

LUCAS N. WEAVER

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EDUCATION

- 2021 **Ph.D. Biology, University of Washington**, Seattle, WA
Advisor: Gregory P. Wilson Mantilla
Multituberculates as living animals: new insights into the ecomorphology, behavior, and life history of one of the most successful mammalian lineages
- 2015 **B.A. Anthropology (Geology minor), Colorado State University**, Fort Collins, CO
Advisors: Thomas Bown, Kimberly Nichols

PROFESSIONAL APPOINTMENTS

- 2021– **University of Michigan**, NSF Postdoctoral Research Fellow in Earth Sciences
Department of Ecology and Evolutionary Biology, Mentor: Catherine Badgley
Museum of Paleontology
- 2021– **Denver Museum of Nature and Science**, Research Associate
Earth Sciences Department, Collaborators: David W. Krause, Tyler R. Lyson
- 2021– **Burke Museum of Natural History and Culture**, Paleontology Research Associate
Collaborator: Gregory P. Wilson Mantilla

PUBLICATIONS

- In review. Claytor, JR., **Weaver, LN.**, Tobin, TS., & Wilson Mantilla, GP. New mammalian local faunas from the first ca. 80 ka of the Paleocene in northeastern Montana and a revised model of biotic recovery from the Cretaceous-Paleogene mass extinction. *Journal of Vertebrate Paleontology*.
- In review. Grossnickle, DM., Brightly, WH., **Weaver, LN.**, Stanchak, KE., Roston, RA., Pevsner, SK., Stayton, CT., Polly, PD., & Law, CJ. A cautionary note on using quantitative measures of phenotypic convergence. *Methods in Ecology and Evolution*. (Preprint on bioRxiv: <https://doi.org/10.1101/2022.10.18.512739>)
- 2022 **Weaver, LN.**, Fulghum, HZ., Grossnickle, DM., Brightly, WH., Kulik, ZT., Wilson Mantilla, GP., & Whitney, MR. Multituberculate mammals show evidence of a life history strategy similar to that of placentals, not marsupials. *The American Naturalist* 200:383–400.
- 2022 **Weaver, LN.**, Tobin, TS., Claytor, JR., Wilson, PK., Clemens, WA., & Wilson Mantilla, GP. Revised stratigraphic relationships within the lower Fort Union Formation (Tulloch Member; Garfield County, Montana, U.S.A.) provide a new framework for examining post K-Pg mammalian recovery dynamics. *PALAIOS* 37:104–127. (Featured on the cover).
- 2021 **Weaver, LN.**, Varricchio, DJ., Sargis, EJ., Chen, M., Freimuth, WJ., & Wilson Mantilla, GP. Early mammalian social behavior revealed by multituberculates from a dinosaur nesting site. *Nature Ecology & Evolution* 5:32–37. (Published online November 2020).

- 2021 **Weaver, LN.**, and Wilson, GP. Shape disparity in the blade-like premolars of multituberculate mammals: functional constraints and the evolution of herbivory. *Journal of Mammalogy* 102:967–985. (Published online May 2020).
- 2021 Grossnickle, DM., **Weaver, LN.**, Jäger, KRK., & Schultz, JA. The evolution of anteriorly directed occlusion in therian mammals. *Zoological Journal of the Linnean Society* 194: 349–365.
- 2021 Freimuth, WJ., Varricchio, DJ., Brannick, AL., **Weaver, LN.**, & Wilson Mantilla, GP. Mammal-bearing fossil gastric pellets potentially attributable to *Troodon formosus* at the Egg Mountain locality, Two Medicine Formation, Montana, U.S.A. *Palaeontology* 64:699–725.
- 2021 Tobin, TS., Honeck, JW., Fendley, IM., **Weaver, LN.**, Sprain, CJ., Tuite, ML., Flannery, DT., Mans, WW., & Wilson, GP. Analyzing sources of uncertainty in terrestrial organic carbon isotope data: a case study across the K-Pg boundary in Montana, USA. *Palaeogeography, Palaeoclimatology, Palaeoecology* 574:110451.
- 2020 **Weaver, LN.**, & Grossnickle, DM. Functional diversity of small-mammal postcrania is linked to both substrate preference and body size. *Current Zoology* 66:539–553. (invited submission)
- 2020 Grossnickle, DM., Chen, M., Wauer, JGA., Pevsner, SK., **Weaver, LN.**, Meng, Q-J., Liu, D., Zhang, Y-G., & Luo, Z-X. Incomplete convergence of gliding-mammal skeletons. *Evolution* 74:2662–2680.
- 2020 Rogers, RR., Regan, AK., **Weaver, LN.**, Thole, JT., & Fricke, HC. Tracking authigenic mineral cements in fossil bones from the upper Cretaceous (Campanian) Two Medicine and Judith River formations, Montana. *PALAIOS* 35:135–150.
- 2019 **Weaver, LN.**, Wilson, GP., Krumenacker, LJ., Moore, JR., & Varricchio, DJ. New multituberculate mammals from the mid-Cretaceous (lower Cenomanian) Wayan Formation of southeastern Idaho and implications for the evolution of Cimolodonta. *Journal of Vertebrate Paleontology* 39(2), e1604532.

