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Apr 8th, 1:00 PM - Apr 22nd, 6:00 PM

## The Mesozoic Vertebrate Paleontology of Israel

Jonathan Maxwell

Cedarville University, [jmaxwell@cedarville.edu](mailto:jmaxwell@cedarville.edu)

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# The Mesozoic Vertebrate Paleontology of Israel

Jonathan Maxwell, Department of Science and Mathematics, Cedarville University, 251 N Main St, Cedarville, OH 45314, jmaxwell@cedarville.edu

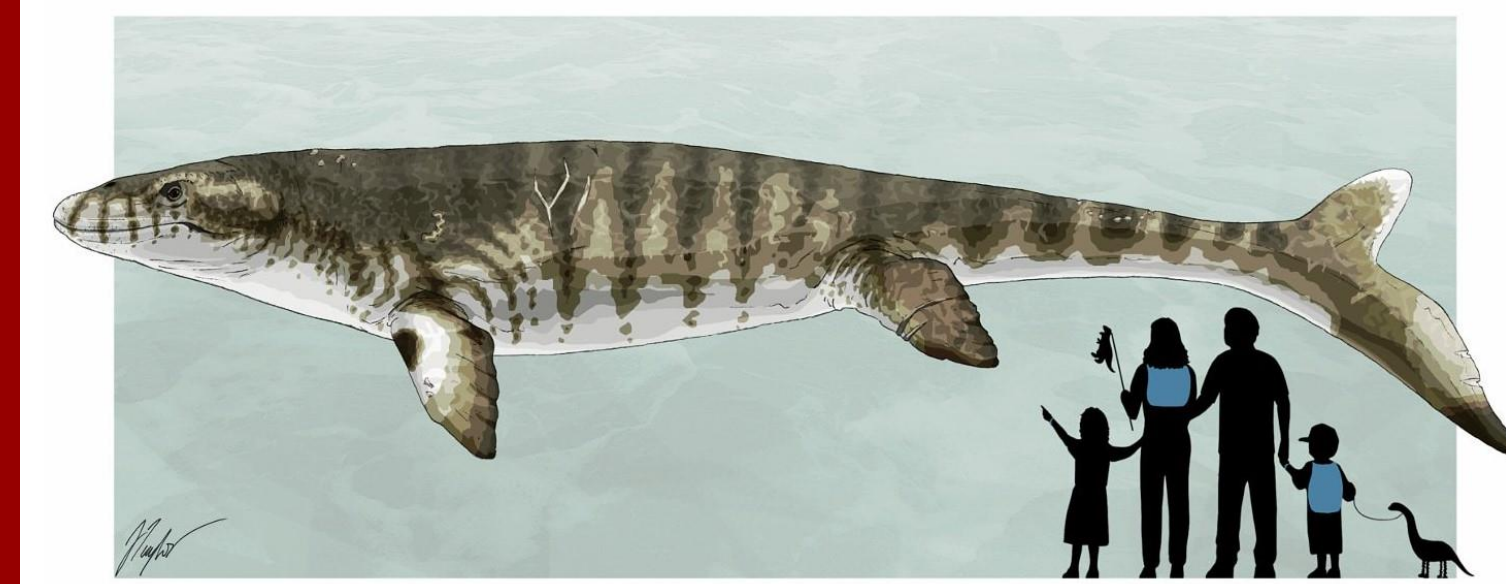
**Abstract:** The Mesozoic rock layers of Israel contain a number of interesting vertebrate fossils, most of which are late Cretaceous in age, though there are some occurrences of vertebrates from the Triassic as well. Unfortunately, the paleontology of Israel is not as well studied as other countries in the area. However, it has contributed some important information to our understanding of the area. The vertebrate fossils are of marine organisms found in a variety of limestones, mudstones and sandstones, indicating that the area was deposited underwater. This includes a large mosasaur, an elasmosaur, and a Triassic pelycosaur. These fossils combined with the depositional environments also indicate the presence of a shallow sea that covered the area. Overall, Mesozoic strata in Israel provide further data on the Tethys sea, its inhabitants, and the conditions within it.

**Discussion:** The earliest vertebrate fossil found in Israel is a placodont from the Triassic. No fossil vertebrates are known from the Jurassic, and the majority of the Mesozoic fossils are from the Cretaceous. All of the Mesozoic fossils currently known are marine with the notable exception of a large set of dinosaur footprints and leaf imprints found near Jerusalem in marine limestone. The implications of this require further study. One potential interpretation is that the area was dotted with islands, and the dinosaurs were swimming between them. The rest of the fossils being marine along with the deposition being largely phosphates and chalks indicates the presence of a shallow sea covering the area. This sea which covered large parts of the earth is called the Tethys Sea. It was relatively shallow over parts of the Middle East and Asia, and bears many similarities to the contemporary Western Interior Seaway in North America. This sea was a very important ecosystem in the Cretaceous, and Israel's fossils are an important piece in understanding its complexities.

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**Acknowledgments:** I would like to thank Dr. Whitmore and Jordan Oldham for assisting with research and providing valuable feedback.



