

Anne Weil

Curriculum Vitae, last updated January 2003

Duke University
Dept. of Biological Anthropology and Anatomy
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Current Research Areas

Terrestrial recovery from the end-Cretaceous mass extinction
Phylogeny and biogeography of multituberculate mammals
Evolutionary properties governing biotic response to extinction on large spatiotemporal scales

Current Positions

Research Associate, Duke University, Department of Biological Anthropology and Anatomy
Adjunct Curator, New Mexico Museum of Natural History and Science

Education

Ph.D. in Integrative Biology, University of California, Berkeley, Berkeley CA. 1999. Thesis *Multituberculate phylogeny and mammalian biogeography in the Late Cretaceous and earliest Paleocene Western Interior of North America.*
M.A. in Geological Sciences, The University of Texas at Austin, Austin TX. 1992. Thesis *The Terlingua Local Fauna: stratigraphy, paleontology, and multituberculate systematics.*
Post-Baccalaureate:
Fall 1990. University of Texas Graduate School of Biomedical Sciences, San Antonio, TX. Gross Anatomy and Human Embryology.
Spring 1989. Special student, Harvard University, Cambridge, MA.
A.B. in English, *cum laude* general studies, 1988. Harvard University, Cambridge, MA.

Training Courses: Nonlinear Time Series Analysis in Biology; Courses on the Mathematics of Biological Complexity, University of Tennessee, Knoxville Dec. 17-20, 2000 (received \$400 grant to attend)

Languages: English, French, read German

Research Awards

Current:

National Science Foundation, Division of Earth Sciences: "Collaborative Research: Evaluating the contribution of Late Cretaceous biogeography to earliest Cenozoic biodiversity in North America." (lead investigator) 2002-2005, \$72,827 of \$173,000 to three investigators
National Science Foundation, Division of Evolutionary Biology: "The first near-complete skull of a Late Cretaceous multituberculate from North America; testing hypotheses of relationship and vicariance." 2001-2003, \$16,354

Previous:

Annie M. Alexander Museum of Paleontology Scholarship. 1995, 1997-1998.
NSF Dissertation Improvement Grant, Systematic and Population Biology. 1996.
University of California Vice Chancellor for Research Fund Award. 1995.
Sigma Xi Grant-in-Aid of Research. 1995.
George D. Louderback Award in Paleontology. 1994.
Ernst Mayr Grant. 1990.
University of Texas Geology Foundation Research Grant. 1990.

Courses Taught

Duke University

Instructor, Biological Anthropology and Anatomy 248S, Evolution of Mammals. 1999, 2001.

Instructor, Biological Anthropology and Anatomy 289L, Comparative Mammalian Anatomy. 2000, 2002.

Graduate Tutorial teaching staff. Course head: Dr. Daniel Schmitt. 2002.

Medical Gross Anatomy teaching staff. Course head: Dr. Matt Cartmill. 1998-2002.

University of California, Berkeley

Graduate Student Instructor, Integrative Biology 184L, Vertebrate Osteology. Instructor: Dr. William Clemens. 1997.

Graduate Student Instructor, Integrative Biology 108, Principles of Paleontology. Instructor: Dr. Kevin Padian. 1995.

Graduate Student Instructor, Integrative Biology 131L, Functional Human Anatomy Laboratory. Instructor: Dr. Marian Diamond. 1994.

Graduate Student Instructor, Biology 1B, Introductory Biology. Instructors: Dr. William Clemens, Dr. Lewis Feldman, Dr. Vincent Resh. 1993.

Graduate Student Instructor, Integrative Biology 131L, General Human Anatomy Laboratory. Instructor: Dr. Marian Diamond. 1992.

The University of Texas at Austin

Teaching Assistant, Department of Geological Sciences Microcomputer Assistant (1/2 appointment). Supervisor: Dr. Clark Wilson. 1991.

Head Teaching Assistant, Geology 302K, The Age of Dinosaurs. Instructor: Dr. Timothy Rowe. 1990, 1991.

Teaching Assistant, Geology 303, Introduction to Geology. Instructors: Dr. Stephen Grand, Dr. Leon Long. 1990.