FUNDING

Fellowships & Awards

- 2021 Alfred Sherwood Romer Prize, Society of Vertebrate Paleontology – \$750
- 2021 National Science Foundation, Postdoctoral Research Fellowship in Earth Sciences – \$174,000
- 2021 National Science Foundation, Postdoctoral Research Fellowship in Biology – \$138,000 (declined)
- 2021 Alexander von Humboldt Postdoctoral Research Fellowship – \$76,512 (declined)
- 2019 Dawson Pre-Doctoral Fellowship, Society of Vertebrate Paleontology – \$3,000
- 2017 National Science Foundation, Graduate Research Fellowship Program – \$138,000
- 2016 Washington Research Foundation & Benjamin Hall Graduate Fellowship – \$10,000

Grants

- 2022 David B. Jones Foundation Research Grant – \$258,945.10
- 2020 BLM National Conservation Lands Grant – \$25,000 (with G.P. Wilson & B.T. Hovatter)
- 2019 Paleontological Society Student Research Grant – \$1,200
- 2019 American Society of Mammalogists Grant-in-Aid – \$1,500
- 2019 UW Biology Department Wycoff Award – \$2,000
- 2018 Doris O. & Samuel P. Welles Fund Travel Grant – \$650
- 2017 David B. Jones Foundation Research Grant – \$126,458.21 (with G.P. Wilson & B.T. Hovatter)
- 2017 UW Biology Department Sargent & Iuvo Awards – \$1,700
- 2016 UW Student Technology Fee Grant - \$26,609

Total Funding Awarded – \$984,324.31

TEACHING EXPERIENCE

Teaching Assistant (UW Biology)

- 2020 Human Anatomy (BIOL 310) Instructor: Casey Self
- 2020 Invertebrate Paleontology (BIOL 451) Instructor: Peter Ward
- 2020 Introductory Biology (BIOL 180) Instructor: Jacob Cooper
- 2019 Analytical Paleobiology (BIOL 438) Instructor: Gregory Wilson
- 2017 Invertebrate Zoology (BIOL 434) Instructor: Kenneth Sebens
- 2016 Introductory Biology (BIOL 180) (x3) Instructor: Scott Freeman, John Herron, and Jacob Cooper
- 2015 Introductory Biology (BIOL 180) Instructor: Scott Freeman and Frederick Dooley

Guest Instructor

- 2019 Cretaceous Geology of Montana, Keck Gateway Project, Macalester College, St. Paul, MN
- 2019 Paleontology Field Methods and Research (BIOL 475), University of Washington, Seattle, WA
- 2018 Paleontology Field Methods and Research (BIOL 475), University of Washington, Seattle, WA

