



## ALBERTA DINOSAUR FACT SHEET

**Q: When was the first recorded dinosaur found in Alberta?**

**A:** On August 12, 1884, Joseph B. Tyrrell stumbled upon a 70-million-year-old dinosaur skull, the first of its species ever found, just a few kilometres from where the Royal Tyrrell Museum now stands.

**Q: What era are most of Alberta's dinosaur fossils from?**

**A:** Alberta has dinosaur fossils from the Cretaceous Period, or more specifically, primarily from the last 15 million years of the age of the dinosaurs (about 66-81 million years ago). Fossils of all kinds are found throughout the geological history of the Earth.

**Q: Does Alberta have an official fossil?**

**A:** It does not have one, however its official stone is petrified wood, which is a type of fossil.

**Q: What is Alberta's official dinosaur?**

**A:** There isn't an official dinosaur for the province, but the most iconic one is the Albertosaurus.

**Q: What is the largest dinosaur found in Alberta?**

**A:** The largest dinosaurs found in Alberta are Tyrannosaurus and Edmontosaurus. The former could weigh up to 10 tonnes and be 12m long, while the latter would be up to 14 tonnes and 14m long. There were the super-giant, 10-20 tonne sauropods in western Canada in the Early Cretaceous (145-100 million years ago), but we only know of them from their footprints and preserved trackways, no bones have been found yet.



**Q: What was the oldest dinosaur ever found in Alberta?**

**A:** The oldest dinosaur found in Alberta is the [Suncor nodosaur](#). It is estimated to be over 110 million years old.

**Q: What was the rarest dinosaur found in Alberta?**

**A:** Hesperonychus (meaning "western claw") is a genus of small, carnivorous dromaeosaurid dinosaur. The Royal Tyrrell Museum has the only described species, Hesperonychus elizabethae. It was collected by former Museum palaeontologist Dr. Betsy Nicholls in Dinosaur Provincial Park in 1982.

**Q: What was the most unusual dinosaur found in Alberta?**

**A:** Actually, there are two:

1) The Suncor nodosaur of 2011 – was a complete surprise as it was found in marine rocks far from the known shoreline and in a part of the province that has never produced any dinosaurs before or since. It is also exceptional as it is a 3D, uncrushed specimen and the bone is not actually filled in with mineral matter. It also has stomach contents and skin preserved.

2) A pterosaur leg bone with the tooth of a small predatory dinosaur embedded in it. This is from Dinosaur Provincial Park. Pterosaurs are not dinosaurs, but close relatives that appeared at the same time as the first dinosaurs about 225 million years ago.

**Q: What are some dinosaur discoveries made in Alberta that have contributed to a significant understanding about dinosaurs?**

**A:** Everything from Dinosaur Provincial Park that came out in the first decades of the 20<sup>th</sup> century was an eye-opener for dinosaur studies. The discoveries in the 70s and 80s of mass mortalities of horned dinosaurs (Centrosaurus in Dinosaur Provincial Park and Pachyrhinosaurus from near Grande Prairie) were also significant as they gave clues about social behaviour in dinosaurs. The 2011 nodosaur from Fort McMurray will shed a lot of light on armoured dinosaurs from a time early in their evolution when it is finally prepared (estimated to be finished 2017-2018). It is probably the best preserved armoured dinosaur in the world.

**Q: How many types of dinosaurs have been found in Alberta?**

**A:** There are roughly between 60-70 different types of dinosaurs that have been found in Alberta. About 350 good skeletons have come out of Dinosaur Provincial Park over the past 100 years, but there have been many hundreds more incomplete ones, and many thousands of isolated bones.

**Q: Where in Alberta has the greatest concentration of fossils been unearthed?**

**A:** Dinosaur Provincial Park



**Q: How many dinosaurs from Alberta are on display in other countries?**

**A:** There are many Alberta dinosaur skulls and skeletons on display around the world, both casts and real fossils. A rough ballpark would be over 150 major or scientifically significant original specimens from Alberta are on display worldwide, most in Canada and the USA, with some in Argentina, China, and England.



**Q: How many dinosaur fossils were taken out of Alberta before laws came into effect that protected them?**

**A:** It's hard to say for certain, though we do know that prospectors did take large hauls out of the province. If we say all individual dinosaurs fossils (i.e. individual bones), individual skulls, and skeletons it would be over 10,000. And this is not including non-dinosaur fossils such as ammonite. The number of skulls, skeletons, and critically important single bones that were removed from the province is approximately 400-500.

**Q: Who was the Royal Tyrrell Museum named for?**

**A:** After joining the Geological Survey of Canada in 1881, **Joseph Burr Tyrrell** was sent to southern Alberta to lead a team of researchers looking for coal in the exploration of a large district north of the Bow River.

