

KAREN CHIN

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EDUCATION

University of California at Santa Barbara: Ph.D. in Geological Sciences, 1996; Bruce H. Tiffney, Advisor
Dissertation: *The paleobiological implications of herbivorous dinosaur coprolites: ichnologic, petrographic, and organic geochemical investigations*

PROFESSIONAL EXPERIENCE

University of Colorado Boulder: *Associate Professor & Curator of Paleontology*, August 2009 to present
University of Colorado Boulder: *Assistant Professor & Curator of Paleontology*, August 2001--August 2009
Denver Museum of Nature and Science: *Research Associate*, March 2003 to present
Stanford University: *National Science Foundation Postdoctoral Fellow*, March 2000--June 2001
United States Geological Survey: *Visiting Scientist*, 1996-2000 (*Ford Postdoctoral Fellow*, Nov. 98-July 99)
San Francisco State University: *Instructor*, spring semester, 1998
Museum of the Rockies, Bozeman Montana: *Research Assistant and Paleontology Field School Instructor & Co-manager*, 1988-90
Stanford University: *Visiting Scholar*, academic years 1994-95, 1995-96
U.S. National Park Service: *Seasonal Park Interpreter*, 1974-88

Fellowships and Sabbaticals

Sabbatical, Fall 2017, CU Boulder

Sabbatical, University of Utah, Fall 2010

National Science Foundation Earth Sciences Postdoctoral Fellowship, 2000-2001

Ford Foundation Postdoctoral Fellowship, academic year 1998-1999

During the primarily remote spring 2021 semester I taught a seminar on Paleoenvironmental Evidence (GEOL 4700/GEOL 5700/MUSM 6110; 3 credits; 6 students), supervised an undergraduate independent study research project, and co-supervised a graduate independent study class on plant anatomy with Dr. Gary Upchurch. After two semesters of remote teaching, I was relieved to return to in-person teaching of Paleobiology (GEOL 3410; 3 credits; 27 students) and supervising a continuing undergraduate independent study project during the fall semester. I also advised four graduate students (two in Geological Sciences; two in Museum & Field Studies). Although lab work and student training were hampered during the pandemic, I published three peer-reviewed papers, one on fossil eggshell with a former student as first author, another with a student at another university as first author, and an invited review chapter on which I was sole author. Curatorial efforts included oversight of the CU Museum of Natural History collections of fossil tracks, burrows, coprolites, and eggshell, and working with the Public Section to refurbish the Paleo Hall exhibit. My service load remained high this year as I was chair (spring) and member (fall) of the Geological Sciences' Diversity, Equity, and Inclusivity committee, participated in the Museum Justice, Equity, Diversity, and Inclusivity committee during summer and fall, was a member of a Primary Unit Review Committee for a reappointment case, and served on the search committee for the Museum Director. I also assumed my newly elected position on the Executive Committee of the Society of Vertebrate Paleontology,

continued serving on the Paleontological Society AJ Boucot Research Grant Committee, and continued as an associate editor for *Ichnos*.

Selected Peer-Reviewed Publications (*indicates first authors were student advisees)

Chin, K. Gastrointestinal parasites of ancient non-human vertebrates: evidence from coprolites and other materials. 2021. In De Baets, K. and Huntley, J.W. [eds.] *The Evolution and Fossil Record of Parasitism*. Topics in Geobiology 50. Springer Nature, Switzerland. pp. 359-375.
https://doi.org/10.1007/978-3-030-52233-9_11

Freimuth, W.J., Varricchio, D.J., and Chin, K. 2021. Paleoenvironmental implications of invertebrate fecal pellets (*Edaphichnium* isp.) at an ichnofossil-rich dinosaur nesting locality, Upper Cretaceous Two Medicine Formation, Montana, USA. *Palaios* 36: 283-300. <https://doi.org/10.2110/palo.2021.003>

*Oser, S.E., Chin, K., Sertich, J.J.W., Varricchio, D.J., Choi, S., and Rifkin, J. 2021. Tiny, ornamented eggs and eggshell from the Upper Cretaceous of Utah represent a new ootaxon with theropod affinities. *Scientific Reports* 11, article number: 10021. <https://doi.org/10.1038/s41598-021-89472-1>

