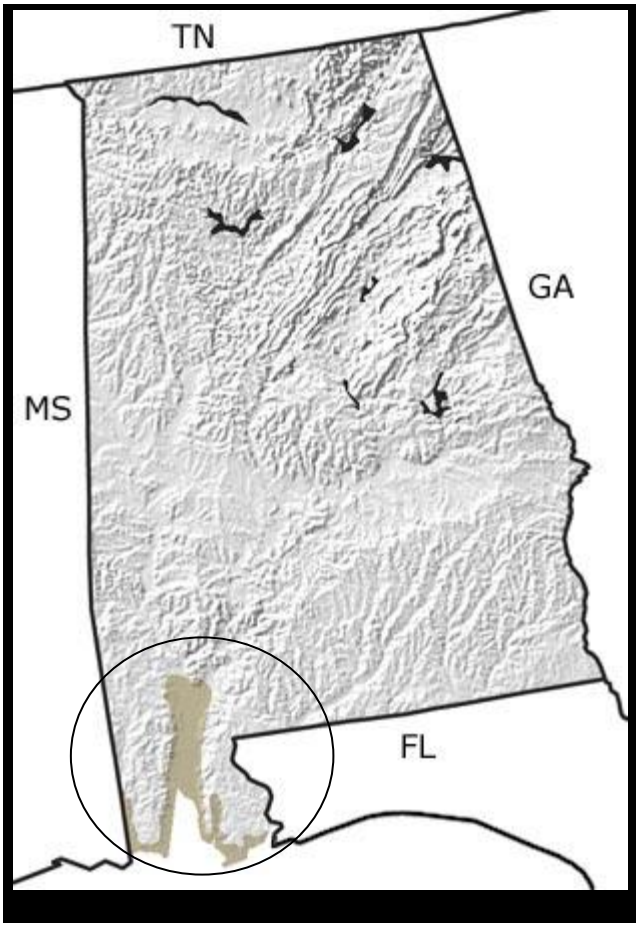
**Learning Series: Fossils and Geology of the Southeastern United States**

# Alabama – Cenozoic and Mesozoic Eras

## The Quaternary in Alabama, US – (today to 1.8 million years ago)




**Quarternary Period**

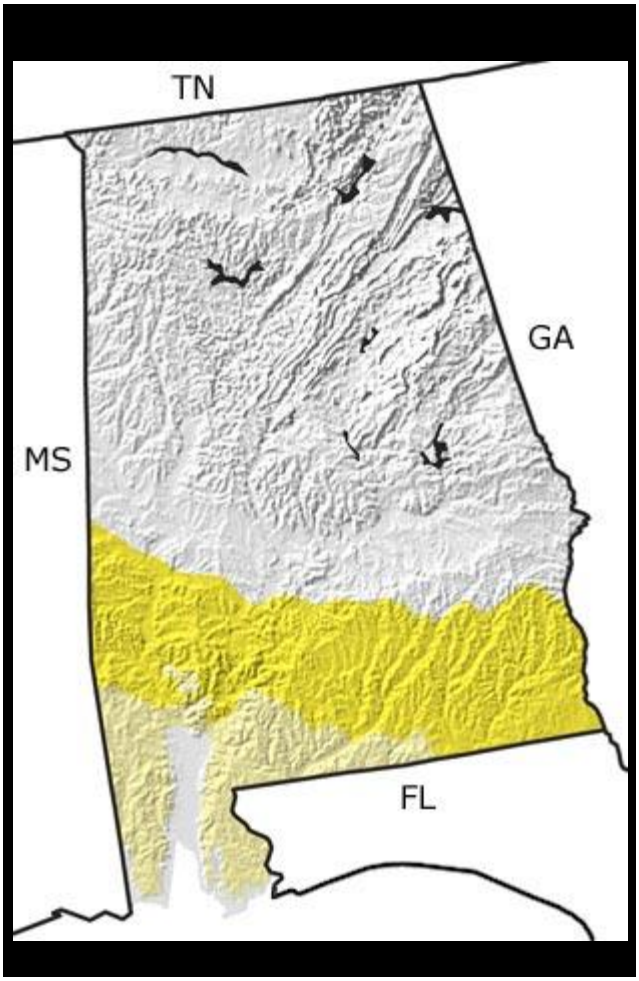
During the Quaternary, sea level fluctuated, as glaciers grew and melted in the northern part of North America. Although these glaciers never extended to Alabama, they impacted both the climate and biodiversity of the state.

