

PREHISTORIC LIFE OF NEW JERSEY

The images on the geologic map illustrate the variety of living creatures that formerly inhabited what is now New Jersey. This interesting array of prehistoric life lived in New Jersey during the Precambrian, Paleozoic, Mesozoic and Cenozoic Eras. These major eras of geologic time are characterized by the predominance of certain types of trace fossils and other types of fossils. Included are stromatolites, some of the most ancient fossil records of life on Earth, New Jersey's most famous dinosaur, *Hadrosaurus*, the New Jersey State Dinosaur, large marine reptiles called Mosasaurs, 30-million-year-old sharks, crocodiles, Ice Age woolly mammoths, mastodons, elk moose and many more types of ancient life. The likenesses and fossils are shown approximately where they were found. They range in age from the Precambrian, about 1.2 billion years ago, through the last Ice Age, just a few thousand years ago.

Fossils are most abundant in the northwestern part of the state and in southern New Jersey. Many fossils were unearthed during quarrying and the construction of roads and buildings. Some fossils are also found in creek beds. Though most fossil sites are on private property, some are open to the public in New Jersey. Two are in Monmouth County: Poricy Park, <http://www.poricipark.org/> and a site on Big Brook, <http://www.njfossils.net/cover.html>.

Precambrian: Most of the Precambrian rocks in New Jersey are igneous (igneous rock is formed through the cooling and solidification of magma or lava) or metamorphic (the transformation of an existing rock type through heat or pressure) and do not contain any fossils. However, stromatolites (layered and gradually built structures formed in shallow water by the trapping, binding and cementation of sedimentary grains by biofilms of microorganisms) have been found in a 1.2 billion-year-old marble, indicating that marine conditions prevailed at that time.

Paleozoic: Cambrian trilobites and stromatolites record the presence of a warm, shallow sea, whereas deeper water conditions prevailed during the Ordovician. Warm, shallow seas returned to northwestern New Jersey from the Late Silurian into the Devonian. Trilobites, brachiopods, bryozoans, corals, and crinoids are among the common fossils found in this time.

Mesozoic: Fossils of early reptiles and fish are found in the Triassic sedimentary rocks. Footprints preserved in the sedimentary rocks indicate that bipedal dinosaurs roamed New Jersey during this time. Most of northern New Jersey was above sea level during the Cretaceous, whereas in southern New Jersey, seas advanced and retreated from the coastal plain, providing a variety of habitats from estuary to marine. Insect and leaf fossils indicate that low-lying swamps were covered by vegetation, and tracks and bones show dinosaurs inhabited the landscape. Mosasaurs, plesiosaurs, (an extinct marine reptile) sharks, and squid-like animals (ammonites) swam the seas, while clams and oysters thrived on the sea floor below.

Cenozoic: Marine life continued to flourish in the Tertiary seas of southern New Jersey and fossils of brachiopods (marine animals that have hard shells on the upper and lower surfaces) shark teeth, corals, echinoderms (any of a group of radially symmetrical marine animals including the starfishes, sea urchins, and related forms) and microscopic organisms indicate that the waters were warmer than those off the coast today. Ice sheets advanced and retreated over northern New Jersey during the Pleistocene Epoch and sea level fluctuated as glaciers alternately grew and shrank. The Pleistocene Ice Age ranged from about 2.6 million to approximately 12,000 years ago and was characterized by periods of cold climate. Mammals included horses, mammoths and mastodons have been found in many parts of New Jersey and roamed the land south of the ice sheets then moved north as the glaciers retreated. During this time, the coastline of New Jersey extended 70 to 80 miles farther into the Atlantic Ocean than it does today. Some mastodon, mammoth and giant ground sloth remains have been found by commercial scallop fishermen, and during U. S. Geological Survey coring projects in the Atlantic Ocean. Some specimens have also washed up on the beaches. Almost all of the giant mammals disappeared at the end of the Pleistocene and the start of the Holocene. The Holocene continues to the present day.