Teaching Assistant, Geology 401, Physical Geology. Instructor: Dr. William Muehlberger. 1989.

Collections Positions

University of California Museum of Paleontology, Curatorial Assistant. Supervisor: Dr. William Clemens. 1995-1997.

University of California Museum of Paleontology, Graduate Collections Move Supervisor. Supervisor: Dr. Anthony Fiorillo. 1993-1994.

The University of Texas at Austin, Vertebrate Paleontology Lab, Collections Assistant. Supervisor: Dr. Melissa Winans. 1992.

The University of Texas at Austin, Department of Geological Sciences, Teaching Collection Maintenance Assistant (1/2 appointment). Supervisor: Dr. Timothy Rowe. 1991.

The University of Texas at Austin, Vertebrate Paleontology Lab, Research Assistant. Supervisor: Dr. Timothy Rowe. 1990, 1991.

Field Work

Late Cretaceous microvertebrates of the San Juan Basin, New Mexico. 2000-2002.

Magnetostratigraphy of the Paleocene Tullock Formation, Montana. 1996.

Microvertebrates and stratigraphy of the Early Cretaceous Cedar Mountain Formation, Utah. 1994.

Mapping Quaternary cave deposits, Black Hills, South Dakota. 1994.

Microvertebrates and stratigraphy of the K/T boundary, Montana. 1993, 1994.

Location and evaluation of Cretaceous microvertebrate resources, Big Bend National Park, Texas. 1993.

Stratigraphy of the Aguja Formation West of Big Bend National Park, for Master's Thesis. 1991.

Collection of the Terlingua Local Fauna, Brewster County, Texas. 1990.

Professional Activities

Invited Presentations

Three good uses for a dead rat: phylogeny, biogeography, and mammalian diversification

- Oberlin College, Department of Geology

- Duke University, Evolution, Ecology and Organismal Biology seminar

- University of Iowa, Department of Geoscience
 - University of Texas, San Antonio, Dept. of Earth and Environmental Science
 - Johns Hopkins University, Department of Earth and Planetary Sciences
 - University of Oregon, Department of Geological Sciences
- Lies, damned lies, and lots of statistics: Evolutionary theory and self-organized criticality
- Duke University, Center for Nonlinear and Complex Systems
- Dietary changes among Mammalia across the Cretaceous-Tertiary boundary
- National Science Museum, Tokyo, Japan
- Delayed recovery from random extinctions -- signal-processing of fossil time series
- Duke University, Department of Biological Anthropology and Anatomy
 - University of Iowa, Department of Geoscience
- How paleobiogeographic databases can guide improvement of literature and collections data
- Penrose Conference: Linking spatial and temporal scales in paleoecology and ecology
- Acid rain as an agent of K/T boundary extinction -- Not!
- Illinois State Museum

Symposium Organized

"Multituberculates: New Finds and New Perspectives," Annual Meeting of the Society of Vertebrate Paleontology, 1996, (with W. Clemens).

National Science Foundation

Division of Earth Sciences reviewer. 2001, 2002.
Biological Research Collections 2002 panelist. 2001.

Editorial Positions

Editor, *PaleoBios*. 1995-1996.
Editor, *UCMP NEWS*. 1995-1996.
Assistant Editor, *PaleoBios*. 1994-1995.

Manuscripts Refereed

Nature
Journal of Vertebrate Paleontology
Acta Palaeontologica Polonica
Palaeontographica Canadiana
Geological Society of America Special Papers

Public Outreach

Little River Elementary School, Durham NC. 1999.
Consultant to *Earth and Sky*. 1997.
National Public Radio's *Science Friday*. 1996.
University of California Museums at Blackhawk, docent training. 1995.
Richmond Schools Project, West Contra Costa Unified School District open laboratory for high school students. 1995.
Young People's Lecture Series, University of California Museum of Paleontology, Coordinator 1994, 1995; Lecturer 1992, 1995.
Lamorinda Golden Bears California Alumni Association. 1994.
University of California Museum of Paleontology Open House. 1993, 1996, 1997.
Castro Valley Gem and Mineral Show. 1993, 1994.
Austin Paleontological Society. 1991.

