

## **Badlands National Park**

The badlands national park is just off I-90 with a 32 mile loop through revealed layers of clay, sand, and volcanic ash laid down during the Flood of Noah's day. The French explorers called this area, "bad lands to cross" and so it is!

## **Starting at the East entrance**

### **East entrance to the Park and Big Badlands overlook**

This gives you a big view of the badlands. A quick look will show that the Badlands were deposited in layers. Notice the layers are horizontal. Follow one strata line and then follow another. There is no evidence of weathering or erosion on boundaries between layers, the contact between layers is "knife-edge" sharp. If this were laid down over slowly over millions of years there should be soil layers at each layer. Also if these layers were laid down slowly over millions of years, the creatures should have mixed the soil and it should appear homogenous. As it is these layers reveal they were laid down quickly in a flooding event. Scientific research shows that flowing water lays down sediments in layers. The Badlands testify to a worldwide Flood as mentioned in the Bible.

### **Door and Window Parking area**

The Door trail is so named for a break in the wall. This marks the upper prairie from the lower prairie. This thick ridge is over 100 miles long and called "The Wall". The city of Wall and Wall Drug take its name from this ridge.

### **Ben Reifel Visitor Center**

A small visitor center to help you understand the park better.

**Notice the eroded badlands around you.** Pick a strata line and follow it from butte to pinnacle. Now read above **Notice the horizontal bands of sediment.**

Horse evolution exhibit

Creation scientists have examined 19 fossil horse species. Statistical analyses revealed they belong to the same "horse kind". Horses range from the small miniature horses to the large Clydesdale. (Thumbelina is a miniature horse that is 17 inches tall.)

Horses vary from having 17-19 ribs. Some are born with one toe and others with more. All are just a variety of the horse kind. The same can be said of the variety we find within the dogs, from poodle to Great Dane.

Horses were created on Day 6 of creation week some 6,000 years ago. Noah took 2 horse kinds on the Ark, a male and female. The ones that we find in the fossil record are the ones that did not get on the Ark. After the Flood, the 2 horses left the Ark were fruitful and multiplied over the earth.

(Museum Guide: a Bible-based Handbook to the Museum. 2006. Answers in Genesis. p. 83.)

### **Fossil Exhibit Trail**

In the Badlands we find in the lower grayish-black sedimentary rock called the Pierre Shale, clams, crabs, snails and baculites (squid like creature with a long shell tightly

coiled at one end). Notice the lower stratum has marine fossils. What are ocean creatures doing in South Dakota? They were caught in a world-wide flood. These fossilized creatures were caught in black mud which compressed and turned into rock (shale). This 2,000 foot thick band of rock is known as Pierre Shale. When asked of the ranger about the clams, "Do you find them mostly open or close"? Closed clams. Close clams mean they were buried alive and then died. When clams die naturally, their muscle relaxes opening the shell. Most the time on beaches you will find separate halves of the shells. With both halves still together means the clam must have been buried deeply and fast. Living clams can dig them themselves out of many feet of sand. Finding fossilized clams with closed shells testifies to rapid, deep, burial such as would be found in the Genesis Flood.

In the next two layers, Eocene and Oligocene epochs fossilized mammals are found. Saber tooth cats, miniature camels, horses the size of a collie dog, deer the size of a house cat and gigantic rhinoceros like beasts called titanotheres. Tintanother means Giant (Titan) creature (Theres). Pigs (oredonts), the size of a large dog, are the most common mammal fossil found in the park. No dinosaur fossils have been found in the park. An excellent display of fossils found in the Badlands is on display at the **Museum of Geology School of Mines and Technology in Rapid City.**

### **White River Valley Overlook**

Notice the strata lines.

1. no evidence of weathering or erosion on boundaries between layers
2. sharp "knife-edge" contact between layers
3. lack of bioturbation
4. lack of soil layers

### **Bigfoot Pass Overlook**

Notice the strata lines. See above **Notice the horizontal bands of sediment**

Also, these layers of sediments are underneath the upper prairie. A lot of erosion had to happen to reveal what we see. Where are the eroded sediments? Washed clean away.

**Burns Basin overlook and Homestead Overlook:** Notice the strata lines. Scientific experiments show that flowing water separates sediments into layers.

**Conata Basin Overlook:** Notice the strata lines. How does soft, loose sediment turn into solid rock? It's the same way we make concrete, after all concrete is just artificial rock. The concrete company breaks up bigger rocks into smaller rocks and adds cement (limestone/clay) and water. Cement mineral crystals grow around the rock and we have concrete. The two most common cementing agents are calcium carbonate (the lime in limestone) and silica (silica rock cement in this form are like little packs of silica gel that get packed with electronics, they rapidly absorb water and form crystals.) During the Flood, the earth was one big cement mixer.

*(The Fossil Book by Gary and Mary Parker, 2005, p. 7-8.)*

**Yellow Mounds Overlook:** the sign says these are the remains of 87 soils, some are red, yellow and purple.

**Pinnacles Overlook:** Today we see layers of varied colors sweep across the landscape. These layers were laid down by the Flood. Scientific experiments have found that flowing waters laid down sediments in varied layers. Then, massive amounts of water

eroded the landscape revealing these strata layers which are evidence of a worldwide Flood. Here in the Badlands erosion has reveal the history of the Flood of Noah that is usually kept hidden.

