

# Badlands national park



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Badlands national park is located in high Great Plains of southwestern South Dakota east of the Black Hills. The parks highest elevation is 3282 ft on Sheep Mountain; the lowest elevation is 2460 ft along Sage Creek. The park is nearly 244, 000 acres and covered with sharply eroded buttes, surrounded by a mixture of grass prairie. Some of the major geologic attractions are the stunning landscape and the wildlife it quarters. The geologic origin of the park reveals that it was deposited in layers. The layers are composed of sediments such as sand, silt, and clay that have been cemented to form sedimentary rocks.

The sedimentary rocks in this area were deposited during the late Cretaceous Period which was 67 to 75 million years ago. Deposition and erosion are geologic process that created the formation of The Badlands. Some of the formations that took place at the Badlands National Park are:

- The Sharp formation is light in color and deposited by wind and water in the dry and cool climate that existed 28-30 million years ago during the Oligocene Epochs period.
- The Brule formation is tannish brown in color and consists of bands of sandstone deposited by channels of ancient rivers that flowed in the Black Hills.
- This formation took place 30-34 million years ago also during the Oligocene Epochs period.
- The Chadron formation is grayish in color and consists of fossils from early mammals like the three-toed horse and the large titanotheria deposited by rivers across the flood plain. This formation took place 34-37 million years ago during the Eocene period.

- The upper layers are Yellow mounds weathered by yellow soil and black ocean mud that have contained fossil sand, or paleosol.
- The Pierre Shale is black in color and deposited by sediment filtered through seawater and black mud on the sea floor that hardened into Shale.
- This formation took place 69-75 million years ago during the Cretaceous Period.

Some of the fossils found in the shale consist of clams, ammonites, and sea reptiles; that proved this was a seaenvironment. Badlands National Park has found fossils dating 23 to 35 million years old that contains the world's richest Oligocene epoch fossil beds. The Badland's formation has helped geologist study the evolution of early mammal species such as horse, sheep, rhinoceros, and pigs. The best scientific knowledge of early mammals came from the Oligocene Period that last 23-35 million years ago.

Some of the fossils that were found were:

- Leptomeryx- deer like, small and fragile; had even toed hooves
  - Oreodonts- sheep like in appearance; name means “ mountain tooth”
  - Archaeotherium- a distant relative of the pig had sharp canines
  - Hoplophoneus- distant cousin of the saber tooth tiger, size of a leopard
  - Subhyracodon- similar to that of a rhinoceros
  - Ischromys- a small squirrel like rodent
  - Metamynodon- a massive rhinoceros, like that of a hippocampus
  - Paleolagus- an ancestral rabbit
- The geologic time is illustrated below and represents the time represented in the park. (Stoffer, 2003)

The biggest issue that faces the Badlands National park is weathering and erosion. This has been the major driving force in the formation of this park and will eventually make the buttes and the spires flat. Some of the other issues are non-native grasses and weeds growing out of control. This non-native grass is growing at an incredible rate and will eventually take over and kill the native grass. Increasing garbage and waste problems are an existing issue with the amount of visitors each year. Recent developments west of the park is causing air and water pollution that is effecting plant and animal habitants in the area.