*Vitkus, A., Chin, K., Kirkland, J., Milner, A., Simpson, E., and Ellison, E. 2020. Unusual fossiliferous concretions from lacustrine deposits in the Lower Jurassic Moenave Formation in St. George, Utah, USA: implications for ancient fish mass mortalities. *Palaios* 35:77-93. <https://doi.org/10.2110/palo.2019.063>

Barrios-de Pedro, S., Chin, K., and Buscalioni, Á.D. 2020. The late Barremian ecosystem of Las Hoyas sustained by fishes and shrimps as inferred from coprofabrics. *Cretaceous Research* 110 (2020) 104409. <https://doi.org/10.1016/j.cretres.2020.104409>

Chin, K., Estrada-Ruiz, E., Wheeler, E.A., Upchurch Jr., G.R., and Wolfe, D.G. 2019. Early angiosperm woods from the mid-Cretaceous (Turonian) of New Mexico, USA: *Paraphyllanthoxylon*, two new taxa, and unusual preservation. *Cretaceous Research* 98: 292-304. <https://doi.org/10.1016/j.cretres.2019.01.017>

Super, J.R., Chin, K., Pagani, M., Li, H., Tabor, C., Harwood, D.M., and Hull, P.M. 2018. Late Cretaceous climate in the Canadian Arctic: multi-proxy constraints from Devon Island. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 504: 1-22. <https://doi.org/10.1016/j.palaeo.2018.03.004>

Chin, K., Feldmann, R.M., and Tashman, J.N. 2017. Consumption of crustaceans by megaherbivorous dinosaurs: dietary flexibility and dinosaur life history strategies. *Scientific Reports* 7, article number:11116; <https://doi.org/10.1038/s41598-017-11538-w>

*Tweet, J., Chin, K., and Ekdale, A.A. 2016. Trace fossils of possible parasites inside the gut of a hadrosaurid dinosaur, Upper Cretaceous Judith River Formation, Montana. *Journal of Paleontology* 90: 279-287. <https://doi.org/10.1017/jpa.2016.43>

Khosla, A., Chin, K., Alimohammadin, H., and Dutta, D. 2015. Ostracods, plant tissues, and other inclusions in coprolites from the Late Cretaceous Lameta Formation at Pisdura, India: Taphonomical and palaeoecological implications. *Palaeogeography, Palaeoclimatology, Palaeoecology* 418: 90-100. <http://dx.doi.org/10.1016/j.palaeo.2014.11.003>

*Wilson, L.E. and Chin, K. 2014. Comparative osteohistology of Hesperornis with reference to pygoscelid penguins: the effects of climate and behavior on avian bone microstructure. *Royal Society Open Science* 1: 140245. <http://dx.doi.org/10.1098/rsos.140245>

Chin, K., Pearson, D., Ekdale, A.A. 2013. Fossil worm burrows reveal very early terrestrial animal activity and shed light on trophic resources after the end-Cretaceous mass extinction. *PLoS ONE* 8(8): e70920. <https://doi.org/10.1371/journal.pone.0070920>

Witkowski, J., Harwood, D.M., and Chin, K. 2011. Taxonomic composition, paleoecology and biostratigraphy of Late Cretaceous diatoms from Devon Island, Nunavut, Canadian High Arctic. *Cretaceous Research* 32: 277-300. <https://doi.org/10.1016/j.cretres.2010.12.009>

*Wilson, L.E., Chin, K., Cumbaa, S., and Dyke, G. 2011. A high latitude hesperornithiform (Aves) from Devon Island: palaeobiogeography and size distribution of North American hesperornithiforms. *Journal of Systematic Palaeontology* 9: 9-23. <https://doi.org/10.1080/14772019.2010.502910>

*Daniel, J.C. and Chin, K. 2010. The role of bacterially mediated precipitation in the permineralization of bone. *Palaios* 25: 507-516. <https://doi.org/10.2110/palo.2009.p09-120r>

