

## **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 at Boulder: Associate Professor & Curator of Paleontology, August 2009 to present

University of Colorado at Boulder: Assistant Professor & Curator of Paleontology, August 2001 to 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 11/98-7/99)

San Francisco State University: Instructor, spring semester, 1998

Museum of the Rockies, Bozeman Montana: Currently Adjunct Curator of Paleobotany; Research Assistant and Paleontology Field School Instructor & Co-manager, 1988-90

Stanford University: Visiting Scholar, academic years 1994-95, 1995-96

### **AFFILIATIONS**

Affiliate Adjunct Curator of Paleobotany at the Museum of the Rockies  
Research Associate, Denver Museum of Nature and Science  
Member Garden Park Paleontology Society Scientific Advisory Group

### **PROFESSIONAL MEMBERSHIPS**

Geological Society of America  
Paleontological Society  
Society of Vertebrate Paleontology  
Society for Sedimentary Geology

### **PUBLICATIONS**

#### **In Press**

Eriksson, M.E., Lindgren, J., Chin, K. & Månsby, U. *in press*. Coprolite morphotypes from the Upper Cretaceous of Sweden: novel views on an ancient ecosystem and implications for coprolite taphonomy. *Lethaia*.

Wikowski, J., Harwood, D.M., and Chin, K. *in press*. Taxonomic composition, paleoecology and biostratigraphy of Late Cretaceous diatoms from Devon Island, Nunavut, Canadian High Arctic. *Cretaceous Research*.

### **Peer-Reviewed Journal Publications**

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.

Daniel, J.C. and Chin, K. 2010. The role of bacterially mediated precipitation in the permineralization of bone. *Palaios* 25: 507-516.

Farlow, J.O., Chin, K., Argast, A., and Poppy, S. 2010. Coprolites from the Pipe Creek Sinkhole (Late Neogene, Grant County, Indiana, USA). *Journal of Vertebrate Paleontology* 30: 959-969.

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.

Lockley, M., Chin, K., Houck, K., Matsukawa, M., and Kukihara, R. 2009. New interpretations of *Ignotornis* the first-reported, Mesozoic, avian footprints: implications for the ecology and behavior of an enigmatic Cretaceous bird. *Cretaceous Research* 30: 1041-1061.

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.

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.

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.

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.

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.

Rigby, J.K., Chin, K., Bloch, J.D., and Tweet, J.S. 2007. A new hexactinellid sponge from the Cretaceous of Devon Island, Canadian High Arctic. *Canadian Journal of Earth Sciences* 44: 1235-1242.

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.

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.

Hollocher, T.C., Chin, K., Hollocher, K.T, and Kruge, M.A. 2001. Bacterial residues in coprolite of herbivorous dinosaurs: role of bacteria in mineralization of feces. *Palaios* 16: 547-565.

Chin, K., Tokaryk, T.T., Erickson, G.M. and Calk, L.C. 1998. A king-sized theropod coprolite. *Nature* 393: 680-682.

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.

#### **Invited Book Review**

Chin, K. 2008. Pest friends in the Cretaceous [Review of *What Bugged the Dinosaurs* by G. Poinar Jr. and R. Poinar]. *Nature* 451: 1053.

#### **Contributed Chapters**

Chin, K. 1997. Coprolites. In Currie, P.J. and Padian, K. [eds.], *Encyclopedia of Dinosaurs*. Academic Press. San Diego. pp. 147-150.

Chin, K. 1997. What did dinosaurs eat? Coprolites and other direct evidence of dinosaur diets. In Farlow, J.O. and Brett-Surman, M.K. [eds.], *The Complete Dinosaur*. Indiana University Press. Bloomington. pp. 371-382.

Chin, K. 1994. On the elusive trail of fossil dung. In Rosenberg, G.F. and Wolberg, D.L. [eds.], *Dino Fest: Proceedings of a Conference for the General Public*, March 24-26, 1994. Paleontological Society Special Publication # 7. University of Tennessee Press. Knoxville. pp. 285-294.

Hunt, A.P., Chin, K. and Lockley, M.G. 1994. The palaeobiology of vertebrate coprolites. In Donovan, S.K. [ed.], *The Palaeobiology of Trace Fossils*. John Wiley & Sons. Chichester. pp. 221-240.

#### **Children's Book**

Chin, K. and Holmes, T. 2005. *Dino Dung (Step into Reading)*. Random House, New York. 48 pp.

#### **Educational Website**

Wilson, L.E., Chin, K., Jackson, F.D., and Bray, E.S. 2010. Fossil eggshell: Fragments from the past. <http://www.ucmp.berkeley.edu/science/eggshell/index.php>

### Other Articles

Chin, K. 1995. Lessons from leavings. *Natural History*. 104 (6): 67.