Forests of northern conifers such as spruce covered northern Alabama, while mixed, drought-tolerant forests and grasslands dominated the south.

Fossils of huge animals such as mammoths, mastodons, and giant ground sloths are routinely discovered in streams and sinkholes across the state, testifying that these huge beasts called Alabama home during this time.

This map indicates the presence of Quaternary rocks across a broad area of the southern part of the state.

**The Tertiary in Alabama, US – (1.8 to 65 million years ago)**




 **Tertiary Period**

The southern part of Alabama has some of the best sections of Tertiary marine fossils found anywhere in the world.

Evidence of near-tropical, coastal forests of the Early Tertiary is preserved in layers of lignite (brown coal) that surface in curving bands across the southern counties.

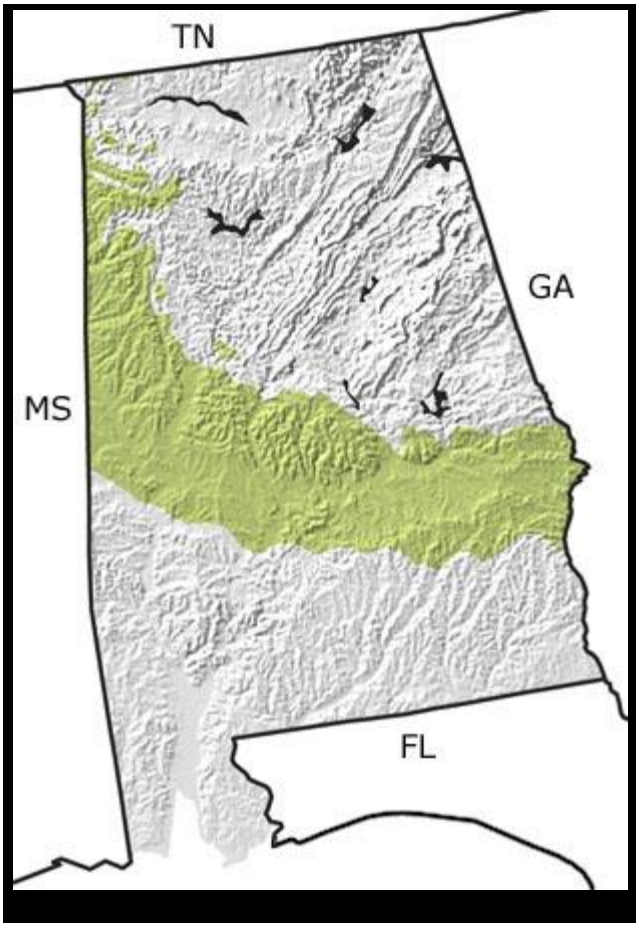
Studies of pollen grains preserved in the lignite and in other sediments show that during the middle part of the Tertiary, Alabama's forests were more like those of today.

This change from near-tropical to temperate forests was probably a response to a cooling climate.

**Note:** The 2013 International Geologic Time Scale does not recognize the Tertiary period, but the name has a long history and is widely understood. Geologists continue to wrangle over this development, and the U.S. Geological Survey has retained the Tertiary in its latest standard of 2010.

Source: http://geology.about.com/od/geotime_dating/a/Geologic-Time-Scale-Cenozoic.htm

**The Cretaceous in Alabama, US – (65 to 146 million years ago)**




**Cretaceous Period**

Rocks from the early part of the Cretaceous Period are all deeply buried in Alabama, but the last half of the Cretaceous is well preserved at the surface.

