



Alberta Palaeontological Society

Palaeocene Mammals and their Fossil Sites in the Calgary Area

Keynote Speakers: Craig Scott, Ph.D. and Lisa Bohach, Ph.D., P.Geol.,

Location: B108, Mount Royal University

Time: February 17, 2023, 7:30 pm MST

Abstract

Mammals and other vertebrates of Palaeocene age from Alberta are presently known from nearly 100 fossiliferous localities that range from the early (Puercan North American Land Mammal Age (NALMA)) to late (late middle Tiffanian NALMA) parts of the epoch, and geographically from near Swan Hills in the north-central part of the province to south of the City of Calgary. Most these localities are concentrated near the cities of Red Deer and Calgary, and surrounding areas, where exposures of the Paskapoo and Porcupine Hills formations have produced extraordinarily well-preserved specimens that document vertebrate evolution primarily during the early and middle parts of the Palaeocene epoch (app. 65-60 mya).

Vertebrate fossils are preserved in a variety of geological settings in Palaeocene strata. The most common are microvertebrate sites, where small bones, teeth, and scales of fish, crocodile, champsosaur, turtle, lizard, and mammal occur in shellbeds. Shellbed lag deposits, frequently found at the base of channel sandstones, are the most common type of productive mammal microsite in Alberta. Lakeshore shellbeds and palaeosols (fossil soil layers) are also common sources for mammal fossils. Occasionally, other depositional environments contain an unusual abundance of well-preserved mammal fossils, and exceptional deposits from an oxbow channel infill and a pointbar deposit are reviewed. Clay drapes that seal the fossiliferous layers at both these sites are possibly responsible for the excellent preservation.

The combined research efforts of the University of Alberta Laboratory for Vertebrate Paleontology and Royal Tyrrell Museum over the past 50 years has resulted in considerable insight into the diversity of vertebrates that existed during the Palaeocene, with special illumination on the rich record of fossil mammals. Although the first mammal of Palaeocene age in Alberta to be recognized as such was discovered in Calgary, little work had been done in this region prior to twenty years ago; concerted efforts in the ensuing years have resulted in the discovery of an extraordinary number of fossiliferous localities and, accordingly, a much better understanding of the diversity of extinct mammals that existed in southern Alberta more generally. Like those of penecontemporaneous faunas from more southern parts of the Western Interior, Palaeocene mammalian faunas from Alberta consist primarily of multituberculates and so-called "proteutherians" (eutherians of generally primitive aspect with no close living relatives), with primates, archaic ungulates, eulipotyphans, and carnivorans making up increasing smaller fractions, and marsupials being extremely rare. The mammalian faunas are dominated by the remains of small-bodied taxa, with the largest mammals being represented by wolf-sized "condylarths" and larger, but rarer pantodonts.

Biography



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Lisa Bohach, Ph.D., P.Geol., is a palaeontological consultant with Stantec Consulting Ltd. Her job is to work with developers to address palaeontological requirements issued under provincial/territorial legislation. She has 21 years' experience in this role and has worked throughout western Canada with occasional forays in the Arctic and eastern Canada. Lisa specializes in invertebrate palaeontology and sedimentary geology with a particular interest in interpreting the depositional setting and environment of fossil sites.

Craig Scott, Ph.D., is a palaeontologist and Director of Preservation and Research with the Royal Tyrrell Museum of Palaeontology. He is an expert on early mammals, particularly those of Late Cretaceous and Palaeocene age. His research focuses primarily on mammals of Palaeocene age from southern Alberta, and he has published dozens of scientific papers detailing the systematics, evolution, and biogeography of these mammals, and their application to biochronology.

Information

This event is presented jointly by the Alberta Palaeontological Society (APS), the Department of Earth and Environmental Sciences at Mount Royal University, and the Paleontology Division of the Canadian Society of Petroleum Geologists (CSPG). To present a talk in the future, please telephone APS Coordinator Harold Whittaker at 403-286-0349 or contact programs1@albertapaleo.org. You can also contact the CSPG Palaeontology Division Chair Jon Noad at jonnoad@hotmail.com. You can also visit the APS website for confirmation of event times and upcoming speakers: <http://www.albertapaleo.org/>.