Chin, K., Hartman, J.H., and Roth, B. 2009. Opportunistic exploitation of dinosaur dung: fossil snails in coprolites from the Upper Cretaceous Two Medicine Formation of Montana. *Lethaia* 42: 185-198. <https://doi.org/10.1111/j.1502-3931.2008.00131.x>

*Sweeney, I., Chin, K., Hower, J., Budd, D., and Wolfe, D. 2009. Fossil wood from the middle Cretaceous Moreno Hill Formation: unique expressions of wood mineralization and implications for the processes of wood preservation. *International Journal of Coal Geology* 79: 1-17. <http://dx.doi.org/10.1016/j.coal.2009.04.001>

Chin, K., Bloch, J.D., Sweet, A.R., *Tweet, J.S., Eberle, J.J., Cumbaa, S.L., Witkowski, J., and Harwood, D.M. 2008. Life in a temperate polar sea: a unique taphonomic window on the structure of a Late Cretaceous Arctic marine ecosystem. *Proceedings of the Royal Society B* 275: 2675-2685. <http://doi.org/10.1098/rspb.2008.0801>

*Tweet, J.S., Chin, K., Braman, D.R., and Murphy, N.L. 2008. Probable gut contents within a specimen of *Brachylophosaurus canadensis* (Dinosauria: Hadrosauridae) from the Upper Cretaceous Judith River Formation of Montana. *Palaios* 23: 625-636. <http://dx.doi.org/10.2110/palo.2007.p07-044r>

Chin, K. 2007. The paleobiological implications of herbivorous dinosaur coprolites from the Upper Cretaceous Two Medicine Formation of Montana: why eat wood? *Palaios* 22: 554-566. <https://www.jstor.org/stable/27670451>

Chin, K., and Bishop, J. 2007. Exploited twice: bored bone in a theropod coprolite from the Jurassic Morrison Formation of Utah, USA. In: Bromley, R.G., Buatois, L.A., Mángano, M.G., Genise, J.F., and Melchor, R.N. [eds.], *Sediment-Organism Interactions: A Multifaceted Ichnology*. SEPM Special Publications, v. 88, pp. 377-385.

*Yelinek, K. and Chin, K. 2007. Probable dung beetle burrows associated with *Daemonelix*, beaver burrows in the Miocene Harrison Formation, Nebraska, U.S.A. In: Bromley, R.G., Buatois, L.A., Mángano, M.G., Genise, J.F., and Melchor, R.N. [eds.], *Sediment-Organism Interactions: A Multifaceted Ichnology*. SEPM Special Publications, v. 88, pp. 343-350.

Chin, K., Eberth, D.A., Schweitzer, M.H., Rando, T.A., Sloboda, W.J. and Horner, J.R. 2003. Remarkable preservation of undigested muscle tissue within a Late Cretaceous tyrannosaurid coprolite from Alberta, Canada. *Palaios* 18: 286-294. [https://doi.org/10.1669/0883-1351\(2003\)018%3C0286:RPOUMT%3E2.0.CO;2](https://doi.org/10.1669/0883-1351(2003)018%3C0286:RPOUMT%3E2.0.CO;2)

Chin, K. 2002. Analyses of coprolites produced by carnivorous vertebrates. In Kowalewski, M. and Kelley, P.H. [eds.], *Predation in the Fossil Record*. Paleontological Society Special Paper v. 8. pp. 43-49.

Chin, K., Tokaryk, T.T., Erickson, G.M. and Calk, L.C. 1998. A king-sized theropod coprolite. *Nature* 393: 680-682. <https://doi.org/10.1038/31461>

Chin, K. and Kirkland, J.I. 1998. Probable herbivore coprolites from the Upper Jurassic Mygatt-Moore Quarry, Western Colorado. *Modern Geology* 23: 249-275.

Chin, K. and Gill, B.D. 1996. Dinosaurs, dung beetles, and conifers: participants in a Cretaceous food web. *Palaios* 11: 280-285. <http://dx.doi.org/10.2307/3515235>