

WORLD'S BEST PRESERVED MOSASAUR FOSSIL AT NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY UNLOCKS MYSTERIES ABOUT 85-MILLION-YEAR-OLD SEA MONSTER

***NHM Dinosaur Institute Paleontologist Dr. Luis Chiappe Co-Authors
Paper that Examines Mosasaur Fossil, Considered the World's Finest***

***Fossil Now Destined for New Museum Exhibition,
Dinosaur Mysteries, Opening Summer of 2011***

August 9, 2010 – One of the ocean's most formidable marine predators, the marine mosasaur *Platecarpus*, lived in the Cretaceous Period some 85 million years ago and was thought to have swum like an eel. That theory is debunked in a new paper published today in the journal *Public Library of Science*. An international team of scientists have reconceived the animal's morphology, or body plan, based on a spectacular specimen housed at the Natural History Museum of Los Angeles County.



Mosasaurus were lizard-like in appearance and known for their ferociousness. Illustration by Stephanie Abramowicz, Dinosaur Institute, NHM.

The paper was co-authored by a team of four scientists: Johan Lindgren (Lund University, Lund, Sweden), Michael W. Caldwell, Takuya Konishi (University of Alberta, Edmonton, Alberta, Canada), and **Luis M. Chiappe, Director of the Natural History Museum's Dinosaur Institute.**

The mosasaur specimen was discovered in Kansas in 1969, and acquired by the NHM shortly thereafter. It contains four slabs, which make up a virtually complete, 20-foot specimen. Dr. Chiappe spurred a modern preparation of the specimen, and assembled the paper's research

team. "It is one of several exceptional fossils that will be featured in *Dinosaur Mysteries*," said Chiappe, curator of the 15,000-squarefoot landmark exhibition that opens at the museum in 2011.

In the meantime, the fossil will be temporarily on display at the museum's Dino Lab, a working lab located on the second floor of the museum, where paleontologists prepare fossils in full view of the public.



Considered the best preserved mosasaur (*Platecarpus tympaniticus*) in the world, the Natural History Museum's specimen is 20 feet long and 85 million years old.

The specimen is "the finest preserved mosasaur in existence," according to Dr. Johan Lindgren, lead author of the published study. It retains traces of a partial body outline, putative skin color markings, external scales, a downturned tail, branching bronchial tubes, and stomach contents (fish).

Using it, the scientists demonstrate that a streamlined body plan and crescent-shaped tail fin were already well established in *Platecarpus*, and that these key features evolved very early in the evolution of mosasaurs. Noting the highly specialized tail fin, the new study asserts that mosasaurs were better swimmers than previously thought — and that they swam more like sharks than eels.

The findings underscore how these adaptations for fully aquatic existence evolved rapidly and convergently in several groups of Mesozoic marine reptiles, as well as in extant whales. "This fossil shows evolution in action, how a successful design was developed time after time by different groups of organisms adapting to life in similar environments," said Chiappe. "It highlights once again the potential for new discoveries to challenge well-established interpretations about dinosaurs and other animals that lived with them."

"From this beautifully preserved specimen it seems that advanced, shark like swimming began in mosasaurs millions of years earlier than we previously thought," said Dr. Kevin Padian, a paleontologist at the University of California, Berkeley, not involved in the paper. "This study is the best possible proof that active research by curators and staff is the most essential component of a museum dedicated to educating the public."

See more pictures of the specimen at <http://nhm.org/site/research-collections/dinosaur-institute/research-studies/mosasaur-fossil>

About the Dinosaur Institute

The Dinosaur Institute houses the Natural History Museum's collection of Mesozoic tetrapods (four-limbed vertebrates), dating from 250 million years ago to 65.5 million years ago. This collection includes fossils of dinosaurs spanning the Mesozoic Era, as well as fossils of other tetrapods (four-legged animals) that lived alongside the dinosaurs, such as flying and marine reptiles, crocodiles, turtles, amphibians, and early mammals. The fossils in the collection have been acquired over nearly a century, and the collection continues to expand rapidly through the Dinosaur Institute's active field program. The Institute runs expeditions several times a year to collect fossils from Utah, Arizona, Montana, Wyoming, Colorado, and right here in California. It also participates in international field programs, most recently in China, Kazakhstan, and Argentina.

Natural History Museum Hours and Admission:

The Natural History Museum of Los Angeles County is located at 900 Exposition Blvd., Los Angeles. Open daily from 9:30 am to 5 pm; Tickets are \$9 for adults, \$6.50 for children. For more information, visit the Museum's website at www.nhm.org or call (213) 763-DINO.

NHM Next:

This summer's completed renovation of the Beaux-Arts 1913 Building has set the stage for the Museum's rollout of new visitor experiences leading up to the Natural History Museum's centennial in 2013. The re-opening of the 1913 Building began with July's debut of the exhibition *Age of Mammals*, and two new installations, *What on Earth?* and *Life Through the Ages: Revisiting the Paintings of Charles R. Knight*, inside the iconic Rotunda. In Summer 2011, the Museum will open *Dinosaur Mysteries*, the highly-anticipated return of a dedicated dinosaur hall. Over 2011 and 2012, the North Campus, a 3.5-acre green space opens with nature experiences and outdoor programming. An exhibition focusing on the Southern California environmental history will open in 2012.

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