinction". September 2019. Geological Society of America Annual Meeting. Phoenix, AZ

Hedberg, C., DeSantis, L. "Clarifying causal agents of dental microwear formation as revealed by koalas." October 2016. Society for Vertebrate Paleontology Annual Meeting, Salt Lake City, UT

POSTER PRESENTATIONS

Hedberg, C., Smith, F. A. "Functional Diversity Loss at the Terminal Pleistocene Extinction: A Site- Specific Analysis". September 2019. Geological Society of America Annual Meeting, Phoenix, AZ

DeSantis, L., Yann, L., **Hedberg, C.**, DeSantis, S. "Girls like dinosaurs too! Ways to better engage girls in paleontology." October 2016. Society for Vertebrate Paleontology Annual Meeting, Salt Lake City, UT

Hedberg, C., Morgan, D.J., Cox, J., Balco, G., Putkonen, J., Bibby, T. "Further Investigations of Cosmogenic Ne-21 Exposure Ages of Glacial Boulders Constrained by Local Bedrock Erosion Rates in Ong Valley, Antarctica." December 2014. American Geophysical Union Fall Meeting, San Francisco, CA

VI. RESEARCH EXPERIENCE

University of New Mexico, Albuquerque, NM

August 2018- present

Graduate Research, Biology Dept.

Advisor: Felisa Smith ([website](#))

- ◆ Characterizes dietary partitioning in ungulate communities in New Mexico using fecal metabarcoding to understand the impact of introduced oryx and seasonal resource variation on coexistence mechanisms
- ◆ Analyzes global patterns in functional and phylogenetic diversity in modern mammals to identify environmental drivers of biodiversity accumulation and community structure
- ◆ Models changes in functional diversity over the Late Quaternary to better understand the ecological effects of prolonged biodiversity erosion and the implications for modern ecosystems
- ◆ Assists with collaborative research quantifying the ecological effects of megafaunal extinction via stable isotope analysis, ecomorphology, and community composition

Vanderbilt University, Nashville, TN

August 2014- May 2016

Undergraduate Research, Earth and Environmental Science Dept.

Advisor: Larisa DeSantis ([website](#))

- ◆ Examined modern koala teeth using a confocal microscope (dental microwear texture analysis), analyzed microwear in enamel as an indication of diet and a proxy for the surrounding environment
- ◆ Prepared samples of enamel for stable isotope analysis
- ◆ Completed an honors thesis documenting research methods and results, presented at the *Society of Vertebrate Paleontology* and published in the *Journal of Zoology*

Vanderbilt University, Nashville, TN

January 2013-December 2013

Undergraduate research, Earth and Environmental Science Dept.

Advisor: Daniel Morgan ([website](#))

- ◆ Assessed the surface exposure of Antarctic rock samples using the accumulation of cosmogenic nuclides to track glacial recession
- ◆ Presented research findings at *American Geophysical Union* poster session in December 2014

VII. TEACHING EXPERIENCE AND TRAINING

TEACHING EXPERIENCE

Instructor-on-record, Biology Department
University of New Mexico, Albuquerque, NM

Courses:

Bioblog

Fall 2022

- ◆ Instructed students on principles of popular science writing and science communication
- ◆ Facilitated weekly peer-review sessions of student blog drafts
- ◆ Published student blogs on UNM Bioblog website

Teaching Assistant, Biology Department
University of New Mexico, Albuquerque, NM

Courses:

Genetics

Spring 2023

Ecology and Evolution

Fall 2020, Fall 2022

Anatomy and Physiology

Spring 2020

- ◆ Presented weekly lectures on biological concepts, guided students through lab activities and experiments
- ◆ Provided individualized instruction during office hours for students struggling with course content and assignments
- ◆ Taught fundamentals of scientific writing, statistic analysis, and data management and visualization in Excel
- ◆ Evaluated student lab assignments and provided constructive feedback to improve scientific writing and data analysis skills

Teaching Assistant, Earth and Environmental Science Department
Vanderbilt University, Nashville, TN

Courses:

