

**Alberta Palaeontological Society**

## **Fifty Years at Pipestone Creek: What Northern Alberta's Wapiti Formation Is Revealing About Boreal Dinosaur Paleoecology**

Brief Speaker: Dr. Emily Bamforth, <sup>1</sup>Philip J. Currie Dinosaur Museum and <sup>2</sup>University of Saskatchewan, Department of Geological Sciences

Location: B108, Mount Royal University

Time: April 21, 2023, 7:30 pm MST

### Abstract:

The Pipestone Creek Bonebed, located just outside the small town of Wembley in northwestern Alberta, was discovered in 1973 by Al Lakusta, a local high school teacher. He had stumbled on one of densest dinosaur bonebeds in North America, with an average of 100-300 fossils per square metre and with an estimated size of three football fields. The rhinoceros-sized ceratopsian dinosaur that made up the bulk of the bonebed specimens was described as a new species, christened *Pachyrhinosaurus lakusti*. Subsequent paleontological interest in the region led to the discovery of other dinosaur bonebeds, several microvertebrate localities, dinosaur trackway sites, and hadrosaur specimens displaying soft-tissue preservation. In 2015, the Philip J. Currie Dinosaur Museum opened in Wembley, with an aim to inspire and educate visitors about the Pipestone Creek Bonebed, and about Canada's northwestern dinosaur communities. There are still many questions to explore in the Wapiti Formation. The formation is Late Cretaceous (80 – 68Ma) in age and stretches from northwestern Alberta to northeastern British Columbia. The formation is divided in five units, with Units 3 and 4 being the most fossiliferous. The dinosaur communities within these terrestrial units are significant because they fill the 'Bearpaw Gap', a time interval when southern Alberta was covered by the Western Interior Sea. Outside of two *Pachyrhinosaurus* bonebeds, the dinosaur faunas of the Wapiti Formation are dominated by the hadrosaurs *Edmontosaurus* and *Lambeosaurus*. Theropods and ankylosaurs are known from footprints and teeth, but their diversity remains largely unknown. The paleoflora that has been studied from the Wapiti Formation suggests a largely deciduous forest with little evergreen vegetation, which experienced strong seasonality associated with photoperiod. Given that these floras would have provided the dietary biases for dinosaur megaherbivores, it lends support to the theory that these animals were migratory. Understanding the seasonal nature of the Late Cretaceous boreal forests and floodplains through paleofloral analyses and isotope geochemistry may help to elucidate inferred behaviors such as herding and migration and may provide clues as to the environmental tolerances of some of Canada's most northern dinosaur communities.



Figure 1: Angiosperm Leaf from the Spring Creek Paleofloral Site. (E. Bamforth, 2022)

#### Biography:

Dr. Emily Bamforth is a palaeontologist and museum curator at the Philip J. Currie Dinosaur Museum in Wembley, Alberta, Canada. Her research focuses on Cretaceous paleoecology, with a focus on dinosaurs, microvertebrates, and paleobotany. She also has an interest in early life, specifically the Ediacaran period. Dr. Bamforth received a BSc in evolutionary biology from the University of Alberta in 2005 and went on to do a MSc in Precambrian Invertebrate Paleontology at Queens University with Dr. Guy Narbonne. In 2008, she began her PhD at McGill University under the supervision of Dr. Hans Larsson, exploring pre-extinction biodiversity trends immediately prior to the K-Pg extinction in Saskatchewan. In 2014, she started work as a researcher and curatorial assistant with the Royal Saskatchewan Museum, and accepted the position of Museum Curator at the Philip J. Currie Dinosaur Museum in 2022. She has been an Adjunct Professor with the University of Saskatchewan Geology Department since 2021. Dr. Bamforth has published numerous papers and conference abstracts on Ediacaran and Cretaceous paleontology and was the recipient of the YWCA's 2019 Women of Distinction Award for Science. She loves field work and being outdoors and is often accompanied by her trusty 'paleo pooch', Aster.

#### Information:

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