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Syncrude operator unearths rare fossil

FORT McMURRAY, Alberta – Syncrude’s heavy equipment operator, Maggy Horvath, unearthed what may be a nearly complete plesiosaur and the 10th fossil found on Syncrude leases. The discovery contributes to Alberta’s prehistoric history and the understanding of the evolution of life on Earth.

The fossil, which Horvath found during her shift on November 14, 2011, is currently being examined by scientists and technicians from the Royal Tyrrell Museum of Palaeontology, who are hoping to have the specimen removed by the end of the week.

“This is a very rare find. It’s a long necked plesiosaur, which is a marine reptile with a very long neck, small head and short body. The last one that was recovered was 10 years ago; it was recognized as a new kind and given the name *Wapuskanectes*,” said Dr. Don Brinkman, Director of Preservation and Research at the Royal Tyrrell Museum. “We are hoping that this is another specimen of this kind of plesiosaur. The new specimen is particularly important because it looks to be nearly complete.”

Horvath demonstrated great attention to detail and care in her work. After unearthing the fossil, she followed Syncrude’s protocol for fossil finds. This requires the operator to stop digging in the immediate area and notify Syncrude’s geologist who works with the Royal Tyrrell on fossil discoveries.

“I think it’s great that I’m part of this. It felt pretty good to call my son and let him know that I found a prehistoric fossil while working in the mine,” says Horvath. “As operators we always keep our eyes out for a find.”

Alberta’s oil sands are located in an area that was once part of a prehistoric sea. Several important marine reptile fossils have been discovered at Syncrude. The last one found in 2000 was 110 million years old and declared to be one of the most complete Cretaceous Ichthyosaurs of its age ever discovered in North America.

“This is a very exciting discovery for us at Syncrude and for all Albertans,” said Syncrude President and CEO Scott Sullivan. “It is also an example of how our employees take pride and responsibility in their work. It truly demonstrates Maggy’s skill as an operator.”

The Syncrude Project is a Joint Venture undertaking among Canadian Oil Sands Partnership, Imperial Oil Resources, Mocal Energy Limited, Murphy Oil Company Ltd., Nexen Oil Sands Partnership, Sinopec Oil Sands Partnership and Suncor Energy Oil and Gas Partnership.

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September 27, 2011

New fossil evidence from Alberta solves evolutionary mystery in extinct giant marine predators

Drumheller... The teeth and stomach contents of two exceptionally well-preserved fossils from Alberta answer questions about the evolutionary success of mosasaurs, an extinct group of giant, flipper-equipped (or flipper-bearing) marine lizards that dominated the waters 90 – 65 million years ago.

A team of researchers, led by Dr. Takuya Konishi and Dr. Donald Brinkman of the Royal Tyrrell Museum of Palaeontology in Drumheller, Alberta, studied two of the world's best-preserved 74-million-year-old *Prognathodon* specimens found in southern Alberta. They were able to determine what the entire animal looked like for the first time, and what the little known predator ate. The preserved gut contents revealed the remains of a large fish, a sea turtle with a shell 60 cm in diameter, and a possible ammonite jaw. "Macroscopically, the teeth of *Prognathodon* are blunt-ended and robust, a shape suited for crunching. Microscopically, most of the teeth were equipped with cutting edges, useful for slicing meat. It's this combination that enabled these predators to handle both hard and soft prey; they could eat nearly anything that swam in the ocean," Konishi explains.

For over a century, scientists did not have enough fossil evidence to confirm what *Prognathodon*, a particularly large-headed mosasaur, looked like in life. "Between the two specimens, we now know that it had a slender skeleton, similar to other mosasaurs, but a bigger skull," states Konishi. "This suggests that evolution in mosasaurs involved modifications to their head first, followed by the rest of their body." This was probably advantageous for all mosasaurs as they could share the same environment with reduced competition for the same kind of food source, which may have maintained, or even increased, an overall diversity of mosasaurs.

The later part of mosasaur evolution is characterized by an increased tooth variation among different mosasaurs. Their overall diversity continued until they became extinct at the end of the Cretaceous Period, about 65 million years ago.

The findings from the study are published in the September 2011 edition of the *Journal of Vertebrate Paleontology*.

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July 12, 2011

New 80-Million-Year-Old Marine Predator Discovered

Royal Tyrrell Museum researcher names a new genus of a mosasaur *Latoplatecarpus*

Drumheller... After five years of research, Dr. Takuya Konishi of the Royal Tyrrell Museum of Palaeontology and colleague Dr. Michael Caldwell from the University of Alberta concluded that the mosasaurs they were studying – a group of large marine lizards that dominated the waters 90 - 65 million years ago – conformed to none of the previously known kinds. Instead, they determined these mosasaurs belonged to an entirely new genus.

“By carefully comparing the specimens of the new mosasaur *Latoplatecarpus* with those of a previously known genus, *Platecarpus*, it became clear that *Latoplatecarpus* represents a geologically younger and slightly more advanced animal,” explains Dr. Konishi. “Looking down on the skull, for example, it has a pair of anteriorly diverging processes past the eye sockets, a unique feature shared among all the advanced members of the lineage that includes both the new mosasaur and *Platecarpus*, but the feature is absent from the latter.”

Its name, *Latoplatecarpus willistoni*, was derived from “*lato*”, Latin for “broad” to indicate the anteriorly widely separated nature of the aforementioned processes, and “*willistoni*”, in honour of an American palaeontologist Samuel W. Williston, whose work on mosasaurs over a century ago founded the basis for the way researchers classify these marine reptiles today.

Currently, there are over sixty species of mosasaurs known. This new discovery will add to the growing diversity of this uniquely aquatic group of lizards, and will likely help researchers understand the mechanisms behind the evolutionary and ecological success of mosasaurs. This is the first time since 2005 that a new genus has been established in mosasaurs worldwide.

The paper has been published on July 12th in the Journal of Vertebrate Paleontology.

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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