Earth Systems through Time

Fall 2015

Life through Time

Spring 2014

- ◆ Prepared and executed weekly labs, taught additional material needed complete labs, addressed students' questions, and provided explanation on concepts taught in class
- ◆ Assisted with logistics and execution of both day field trips and overnight field trips

EDUCATIONAL TRAINING

Student Experience Project Graduate Fellow

June 2023- December 2023

University of New Mexico, Albuquerque, NM

- ◆ Designed semester long training series in research-based inclusive teaching practices for graduate teaching assistants in Biology
- ◆ Collaborated with multi-institution working group to develop and adapt online training materials and resources for graduate teaching assistants as part of the Student Experience Project
- ◆ Will facilitate training and workshops for 40+ graduate teaching assistants throughout Fall 2023 semester

Research Coaching Fellowship

January 2020- December 2020

University of New Mexico, Albuquerque, NM

- ◆ Participated in weekly workshops on research coaching techniques, academic mentorship, and pedagogy
- ◆ Developed curriculum for teaching research practices and relevant skills to undergraduate students

- ◆ Taught 4-month seminar series to undergraduate mentees on conducting research in STEM
- ◆ Mentored two undergraduate students in ongoing research projects

Graduate Teaching Certificate

December 2023 (expected)

University of New Mexico, Albuquerque, NM

College Teaching Seminar

Spring 2023

Intro to Transparent Assignment Design Workshop

November 2022

Language and Inclusivity in the Classroom Workshop

December 2021

Tools for Feedback and Success Workshop

October 2020

Graduate Teaching I Course

Fall 2020

VIII. PROFESSIONAL EXPERIENCE

Seasonal Interpretive Ranger

December 2017 – May 2018

Tennessee State Parks, Nashville, TN

- ◆ Presented educational programs on Tennessee wildlife, outdoor safety, natural history, and sustainability at state park events and schools across Tennessee
- ◆ Assisted with planning and facilitation of Tennessee State Parks Run Club, including planning race events, creating promotional materials, and training coaches

Educational Program Manager, Americorps VISTA

November 2016 – November 2017

Urban Green Lab, Nashville, TN

- ◆ Coordinated all logistics and scheduling for mobile sustainability classroom visits to public and private schools, after-school programs, businesses, and community events
- ◆ Developed new informational panels for exhibits inside mobile classroom including content, layout, and infographics
- ◆ Designed and implemented educational workshops and hands-on activities to communicate environmental sustainability to grades 5-12
- ◆ Managed a volunteer base of 50+ individuals and 6 part-time interns
- ◆ Measured and evaluated impact of all outreach programs and found creative, engaging ways to present impact to stakeholders

Interpretation Specialist, Geoscientists-in-the-Park

June 2016 – August 2016

Fossil Butte National Monument, Kemmerer, WY

- ◆ Interpreted geological and paleontological significance of site to visitors
- ◆ Developed and delivered weekly educational programs to visitor and youth groups, guided tours of visitor center exhibit and educational trails
- ◆ Demonstrated excavation of fossils from active quarry and preparation of fossil specimens for display

IX. SERVICE AND OUTREACH

PROFESSIONAL SERVICE

Honoraria and Travel Award Committee, *American Society of Mammalogists*

Fall 2021- present

Education and Outreach Committee, *Paleontology Society*

Spring 2021- present

Grant reviewer, *Biology Graduate Student Association*

Fall 2018- present

COMMUNITY SERVICE & OUTREACH

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| Guest science educator, <i>Menaul School</i> | March 2020 |
| Geoscience collections volunteer, <i>New Mexico Museum of Natural History</i> | June 2019- March 2020 |
| Exhibit volunteer, <i>New Mexico Museum of Natural History</i> | March 2019- June 2019 |
| Contributor and editor, <i>UNM BioBlog</i> | Fall 2018- Fall 2020 |
| STEM career representative, <i>TWISTER conference for high school girls</i> | Spring 2016 |
| Public educator, <i>Fossils at the Fort outreach event</i> | Spring 2013, Spring 2014 |

SOCIETY MEMBERSHIPS

American Society of Mammologists, Geological Society of America, International Biogeography Society, Paleontological Society, Society of Vertebrate Paleontology