Guest Lecturer

- 2021 Biology of Mammals (EEB 451) University of Michigan, Ann Arbor, MI
- 2021 Evolution of Vertebrates (EARTH 437) University of Michigan, Ann Arbor, MI
- 2019 Analytical Paleobiology (BIOL 438) University of Washington, Seattle, WA
- 2019 Evolution of Mammals and Their Ancestors (BIOL 443) University of Washington, Seattle, WA
- 2019 Vertebrate Paleobiology and Evolution (GEOL 416) Macalester College, St. Paul, MN
- 2018 Paleobiology (GEOL 300) Macalester College, St. Paul, MN
- 2018 Functional Morphology (BIOL 439) University of Washington, Seattle, WA
- 2017 Evolution of Mammals and Their Ancestors (BIOL 443) University of Washington, Seattle, WA
- 2017 Invertebrate Zoology (BIOL 434) University of Washington, Seattle, WA
- 2017 Stratigraphy (ESS 455) University of Washington, Seattle, WA

Student Mentorship

*Student co- or lead-authors in published peer-reviewed papers or conference abstracts

- 2022– **Kaori Chambers** (M.S. student, co-advised with Catherine Badgley, U. Michigan)
- 2022– **Richardson Pedigo** (M.S. student, committee member, SUNY ESF)
- 2022– **Megan Riley** (undergrad, U. Michigan)
- 2022– **Sofia Belabbes** (undergrad, U. Michigan)
- 2022– **Jacob Chu** (undergrad, U. Michigan)
- 2021– **Grace Pizzini*** (undergrad, U. Michigan, Undergraduate Research Opportunity Program)
- 2021– **Jake Downey*** (undergrad, U. Michigan, Undergraduate Research Opportunity Program)
- 2022 **Fern Sexton** (undergrad, U. Michigan)
- 2021–22 **Benny Cho** (undergrad, U. Michigan, Undergraduate Research Opportunity Program)
- 2017–21 **Henry Fulghum*** (undergrad, U. Washington; **current M.S. student**, Indiana U.)
- 2019–21 **Xu ‘Stokke’ Ziqi** (undergrad, U. Washington; **current M.S. student**, E. Tennessee St. U.)
- 2019–20 **Michaela Leung** (undergrad, U. Washington; **current Ph.D. student**, UC Riverside)

Public Outreach

- 2015–22 Instructor: **Discoveries in Geoscience (DIG) Field School**, a non-profit program training K–12 teachers in geology and paleontology field methods and developing in-class Earth Science curricula (www.digfieldschool.org)
- 2020 Guest speaker: Facebook live event, “Ask a Paleontologist”
- 2020 Volunteer: Burke Behind the Scenes Night—Burke Museum of Natural History and Culture, Seattle, WA
- 2020 Invited Speaker: Physics, biomechanics, and their importance for understanding mammal evolution—Islander Middle School, Mercer Island, WA
- 2018 Invited Speaker: Seattle Public Schools Middle School Science and Engineering Fair—Seattle Museum of Flight, Seattle, WA
- 2017 Guest Speaker: Fossilization and Where to Find Fossils—Hazelwood Elementary, Lynnwood, WA
- 2017 Volunteer: Dinos on the Rocks—Burke Museum of Natural History and Culture, Seattle, WA
- 2017–18 Volunteer: Dino Days—Burke Museum of Natural History and Culture, Seattle, WA
- 2016–17 Guest Speaker: Fossilpalooza—Rockwood School District, Eureka, MO
- 2016 Panelist: Burke Museum “You Build It” Event: Extinctions.
- 2015–16 Volunteer: Meet the Mammals—Burke Museum of Natural History and Culture, Seattle, WA
- 2015–16 Volunteer: Geology Rocks—Burke Museum of Natural History and Culture, Seattle, WA
- 2015 Guest Speaker: What is Paleontology? Using Clues to Understand the Past—St. Luke School, Shoreline, WA

PRESENTATIONS

Invited Lectures

- 2023 **Yale University**, Yale Institute for Biospheric Studies (invited by Eric Sargis)
- 2022 **Burpee Museum of Natural History**, PaleoFest (invited by Joshua Matthews).
- 2022 **University of Michigan**, Department of Ecology and Evolutionary Biology (invited by graduate students).
- 2021 **University of Michigan**, Friends of the Museum of Paleontology (invited by Dr. Matthew Friedman). *Remote due to coronavirus.*
- 2021 **University of Edinburgh**, School of Geosciences (invited by Dr. Stephen Brusatte). *Remote due to coronavirus.*

