

Alberta Dinosaur Bonebed is Largest ever Found

Tropical storms drowned thousands of Centrosaurus

Drumheller, Alberta (June 17, 2010) -- Scientists in Alberta have discovered the largest dinosaur bonebed ever documented near Hilda, Alberta, 50 km north of Medicine Hat. Covering an area of at least 2.3 square kilometres (the size of ~280 football fields), thousands of bones from the plant-eating dinosaur *Centrosaurus apertus* are concentrated in a mega bonebed described in *New Perspectives On Horned Dinosaurs*, published this month by Indiana University Press.

Bonebeds containing *Centrosaurus* - a type of horned dinosaur distantly related to *Triceratops*—aren't new. They have been documented in Alberta since the early 1980s and were the first evidence that some dinosaurs herded. However, the Hilda site provides the first solid evidence that some horned dinosaur herds were much larger than previously thought, with numbers comfortably in the high hundreds to low thousands.

"Data from this mega bonebed provide pretty clear evidence that these, and other dinosaurs, were routinely wiped out by catastrophic tropical storms that flooded what was once a coastal lowland here in Alberta, 76 million years ago," says David Eberth, Senior Research Scientist at the Royal Tyrrell Museum, the lead author on the study and one of the book's three editors.

Rather than picturing the animals as drowning while crossing a river—a classic scenario that has been used to explain bonebed occurrences at many sites in Alberta—the research team interpreted the vast coastal landscape as being submerged during tropical storms or hurricanes. With no high ground to escape to, most of the members of the herd drowned in the rising coastal waters. Carcasses were deposited in clumps across kilometres of ancient landscape as floodwaters receded.

"It's unlikely that these animals could tread water for very long, so the scale of the carnage must have been breathtaking," says Eberth. "The evidence suggests that after the flood, dinosaur scavengers trampled and smashed bones in their attempt to feast on the rotting remains."

The Hilda mega bonebed also helps explain why dinosaurs are so abundant in the badlands of Western Canada. "Not only can we now explain why these kinds of horned dinosaurs are preserved in such great abundance here, but the tropical storm model also explains why there are so many kinds of dinosaurs preserved in the rocks at Dinosaur Provincial Park, the Drumheller area, and even Grande Prairie, and why they are often found preserved so exquisitely," says Eberth.

According to the team, coastal plain floods, like those that afflict modern Bangladesh, occur on a geographic scale that is so vast that they often kill large varieties and numbers of the larger terrestrial animals, regardless of whether they live solitary lives or spend their time in large herds. "Because of their size and the scale of the flooding, dinosaurs could not escape the coastal floodwaters and would have been killed in large numbers. In contrast, fish, small reptiles, mammals, and birds may have been able to escape such seasonal catastrophes by retreating to quiet water areas, the safety of trees and burrows, or simply by flying away."

"We've known about the Hilda mega bonebed since the late 1990s, but the complexities of the project prevented us from documenting and publishing on it for almost 10 years."

Operated by the Government of Alberta, the Royal Tyrrell Museum is located six kilometres northwest of Drumheller on Highway 838. For more information visit www.tyrrellmuseum.com or call 403-823-7707 (dial 310-0000 for toll-free access in Alberta).

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