Tyrrell and his team travelled south of Red Deer, Alberta by canoe along the Red Deer River. There, Tyrrell discovered extensive coal deposits in what is now known as the Red Deer River valley. On August 12, 1884, he stumbled upon a 70-million-year-old dinosaur skull, the first of its species ever found, just a few kilometres from where the Museum now stands. Although he wasn't a palaeontologist, he realized his discovery was significant. After carefully removing the fossil from its resting place, and taking great care to transport it safely to Calgary during what would be a week-long journey, it was shipped to Ottawa where it eventually ended up at the National Museum of Natural Sciences. From there, the skull made its way to Professor Edward Drinker Cope at the Philadelphia Academy of Science, where it was identified as *Laelaps incrassatus*.

Years later, the skull was again examined and scientifically described, this time by American Museum of Natural History palaeontologist Henry Fairfield Osborn. It was renamed *Albertosaurus sarcophagus* ("Flesh-eating lizard from Alberta") in 1905, the same year Alberta became a province.

**Q: How many dinosaur skeletons are estimated to be still undiscovered in Alberta?**

**A:** Since there would have been hundreds of millions of animals in that period, there are an endless amount of fossils still to be discovered.

**Q: How many specimens are awaiting further investigation in the Royal Tyrrell Museum's unprepared collections?**

**A:** There are about 2500 unprepared specimens in the collection.

**Q: Who are the dinosaur authorities in Alberta?**

#### **Dr. Caleb Brown**

Dr. Caleb Brown studies dinosaur palaeobiology, particularly in the Late Cretaceous (83 to 64 million years ago) of Western North America. Growing up in Red Deer, Caleb was exposed to Alberta's fossil history at a young age and never turned back. He got his B.Sc. and M.Sc. from the University of Calgary and acquired his Ph.D. from the University of Toronto. One aspect of Caleb's research investigates taphonomy (the study of what happens to an animal after it dies), specifically the role of depositional environments in shaping our understanding of ancient ecosystems. He is also very interested in documenting morphological variation in the horns and ornamentation structures of horned dinosaurs to test ideas regarding evolutionary mode in this group.

#### **Dr. Donald Henderson**

Dr. Donald Henderson's research focus is all about dinosaurs. Lately his studies have focused on the rates of fossil erosion in Dinosaur Provincial Park and its effect on the quantities of dinosaur fossils found there. Don also conducts biomechanical comparisons of the bite forces and skull strengths in ceratopsian dinosaurs and examines dinosaur buoyancy. In order to gain a better understanding of dinosaur locomotion, he creates computer animated models.

#### **Dr. David Eberth**

Dr. David Eberth studies ancient environments of fossil-bearing rocks, and participates in projects that take him throughout the USA, Mexico, Argentina, Germany, China, Mongolia, and Canada. His specialties include stratigraphy and sedimentology, chronostratigraphy (the age of the rocks), and taphonomy (influences on preservation and fossilization). Dave also has a deep interest in bonebeds - accumulations of fossils from more than one individual - and what they reveal about palaeobiology, ancient environments and ecosystems. His research not only sheds light on what the Earth's ancient environments were like, but more importantly, how they changed through time and, thus, what the future may hold for us.

#### **Dr. François Therrien**

François Therrien studies the palaeoecology of extinct animals, which, in essence, is trying to determine what the animals did while they were alive and what the world they lived in looked like. To do so, François uses two different approaches: 1) he studies the shape of the bones of animals in order to determine the behaviours of extinct animals (e.g., how they hunted, walked, laid their eggs) and 2) he studies the features and chemical composition of ancient soils (called paleosols) in order to reconstruct the environments and climatic conditions the animals lived in. François tries to see past the bones and rocks in order to explore dinosaurs as a single component within a complex ecosystem.



**Dr. Philip J. Currie**

Dr. Philip J. Currie's studies focus on problems with growth and variation, the anatomy and relationships of carnivorous dinosaurs, and the origin of birds. It has been his long-term goal to understand the rich Cretaceous ecosystem of *Dinosaur Provincial Park*, and contemporaneous faunas and habitats of other sites in western North America. His work as also followed what can be learned about dinosaurian behaviour, including annual and intercontinental migrations.

Interested in dinosaurs since childhood, Dr. Currie's fieldwork connected with his research has been concentrated in Alberta, British Columbia, the Arctic, Argentina and China. Work on the *Centrosaurus* bonebed, the origin of birds, "feathered" dinosaurs, hadrosaur nesting sites and the *Canada-China Dinosaur Project* have attracted the greatest international attention.