

# Researchers discover fossil of beaver-like animal in China

## Find shows mammals existed 100 million years earlier than previously believed

**EDITOR'S NOTE:** The following article is part of an ongoing science series written by Arkansas State University faculty members and published periodically by *The Sun*.

BY ALDEMARO ROMERO  
AND SHELLY D. KANNADA  
SPECIAL TO THE SUN

**JONESBORO** — Most think of beavers as freshwater mammals known for their fur and their abilities to construct dams. A new discovery could radically change this image.

A group of Chinese and American researchers have published in the prestigious journal *Science* the description of a beaver-like animal that lived 164 million years ago in what is China today.

Based upon an extraordinarily well-preserved fossil, scientists from the Nanjing University, the Chinese Academy of Geological Sciences and the Carnegie Museum of Natural History in Pittsburgh were able to reconstruct an animal that has multiple characteristics typical of

aquatic mammals — a broad scaly tail like a beaver, fur, webbing between the claws, collar bones typical of many other swimming creatures such as the river otter, and seal-like teeth for eating small fish and other shrimp-like creatures.

They gave it the scientific name of *Castorcauda lustrasimilis*.

Although not directly related to modern-day beavers, the similarity of features to other aquatic mammals is astonishing. More astonishing yet is the fact that until recently the most ancient marine mammals known to science were whale-related fossils of about 50 million years ago. The discovery of *Castorcauda lustrasimilis* shows that mammals were swimming in the oceans more than 100 million years before the dinosaurs became extinct.

This animal was the size of a small platypus, a bit less than 2 feet in length. The fur is extremely well-preserved. The rocks of this area in China have properties that have

yielded excellent fossils of birds and their feathers. Other fossils found in the same region include pterosaurs (flying reptiles like the ones seen in the movie *King Kong*), dinosaurs, fishes, insects and gigantic amphibians.

The fact that unrelated animals living in the same environment show similar features is a phenomenon known to biologists as convergence. Examples include blind fishes and crayfishes living in caves, the wings of bats and birds and the fins of fishes and whales.

The modern beaver is the largest rodent in the U.S., reaching nearly 5 feet in length. It became extinct in Arkansas because of excessive hunting but was later reintroduced and now is fairly common in The Natural State.

While the modern beaver can weight up to 60 pounds, the fossil Chinese beaver did not weigh more than two, yet both were powerful swimmers, with large, webbed

hind feet powered by large muscles that propelled their streamlined body in the water. Both had a large and flat tail covered with scales.

One can find many of these features in well-preserved fossils by looking at the bones of the animals and comparing them with similar living creatures. The marine mammal lab at the Department of Biological Sciences at Arkansas State University contains the casts of more than 50 species of marine mammals. This museum-quality collection allows students to study and compare characteristics of marine mammals to those of other aquatic mammals.

The study of fossils can provide us with great insights on the natural world.

For more information contact the ASU Department of Biological Sciences at [biology@astate.edu](mailto:biology@astate.edu).

Dr. Aldemaro Romero is chairman of the Department of Biological Sciences at Arkansas State University and Shelly D. Kannada is a graduate student.



An artist's reconstruction of *Castorcauda lustrasimilis*, a fossil marine "beaver" discovered in China.

Mark A. Klinger | Carnegie Museum of Natural History, AF