World Wide Web page development

Webmaster of Duke BAA site <http://www.baa.duke.edu> (as of Jan., 2003)
assisted with portions of UCMP Virtual Museum <http://www.ucmp.berkeley.edu/>
author of field work exhibit <http://www.ucmp.berkeley.edu/museum/research/field.html>
author of multituberculate page <http://www.ucmp.berkeley.edu/mammal/multis/multis.html>

Membership in professional societies

Geological Society of America
Society of Vertebrate Paleontology
Paleontological Society

Refereed Publications

- Kirchner, J. W., and **Weil, A.** 2000. Correlations through time in fossil extinctions and originations. *Proceedings of the Royal Society of London, Series B* 267:1301-1309.
- Montellano, M., **Weil, A.** and Clemens, W. A. 2000. An exceptional specimen of *Cimexomys judithae* (Mammalia: Multituberculata) from the Campanian Two Medicine Formation of Montana, and the phylogenetic status of *Cimexomys*. *Journal of Vertebrate Paleontology* 20(2):333-340.
- Kirchner, J. W., and **Weil, A.** 2000. Delayed biotic recovery from extinctions throughout the fossil record. *Nature* 404:177-180.
- Cifelli, R. L., Nydam, R. L., Gardner, J. D., **Weil, A.**, Eaton, J. G., Kirkland, J. I. and Madsen, S. K. 1999. Medial Cretaceous vertebrates from the Cedar Mountain Formation, Emery County, Utah: the Mussentuchit Local Fauna. pp. 219-242 in D. G. Gillette (ed.). *Vertebrate Fossils of Utah*. Utah Geological Survey.
- Kirchner, J. W., and **Weil, A.** 1998. No fractals in fossil extinction statistics. *Nature* 395:337-338.
- Weil, A.** 1998. A new species of *Microcosmodon* (Mammalia: Multituberculata) from the Paleocene Tullock Formation of Montana, and an argument for the Microcosmodontinae. *PaleoBios* 18(2&3):1-15.
- Cifelli, R. L., Kirkland, J. I., **Weil, A.**, Deino, A. R. and Kowallis, B. J. 1997. High-precision $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology and the advent of North America's Late Cretaceous terrestrial fauna. *Proceedings of the National Academy of Sciences* 94:11163-11167.
- Rowe, T., Cifelli, R., Lehman, T. and **Weil, A.** 1992. The Campanian Age Terlingua Local Fauna, with a summary of other vertebrates from the Aguja Formation, Trans-Pecos Texas. *Journal of Vertebrate Paleontology* 12(4):472-493.

Publications in Process

- Krause, D. W., and **Weil, A.** (*in review*) Multituberculata. in Janis, C. (ed.) Evolution of Tertiary Mammals of North America, Volume II.
- Weil, A.**, and Clemens, W. A. (*in review*) *Bubodens magnus* (Mammalia: Multituberculata) from the Late Cretaceous of South Dakota and implications for diversification of Taeniolabididae. *Acta Palaeontologica Polonica*.

Other Publications

- Weil, A.** 2002. Mammalian evolution: Upwards and onwards. *Nature* 416:798-799.
- Weil, A.** 2001. Mammalian evolution: Relationships to chew over. *Nature* 409:28-31.
- Weil, A.** 1999. 1998 Geosciences in Review: Vertebrate Paleontology. *Geotimes* July, p. 48.
- Weil, A.** 1995. Book review of *The Mass Extinction Debates: How Science Works in a Crisis* (Glen, ed.). *Journal of Vertebrate Paleontology* 15(1):208-209.

Refereed Abstracts

- Weil, A.** 2002. Late Cretaceous and Early Paleocene mammalian faunal exchange between Asia and North America. *Abstracts with Programs, Geological Society of America Annual Meeting*.
- Williamson, T. E., and **Weil, A.** 2002. A Late Puercan (Pu3) microfauna from the San Juan Basin, New Mexico. *Journal of Vertebrate Paleontology* 22(supp. 3):119A-120A.