### Recent Abstracts

Eriksson, M.E., Lindgren, J., Chin, K., and Månsby, U. 2010. Fossil faeces from the Upper Cretaceous of southern Sweden. International Palaeontological Congress 3, London, June 28-July 3, 2010. p.160.

Wilson, L.E. and Chin, K. 2010. Climatic effects on high-latitude avian evolution in the Late Cretaceous greenhouse world. 40<sup>th</sup> Annual Arctic Conference, Winter Park, Colorado, March 10-12, 2010.

Wilson, L.E., Chin, K., Scotchmoor, J.G., Kaufman, S., and Culver, T.S. 2010. Unscrambling collection data: a new interactive map of fossil eggshell data provides novel data access for researchers and an original education tool for students. *Geological Society of America Annual Meeting Abstracts with Program*: Vol. 42, No. 5, p. 669.

Wilson, L., Chin, K., Dyke, G., and Cumbaa, S. 2009. A high-latitude hesperornithiform (Aves) from Devon Island: paleobiogeography and size distribution of North American hesperornithiforms. *Journal of Vertebrate Paleontology Abstracts of Papers* 29 (3 Supplement): 202A.

Chin, K., Harwood, D., and Witkowski, J. 2009. Polar preservation: exceptional but selective preservation of fossils in Upper Cretaceous marine sediments from Devon Island in the Canadian High Arctic. *Geological Society of America Annual Meeting Abstracts with Program* 41 (7): 706.

Chin, K. 2008. Dinosaur coprolites: what a load of information! Alberta Palaeontological Society, Twelfth Annual Symposium, Mount Royal College, Calgary, Alberta. Abstracts Volume, p. 22.

Farlow, J.O., Chin, K., and Argast, A. 2008. Coprolites from the Pipe Creek Sinkhole (Late Neogene, Grant County, Indiana). *Geological Society of America North-Central Section - 42nd Annual Meeting Abstracts with Program* v. 40 (5).

Lockley, M., Harris, J., Chin, K., and Matsukawa, M. 2008. Ichnological evidence for morphological and behavioural convergence between Mesozoic and extant birds: palaeobiological implications. In Uchman, A. [ed.] *The Second International congress on Ichnology, Cracow Poland, Aug 29- Sept. 8 2008*. Polish Geological Institute, p. 71.

Wilson, L.E. and Chin, K. 2008. Osteohistology of hesperornithiforms (Aves) from Late Cretaceous greenhouse high-latitude environments. *Journal of Vertebrate Paleontology, Abstracts of Papers* 28 (3 Supplement): 160A-161A.

Witkowski, J., Harwood, D.M., Chin, K., and Bloch, J.D. 2008. Taxonomy, paleoecology and biostratigraphic potential of diatoms from the Upper Cretaceous of Devon Island, Nunavut, Arctic Canada. 20th International Diatom Symposium, Dubrovnik, Croatia, September 7-13.

Lockley, M., Chin, K., Matsukawa, M., and Kukihara, R. 2007. New interpretations of *Ignotornis*, the first bird track ever reported from the Mesozoic. *Journal of Vertebrate Paleontology Abstracts of Papers* 27 (3 Supplement): 107A.

Chapman, E. and Chin, K. 2007. Curatorial procedures for anomalous fossils: a case study on unusual cylindrical casts from the Two Medicine Formation (Late Cretaceous of Montana). *Program & Abstracts, 22<sup>nd</sup> Annual Meeting of the Society for Preservation of Natural History Collections*. p. 26.

Chin, K. 2007. Thin section analysis of lithified coprolites (fossil feces). *Proceedings: Microscopy and Microanalysis 2007. Microscopy and Microanalysis* v. 13 (2 Supplement).

Barton, D.L. and Chin, K. 2006. The morphology and paleobiology of Late Cretaceous lingulids from the Canadian High Arctic. *Abstract Volume, 36<sup>th</sup> International Arctic Workshop, March 16-18, Boulder, Colorado, p. 34.*

Chin, K., Bloch, J.D., Tweet, J.S., and Eberle, J.J. 2006. Were ancient temperate Arctic marine ecosystems similar to those of today? Fecal evidence for the structure of a Late Cretaceous polar marine ecosystem. *EOS Transactions, AGU 87 (36) Ocean Sciences Meeting Supplement, Abstract OS35P-16.*

Sweeney, I.J., Chin, K., Hower, J.C., and Wolfe, D.G. 2006. Different modes of wood preservation in an isotaphonomic setting of the Moreno Hill Formation (Turonian, "Middle" Cretaceous) of New Mexico. *Geological Society of America Abstracts with Programs*. 38 (7): 64.

Tweet, J.S., Chin, K., and Murphy, N. 2006. Paleobiological implications of diminutive invertebrate burrows within probable gut contents of a hadrosaurid dinosaur from the Upper Cretaceous (Middle Campanian) Judith River Formation of Montana. *Geological Society of America Abstracts with Programs* 38(7): 476.