Primitive early relative of armadillos helps rewrite evolutionary family tree

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A team of U.S. and Chilean scientists working high in the Andes have discovered the fossilized remains of an extinct, tank-like mammal they conclude was a primitive relative of today's armadillos. The results of their surprising new discovery are described in an upcoming issue of *Journal of Vertebrate Paleontology*.

The on-going project is co-led by John Flynn, Chairman of the Division of Paleontology and Frick Curator of Fossil Mammals at the American Museum of Natural History in New York, and Darin Croft, assistant professor at Case Western Reserve University in Cleveland, Ohio, and also includes André Wyss, professor at the University of California, Santa Barbara. Both Croft and Wyss also are Research Associates in the Museum's Division of Paleontology.

The partial skeleton was unearthed by the group in 2004 and found to represent a new species of glyptodont—a family of hard-shelled, grazing mammals that may have occasionally tipped the scales at two tons. The newly described animal, which was given the tongue-twisting name Parapropalaehoplophorus septentrionalis, likely weighed in at a mere 200 pounds and was covered with a massive shell of immovable armored plates, unlike the hinged rows of plates on armadillos. The fossil was found at the unusually high elevation of 14,000 feet.

The thin air, scarce water, and frigid temperatures of the high Andes posed significant challenges to the researchers, but were not the conditions under which this glyptodont lived. "Our studies elsewhere on

the Altiplano suggest that the region was at a much lower elevation when these fossils lived," said Flynn. "In addition to providing a look at the paleoecology of the region, this has given us new insights into the timing and rate of uplift of the Andes."

Over the past decade, the team's fossil-hunting expeditions to northern Chile have discovered a diverse array of several hundred fossil mammal specimens. These animals, known collectively as the Chucal Fauna, include at least 18 species of armadillos and glyptodonts, rodents, relatives of opossums, and a variety of extinct hoofed mammals. Together with the plant fossils recovered from the same area, these suggest that northern Chile was an open savannah about 3,000 feet above sea level at the time that P. septentrionalis lived, with relatively few trees and populated mainly by grazing animals.

The new species was reconstructed from remains of the jaw, shell, leg, and backbone and compared with other known glyptodonts as well as with close relatives of glyptodonts. Based on supporting evidence, the team concluded that P. septentrionalis lived about 18 million years ago, making it one of the earliest-diverging members of its family. As a result, the authors proposed a new evolutionary tree for glyptodonts and their nearest relatives.

"When we collected the fossil, we had no idea that it would turn out to be a new species," said Croft. "We knew that it would be an important specimen, given its completeness, but it was only after cleaning it and carefully studying it that we realized how unusual it was."

Source: American Museum of Natural History

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