- Weil, A.**, and Tomida, Y. 2001. First description of the skull of *Meniscoessus robustus* expands known morphological diversity of Multituberculata and deepens phylogenetic mystery. *Journal of Vertebrate Paleontology* 21(supp. 3):122A.
- Weil, A.** 2001. Dietary changes among North American Multituberculata across the Cretaceous-Tertiary boundary. *Journal of Morphology* 248(3):299.
- Kirchner, J. W., and **Weil, A.** 2001. Fossil extinction and origination rates: linked patterns generated by distinct processes? *North American Paleontological Convention. PaleoBios* 21(supp. 2):79.
- Williamson, T. E., and **Weil, A.** 2001. New microvertebrate localities in the upper Cretaceous Fruitland and Kirtland Formations, San Juan Basin, New Mexico. *New Mexico Geology* 23:64.
- Williamson, T. E., and **Weil, A.** 2001. Dinosaurs from microvertebrate sites in the upper Cretaceous Fruitland and Kirtland Formations, San Juan Basin, New Mexico. *Geological Society of America Abstracts with Programs* 33(5):A-21.
- Weil, A.**, and Williamson, T. E. 2000. Diverse Maastrichtian terrestrial vertebrate fauna of the Naashoibito Member, Kirtland Formation (San Juan Basin, New Mexico) confirms "Lancian" faunal heterogeneity in western North America. *Abstracts with Programs, Geological Society of America Annual Meeting*, p. A-498.
- Weil, A.** 1999. Biogeographic provinciality of mammalian faunas in the Late Cretaceous and Early Paleocene Western Interior of North America. *Abstracts with Programs, Geological Society of America Annual Meeting*, p. A-472.
- Kirchner, J. W., and **Weil, A.** 1999. Time scales of recovery from extinction, inferred from lags between extinctions and originations through Phanerozoic time. *Abstracts with Programs, Geological Society of America Annual Meeting*, p. A-397.
- Weil, A.** 1999. Survival of multituberculate lineages across the Cretaceous-Tertiary boundary in North America. *Journal of Vertebrate Paleontology* 19(supp. 3):83A-84A.
- Kirchner, J. W., and **Weil, A.** 1998. The fossil record does not support fractal extinctions or self-organized criticality of the biosphere. *Abstracts with Programs, Geological Society of America Annual Meeting*, p. A328.
- Weil, A.** and Clemens, W. A. 1998. Aliens in Montana: Phylogenetically and biogeographically diverse lineages contributed to an earliest Cenozoic community. *Geological Society of America Abstracts with Programs, Cordilleran Section*, p. 69.
- Weil, A.** 1997. Phylogeny, biogeography, and origin of the Eucosmodontidae: implications for the origins of North America's Early Paleocene fauna. *Journal of Vertebrate Paleontology* 17(supp. 3):84A.
- Goto, S. and **Weil, A.** 1997. No species differentiation in Lance *Mesodma* (Multituberculata, Mammalia) using variation in molar morphology. *Journal of Vertebrate Paleontology* 17(supp. 3):50A.
- Weil, A.** 1996. Lying through their teeth: Dental characters, body size, and a phylogeny of North American multituberculates. *Journal of Vertebrate Paleontology* 16(supp. 3):71A-72A.
- Weil, A.** 1994. K/T survivorship as a test of acid rain hypotheses. *Abstracts with Programs, Geological Society of America Annual Meeting*, p. A335.
- Weil, A.** 1994. Acid rain as an agent of extinction at the K/T boundary -- Not! *Journal of Vertebrate Paleontology* 14(supp. 3):51A.
- Weil, A.** 1994. Latitudinal differentiation in mammals of the Late Cretaceous Western Interior. *Geological Society of America Abstracts with Programs, Cordilleran Section*, p. 103.
- Weil, A.** 1993. Is *Meniscoessus* a clade? *Journal of Vertebrate Paleontology* 13(supp. 3):61A.

Weil, A. 1991. Biostratigraphy and correlation of a microvertebrate site, Brewster County, Texas.
Journal of Vertebrate Paleontology 11(supp. 3):61A.