The skull of *Prognathodon currii*, a giant aquatic mosasaur found in a phosphate mine in the Negev Desert.

Image Sources: Christiansen and Bonde, 2002 and Jed Taylor



Theropod dinosaur footprints are found in 'Ein Yarub, a village near Jerusalem.

The species that made the tracks is not currently known, though it is theorized to be a genus called *Elaphrosaurus*. The implications of a terrestrial animal traversing an otherwise marine deposit are puzzling.

Image Source: AllAboutJerusalem.com and Gabriel N. U



The vertebrae of an unidentified elasmosaur.

Image Sources: Rabinovich et al. 2015 and RJ Palmer

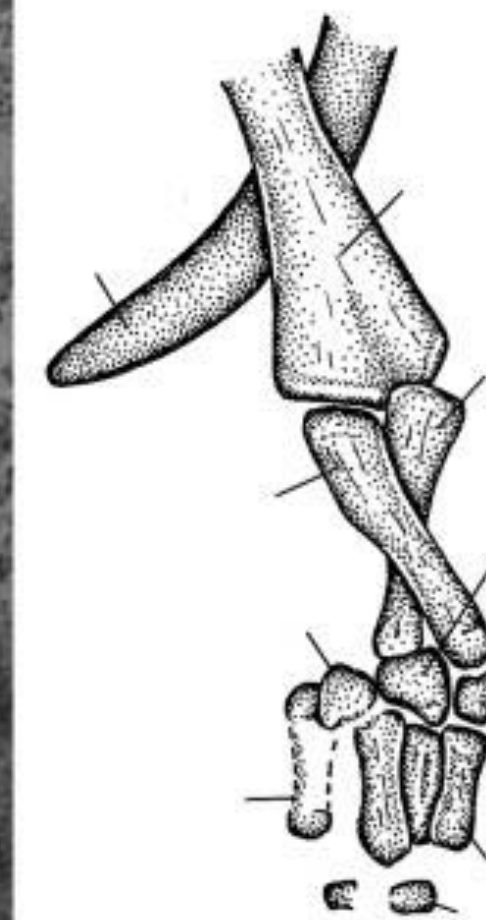
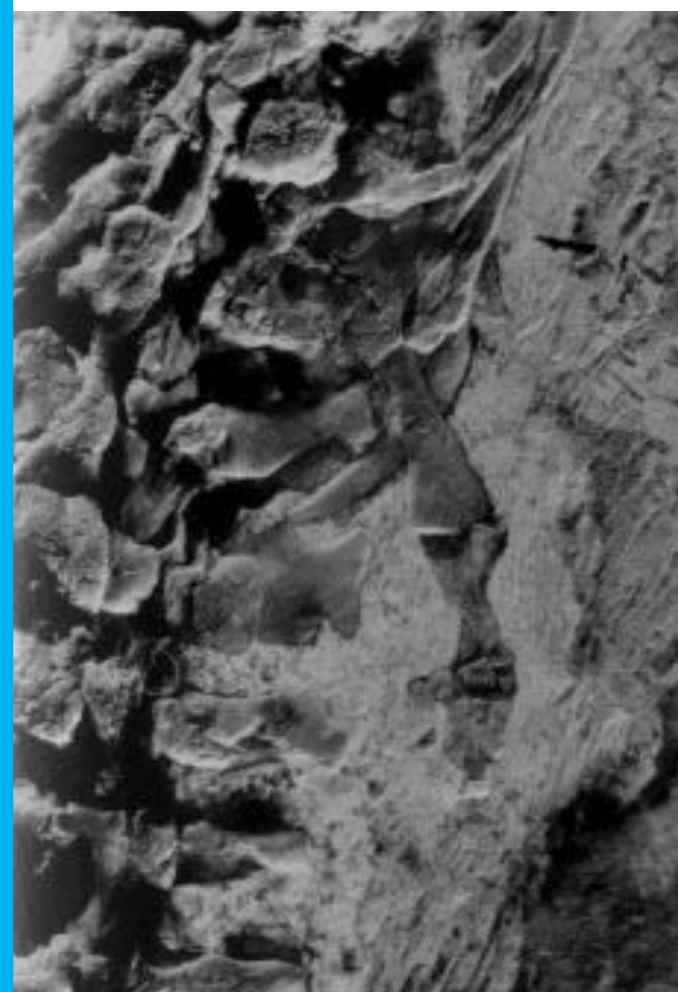


Pictured: *Henodus*, a close relative of *Psephosaurus*, the placodont found in Israel. Placodonts are only found in the Triassic.

Image Source: Wikipedia commons

A snake fossil called *Pachyrhachis* features small legs on the rear of its body. This is also found in 'Ein Yarub.

Image Source: Tchernov et al. 2012



A massive number of Chondrichthyan shark teeth have been found in the Negev. They include ancient forms of modern mako sharks, goblin sharks, as well as several others.

Image Source: Christian Kammerer



Several scattered remains of the giant pterosaur *Arambourgiania* are found near the boundary of Israel and Jordan.



Image Sources: Wikipedia commons and PrehistorybyLiam