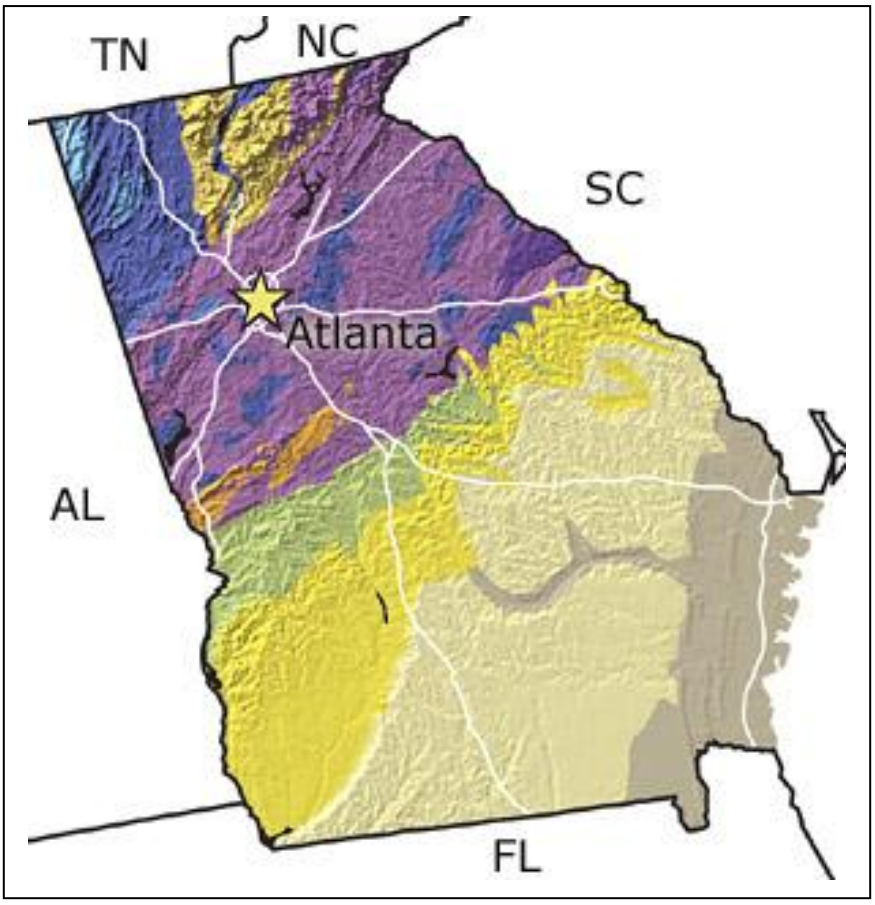
Learning Series: Basic Rockhound Knowledge

Georgia - Paleontology and Geology Overview



Geologic Periods

- Quaternary
- Tertiary
- Cretaceous
- Jurassic
- Triassic
- Permian
- Carboniferous
- Devonian
- Silurian
- Ordovician
- Cambrian
- Precambrian

The Precambrian: Little is known about the Precambrian in Georgia because the original sedimentary rocks of this age were later metamorphosed.

The Paleozoic: In contrast, Paleozoic rocks are well represented in Georgia. Shallow marine environments covered much of the state during this time. From the Cambrian through the early part of the Ordovician, thick limy deposits formed on the sea floor; stromatolites, corals, trilobites, and other marine organisms thrived in the warm waters.

Toward the end of the Ordovician, there was an episode of mountain building (the Taconic Orogeny) followed by erosion and the deposition of sediment into the sea, forming extensive tidal flats. The shallow marine environments persisted in the northern part of the state during the Silurian, but relatively deeper water spread over Georgia during the Devonian. There was also a second episode of mountain-building (the Acadian Orogeny) during this time.

During the first part of the Carboniferous, the shallow marine environments returned. Later in the period, the Appalachian Mountains underwent their third orogeny (the Allegheny Orogeny) with subsequent erosion and the deposition of sediments that formed extensive swampy deltas built out into the sea. The forests of these swamps are the source of the coal deposits of the extreme northwestern part of Georgia. The Permian was mainly a time of erosion, and no deposits of this period are known in Georgia.

The Mesozoic: There are only a few Triassic sedimentary rocks exposed at the surface in Georgia and there are no known Jurassic deposits. Mesozoic rocks are represented mainly by Cretaceous-age sediments. Most of the state was under water during this period, and shallow marine environments covered its southern half. Dinosaurs lived in the upland environments in northern Georgia; large crocodiles and fish lived in the coastal environments, along with clams, oysters, and burrowing shrimp.

The Cenozoic: Sea level fluctuated during the early part of the Cenozoic (Tertiary), but much of the southern half of the state still consisted of coastal and shallow marine environments. Erosion of the Appalachian Mountains to the north supplied mud and sand to the shallow sea. Small coral reefs formed in marine environments where the deposition was low. By the Quaternary, most of Georgia was above sea level. The shoreline fluctuated slightly as great ice sheets formed and then melted hundreds of kilometers to the north. Forests and grasslands developed throughout much of the state, and many large mammals, such as mammoths and giant ground sloths, lived in these ecosystems.

Source: Photos and information courtesy of The Paleontology Portal (www.paleoportal.org).