



PREHISTORIC LIFE IN NEW JERSEY



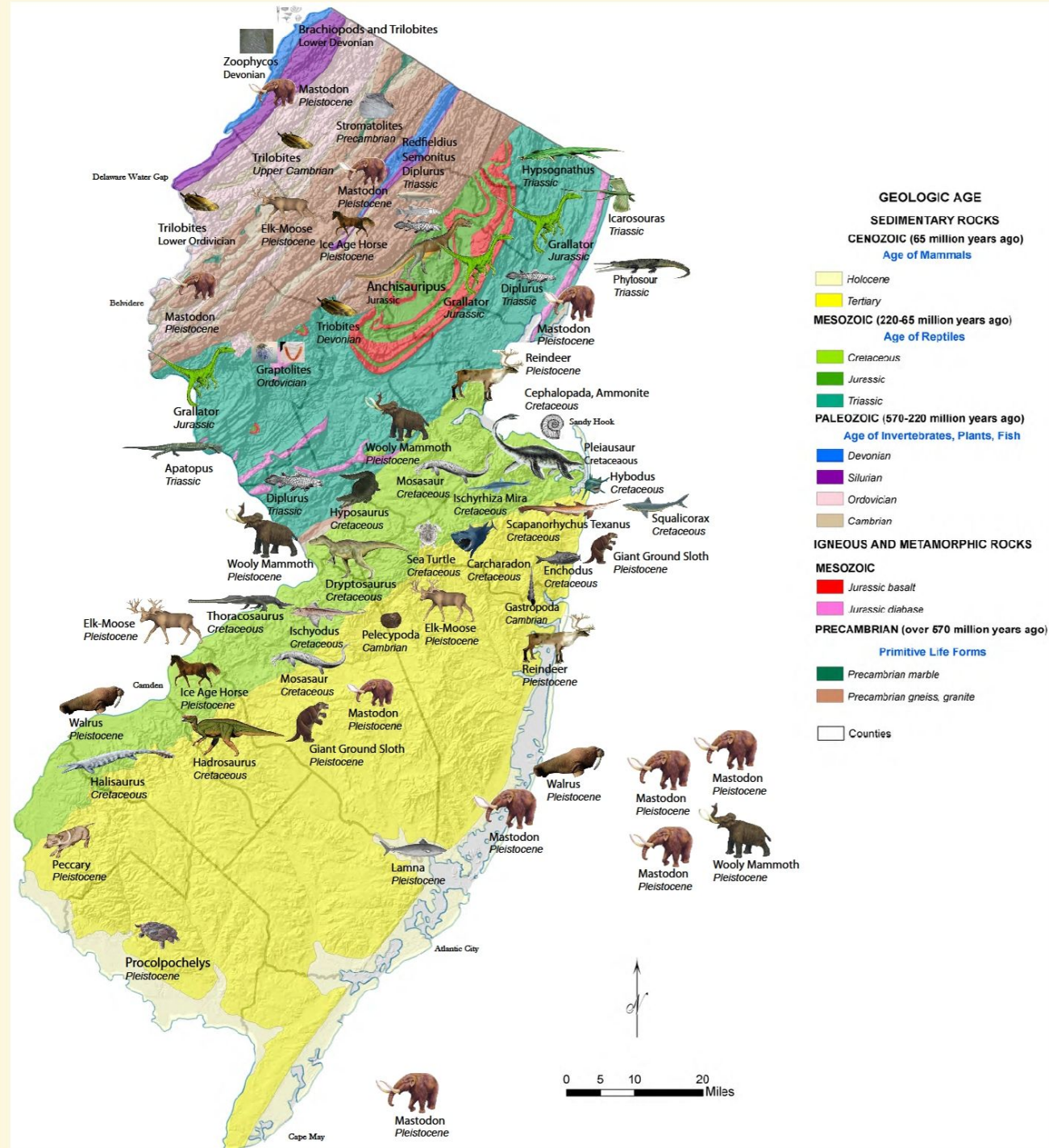
An interesting array of prehistoric life inhabited New Jersey during the Precambrian, Paleozoic, Mesozoic and Cenozoic time periods. These major eras of geologic time can be characterized by the predominance of certain types of fossils and trace fossils such as dinosaur trackways. Fossils are classified according to their physical characteristics and are evidence of life prior to recorded history. For many fossils, living relatives do exist. In New Jersey, fossils are most abundant in the northwestern part of the state and in southern New Jersey. The map contains images of prehistoric life superimposed on a geologic map. The images are positioned on the map approximately where fossils of the species have been discovered. Many fossils were unearthed during quarrying and construction of roads and buildings. Though most fossil sites are on private property, there are two fossil collecting sites open to the public in New Jersey. Both are located in Monmouth County and include Porcey Park and a site on Big Brook.

Precambrian: Most of the Precambrian rocks in New Jersey are igneous or metamorphic rocks and do not contain any fossils. However, stromatolites have been found in a 1.2 billion-year-old marble, indicating that marine conditions existed locally in the state at that time.

Paleozoic: Cambrian-age trilobites and stromatolites record the presence of a warm, shallow sea, while 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 period.

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, while in southern New Jersey, seas moved in and out over the coastal plain providing a variety of habitats from estuary to marine. Insect and leaf fossils indicate that low-lying swamps areas were covered by vegetation, while tracks and bones show dinosaurs inhabited the landscape. Mosasaurs, plesiosaurs, 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, shark teeth, corals, echinoderms, 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 Quaternary and sea level fluctuated as glaciers alternately grew and melted. Though not shown on this geologic map, the Pleistocene, or Ice Age ranged from about 1.8 million to approximately 11,700 years ago and was characterized by the formation of widespread glaciers. Mammals included both small forms, such as horses and giant ones such as mammoths and mastodons. They were found in many parts of New Jersey. The mammoths, mastodons and other mammals roamed the land in front of the ice sheets. During this time the coastline of New Jersey extended many miles farther into the Atlantic Ocean than it does today. Some mastodon, mammoth and giant ground sloth remains have been found by commercial fishermen offshore. Almost all of the giant mammals disappeared at the end of the Pleistocene and the start of the Holocene which began 11,700 years ago and continues to the present.



Ted Pallis and Richard Dalton
New Jersey Department of Environmental Protection
Water Resource Management
New Jersey Geological Survey