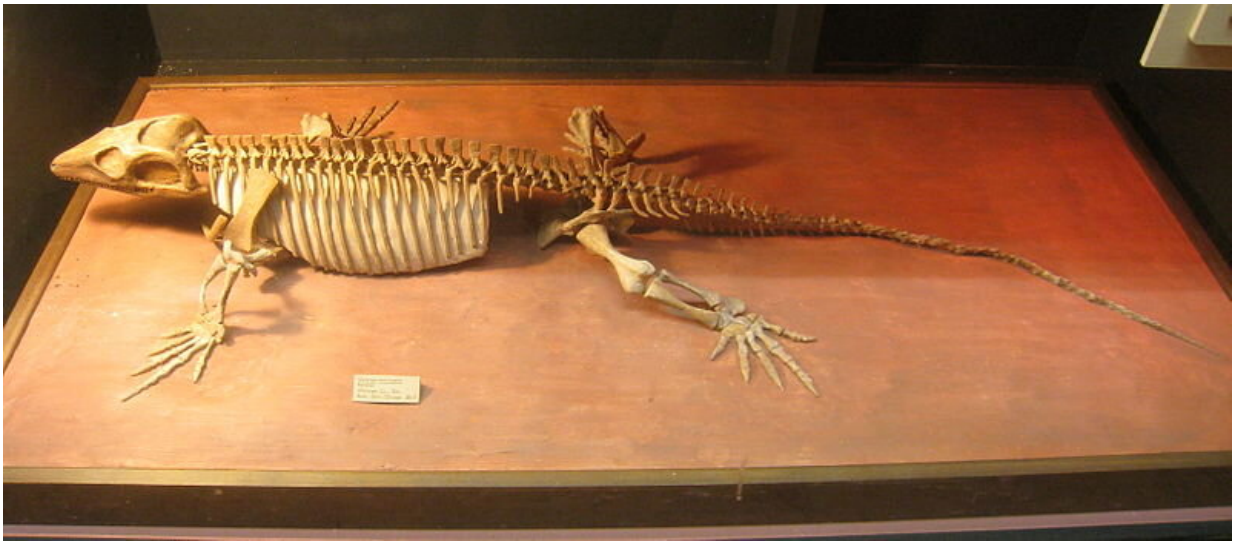


# Researcher discovers earliest fossil evidence of parental behavior

December 24 2019, by Steven Reid

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Varanops brevirostris. Exhibit Museum of Natural History, University of Michigan, 1109 Geddes Avenue, Ann Arbor, Michigan, USA. Credit: CC0 Public Domain

A team led by Carleton University's Hillary Maddin has discovered the earliest fossil evidence of parental care. The fossil predates the previous oldest record of this behavior by 40 million years and is featured in an article in *Nature Ecology & Evolution*.

"This is the earliest evidence of prolonged postnatal care in a vertebrate," said Maddin, professor in the Department of Earth Sciences. "The adult

animal appears to be concealing and protecting a juvenile in a den. This behavior is very common in mammals today. It is interesting to see this animal, which is on the [evolutionary line](#) leading to mammals, exhibiting this behavior so early."

Maddin's team recently discovered the specimen of a varanopid synapsid inside a lithified tree stump on Cape Breton Island, Nova Scotia. The preserved articulated [partial skeleton](#) has a unique combination of features and represents a new species. The preserved remains are of a small individual close to a large individual of the same species in a position resembling a parent denning with an offspring.

The varanopid synapsid is lizard-like in appearance, but is nowhere near lizards in its evolutionary position. Once animals were able to lay eggs on land, they split into two distinct evolutionary branches, one that led to reptiles, birds and dinosaurs and the other, which included the varanopid synapsid, led to mammals.

Parental care is a behavioral strategy where parents make an investment or divert resources from themselves to increase the health and chances of survival for their offspring. While there are a variety of parental care strategies, prolonged postnatal care is amongst the most costly to a parent. This form of parental care is particularly common in mammals, as all mammalian offspring demand nourishment from their mothers. However, there is still little understanding of the evolutionary history of this behavior.

Scientists have attempted to answer questions about the origin of [parental care](#) by studying fossils. Evidence of parenting has been generally limited to finding groups of preserved specimens of varying ages of the same species.

**More information:** Varanopid from the Carboniferous of Nova Scotia

reveals evidence of parental care in amniotes. *Nat Ecol Evol* 4, 50–56  
(2020) [DOI: 10.1038/s41559-019-1030-z](https://doi.org/10.1038/s41559-019-1030-z) ,  
[nature.com/articles/s41559-019-1030-z](https://www.nature.com/articles/s41559-019-1030-z)

Provided by Carleton University

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