These rocks contain both freshwater and nearshore sediments, indicating that the shoreline of the Gulf of Mexico lay far inland from its present position. This sandy shoreline ran from near Auburn in the east to just north of Montgomery and Tuscaloosa, then curved northward to just west of the Muscle Shoals area.

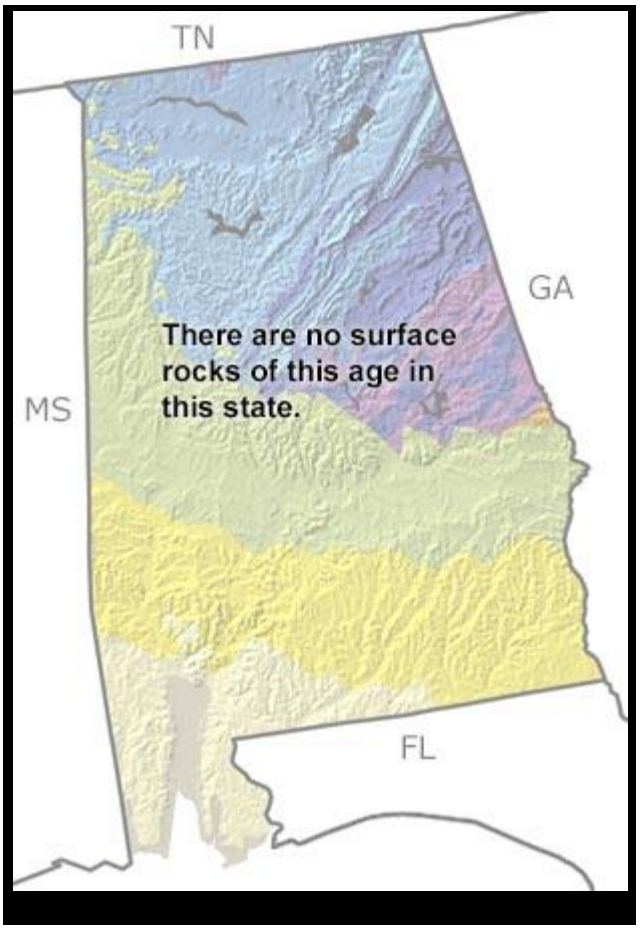
Fossil leaves from these sedimentary layers suggest that near-tropical forests covered the part of the state not inundated by the sea.

Offshore lay a rich, warm ocean filled with marine life that left behind many fossils of clams, snails, ammonites, nautiloids, and even some complete skeletons of marine vertebrates such as turtles, fish, and mosasaurs.

Fossils are so abundant in these layers that Alabama is recognized as one of the best locations in the world for collecting a variety of Cretaceous marine fossils.

**The Jurassic in Alabama, US – (146 to 208 million years ago)**

**The Triassic in Alabama, US – (208 to 245 million years ago)**




**Jurassic Period**

There are no surface rocks of Jurassic age in Alabama. Analysis of drill cores indicates that fluctuating sea levels caused intermittent flooding of the rift valleys formed earlier in the Triassic.

At times, rates of evaporation exceeded rates of water inflow to these areas and the sea dried up, leaving behind beds of pure salt. Eventually the sea persisted, creating the young Gulf of Mexico.

As the Gulf widened and deepened through the Jurassic, rich deposits of hydrocarbons—formed primarily from decaying single-celled organisms—accumulated in the sediments.

These hydrocarbons became the valuable petroleum and natural gas deposits now found across the modern Gulf States and Mexico.

**Triassic Period**

There are no surface rocks of Triassic age in Alabama. Analysis of drill cores indicates the formation of numerous rift valleys during this time as the supercontinent of Pangea began to pull apart.

The rocks in these now-buried valleys include red beds, conglomerates from alluvial fans, beds of evaporation minerals, and intrusions of basaltic lava.

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