- 2021 **Universität Bonn**, Institut für Geowissenschaften (invited by Dr. Julia Schultz). *Remote due to coronavirus.*
- 2021 **East Carolina University**, Department of Biology (invited by Timothy Lee). *Remote due to coronavirus.*
- 2020 **University of Michigan**, Museum of Paleontology (invited by Dr. Matthew Friedman). *Remote due to coronavirus.*
- 2020 **Adelphi University**, Department of Biology (invited by Dr. Michael D’Emic). *Remote due to coronavirus.*

Professional Conference Presentations

- 2022 Society of Vertebrate Paleontology Annual Meeting, Toronto, ON (Talk)
Geological Society of America Annual Meeting, Denver, CO (Poster)
- 2021 Romer Prize Session, Society of Vertebrate Paleontology Annual Meeting, Virtual (Talk)
American Society of Mammalogists Annual Meeting, Virtual (Talk)
Geological Society of America Annual Meeting, Portland, OR (Talk)
- 2020 Society of Vertebrate Paleontology Annual Meeting, Virtual (Poster)
- 2019 Society of Vertebrate Paleontology Annual Meeting, Brisbane, Australia (Talk)
Geological Society of America Annual Meeting, Phoenix, AZ (Talk)
Western Association of Vertebrate Paleontology Annual Meeting, Eugene, OR (Talk)
- 2018 Society of Vertebrate Paleontology Annual Meeting, Albuquerque, NM (Talk)
Society for Integrative and Comparative Biology Annual Meeting, San Francisco, CA (Talk)
- 2017 Geological Society of America Annual Meeting, Seattle, WA (Poster)
Society of Vertebrate Paleontology Annual Meeting, Calgary, AB (Talk)
- 2016 Society of Vertebrate Paleontology Annual Meeting, Salt Lake City, UT (Poster)
- 2015 Geological Society of America, Rocky Mountain Section Meeting, Casper, WY (Poster)
Western Association of Vertebrate Paleontology Annual Meeting, Turlock, CA (Poster)

ADDITIONAL EXPERIENCE

Diversity, Equity, Inclusivity, & Justice Training

- 2022 Rackham Professional Development DEI Certificate Awardee, U. Michigan
- 2021 Evidence-Based Teaching in Biology—Teaching for Equity (BIOL 505), UW Biology
- 2020–21 Diversity & Equity/Graduate & Postdoc Committee Culture Hours, UW Biology
- 2020 Race & Equity Workshop: Words Matter, Burke Museum of Natural History and Culture

- 2020 Language Matters: Considering Racial Microaggressions in Science, Society for the Advancement of Biology Education Research—Striving for Racial Justice in Academic Biology Series
- 2020 Empowering Prevention & Inclusivity Community (EPIC) Training Program, UW Biology
- 2019 #MeTooSTEM Action Workshop, University of Washington
- 2018 Identifying Sexual Harassment and Bystander Training, UW Biology
- 2016 Sexual Harassment in the Workplace Training, University of Washington
- 2015 Teaching Assistant Training, University of Washington

Fieldwork

- 2021–22 Mesaverde, Meeteetse, and Lance formations (Late Cretaceous), Fort Union Formation (Paleocene), Bighorn Basin, WY
- 2021–22 Goler Formation (mid–late Paleocene), El Paso Mountains, Mojave Desert, CA
- 2021 Denver Formation (D1 sequence, early Paleocene), Corral Bluffs, CO
- 2015–22 Hell Creek Formation & Fort Union Formation (Tullock, Lebo, and Tongue River members) (latest Cretaceous–Paleocene), Williston Basin, MT
- 2019 Judith River Formation (Late Cretaceous), Williston Basin, MT
- 2019 Cloverly Formation (Early Cretaceous), Bighorn and Clarks Fork Basins, MT/WY
- 2017 Lameta Formation (latest Cretaceous–earliest Paleocene), Central India
- 2016 Chinle Formation (Late Triassic), Petrified Forest National Park, AZ
- 2013–15 Willwood Formation (early Eocene), Bighorn Basin, WY
- 2014 Cambrian through Paleogene sedimentary rocks in the Bighorn Basin, WY, Iowa State University / University of Nebraska-Lincoln Geology Field Camp