Further Reading

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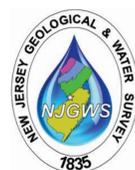
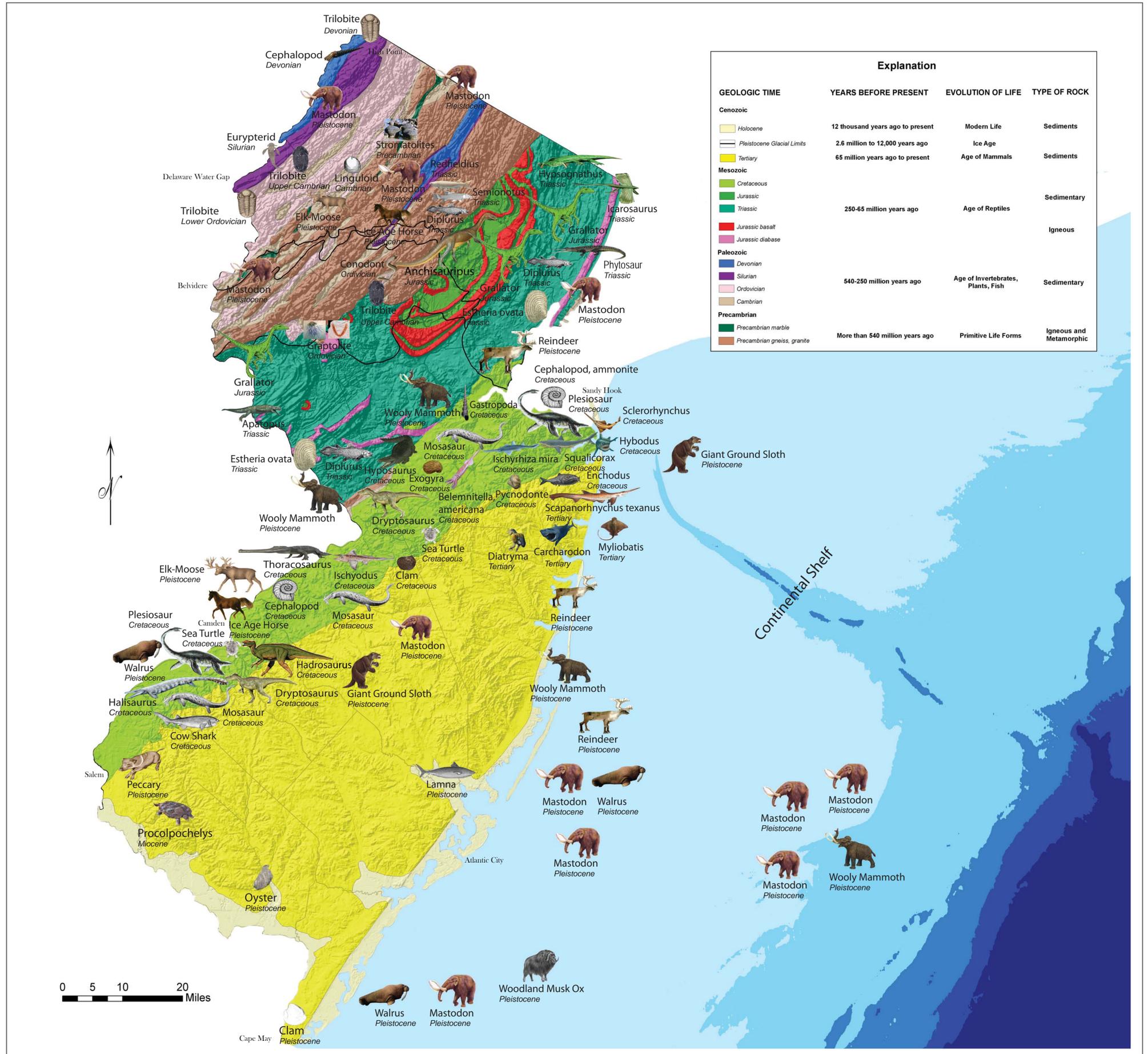
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