Museum Collections

- 2022 National Museum of Natural History, Washington, D.C.
- 2022 University of Colorado Museum of Natural History, Boulder, CO
- 2021–22 University of Michigan Museum of Paleontology, Ann Arbor, MI
- 2016–22 Denver Museum of Nature & Science, Denver, CO
- 2015–21 Burke Museum of Natural History & Culture, Seattle, WA

- 2019 Yale Peabody Museum of Natural History, New Haven, CT
- 2017 University of California Museum of Paleontology, Berkeley, CA
- 2017 Royal Tyrrell Museum, Drumheller, AB, Canada
- 2017 Geological Survey of India, Nagpur, India
- 2016 Utah Museum of Natural History, Salt Lake City, UT
- 2016 American Museum of Natural History, New York, NY

PROFESSIONAL SERVICE

University Service

- 2020–21 Search Committee, Dean of the College of Arts & Sciences, University of Washington

Peer Review

- 2022 Ohio University Baker Fund Proposal
- 2021–22 *Journal of Mammalian Evolution* (x3)
- 2021 *Acta Palaeontologica Polonica*
- 2021 *Palaeontology*
- 2021 *Communications Biology*
- 2021 *Zoological Research*
- 2020–21 *Proceedings of the Royal Society B* (x2)
- 2019–21 *Journal of Vertebrate Paleontology*
- 2020 *Evolution*
- 2020 *Geobios*
- 2019 *Journal of Mammalogy*

Professional Affiliations

- 2020–21 Association for Women Geoscientists (**Treasurer**, UW Student Sub-Group, Pacific NW Chapter)
- 2018– American Society of Mammalogists
- 2017– Geological Society of America

- 2017– Paleontological Society (**Development Committee Member**, since 2020)
- 2017– Society of Integrative & Comparative Biologists
- 2016– Society of Vertebrate Paleontology (**Diversity Committee Member**, since 2022)

DEPARTMENT SERVICE

- 2021 UW Biology Graduate & Postdoc Programming (Committee Member)
Subcommittee work focused on diversity, equity, and inclusion initiatives
- 2020–21 UW Biology Diversity & Equity (Committee Member)
Subcommittee work focused on faculty searches, graduate recruitment, and departmental culture
- 2020–21 UW Biology Equity in Fieldwork Task Force
- 2020–21 UW Biology Field Gear Co-Op (Co-founder/organizer)
- 2015–21 UW Biology Social Committee (Organized UW Biology Retreats, Happy Hours, and Trivia)
- 2016–20 UW Bio Buddy (Orienting new and prospective grad students to UW Biology)
- 2017–18 UW Paleontology Professional Development Program (Co-founder/lead-organizer)
Developed a series of graduate-student-led seminars (Sedimentology & Stratigraphy, Classic Papers Lunch, Paleo Grad Research Seminar, Paleo TED Talk Series)
- 2017–18 UW Biology Faculty Note-taker
- 2017 Organismal Biology Graduate Student Research Seminar (Founder/organizer)

REFERENCES

Gregory Wilson Mantilla (Ph.D. advisor), Ph.D., Professor, Department of Biology, University of Washington, Seattle, WA 98195; gpwilson@uw.edu

Catherine Badgley (Postdoc mentor), Ph.D., Professor, Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, MI 48109; cbadgley@umich.edu

Raymond Rogers (Ph.D. committee member), Ph.D., Professor & Chair, Department of Geology, Macalester College, St. Paul, MN 55105; rogers@macalester.edu

Caroline Strömberg (Ph.D. committee member), Ph.D., Professor, Department of Biology, University of Washington, Seattle, WA 98195; caestrom@uw.edu

David Krause (Collaborator), Ph.D., Senior Curator, Department of Earth Sciences, Denver Museum of Nature and Science, Denver, CO 80205; david.krause@dmns.org

Eric Sargis (Collaborator), Ph.D., Professor, Department of Anthropology, Yale University, New Haven, CT 06520; eric.sargis@yale.edu