How did the Badlands form?

During the year long Flood during Noah's day, the earth experienced catastrophic restructuring. In Genesis the "fountains of the great deep" burst forth and poured water onto the earth's surface for 150 days (5 months). At the same time, "the floodgates of heaven" opened and torrential global rains fell. These waters eventually covered "all the high hills under the whole heaven." So that all the air-breathing, land dwelling creatures died. Only Noah, his family and those creatures he took on the Ark were saved. This world wide catastrophe lasted over a year (370 days). As the Flood waters swept across the continents, it ripped up the earth depositing it in a different place. Add to these earthquakes, volcanoes, tsunamis, and the moon's gravitational pull on these waters and you have violent watery storm. The earth was truly being washed clean of its wickedness. Towards the end of the Flood, the waters rushed off the land masses and into the oceans. As "mountains rose up and valleys when down" Psalm 104:8, water in sheets would erode the land, soon the waters would become channalized eroding the land more deeply. Noah, his family and animals left the ark to experience a new world. The rainbow in the sky was and is a promise to us that the world will never be destroyed by a world-wide flood again.

What we see at the Badlands is the layers of strata that were laid down during this year long flood. Flood waters had swept across the continents laying down sand, clay, and volcanic ash. On every continent is the world is found extensive areas layers of sedimentary rock. Caught in these waters would have been the creatures not on the Ark. Countless billions of fossils of plants and animals are found in extensive fossil graveyards world-wide. The geological column is a record of what got caught and died in the Flood not an order of green slime evolving into a human.

Look out over the badlands notice the horizontal layers. These sharply defined layers.

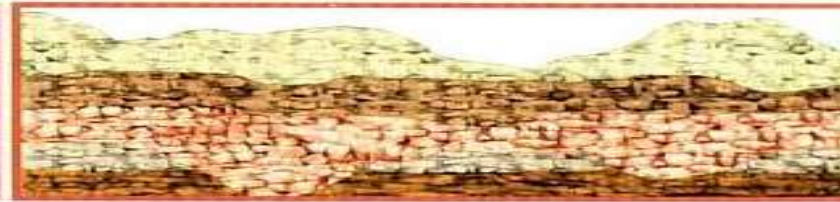


The Badlands give evidence of a worldwide flood. When viewing the Badlands notice the horizontal bands or layers of sediment. These sedimentary rock layers are made of tiny grains of sand, silt, mud, and clay that have been cemented together into sedimentary rocks. The worldwide Flood would have been a horrific year long event. As the “fountains of the great deep burst open”, tsunamis would have swept over the continents, bringing with them marine creatures. Add to this, “the floodgates of heaven opened”. This watery cataclysm would be accompanied with tremendous earthquakes and erupting volcanoes. This global watery cataclysm would result in the destruction of every animal and plant on the face of the earth, only those safely in the Ark survived. The earth was going through great upheavals. The land was being ground into sediments. Today 75% of the land surfaces are sedimentary rocks, rocks that had been ground up and laid down in violent global Flood. At the end of the Flood, the mountains rose up and valleys went low causing the waters to rush off the continents and into the oceans. These waters would have run off in sheets and caused erosion and in places like the Badlands we are privileged to see these laid down layers from the Flood revealed.

**Notice the horizontal bands of sediment**, each band can be traced to the next butte, pinnacle or peak, showing one continuous band. The strata are in horizontal bands. We find no evidence between the strata (bands) of weathering or erosion. If each band had been laid down over millions of years, shouldn't those years of weathering and erosion be revealed in the horizontal layers? What we find between the boundaries of sedimentary layers is a **flat, featureless, knife-edge boundary**. These flat, featureless boundaries are hallmarks of continuous deposition or lying down of the year long Genesis Flood.

Notice each layer of strata, the light and the dark, have totally different rock types lying one on top of the other, each layer has a very distinct “knife-edge” line between them. The existence of sharp “knife-edge” contact between the strata **could not** happen over millions of years otherwise we should see erosional features. These layers show evidence of being laid down quickly.

How were these layers laid down during the Flood? Flowing waters separates sediments into layers. Take a jar and fill it with gravel, sand, and clay, now add water. Shake it up and watch the layers form in a short time. This is but a small experiment as compared to a global flood. Moving waters sort out particles thus forming layers.



**Layers show lack of bioturbation**. Bioturbation refers to biological life mixing up the soils. Sediments that have been laid down in hurricanes quickly become mixed up by worms, clams, and plants, disturbing the layers. One study of Hurricane Carla in 1961 showed that it laid down a recognizable layer; within 20 years this layer could hardly be found, the critters and plants had mixed these sediments. If the sediments had been laid

down in the badlands over millions of years, these layers would not be so pronounced; bioturbation would have mixed the layers to almost a homogenous layer.

Each layer shows lack of a top soil. If the land had continuously supported life over hundreds of millions of year, the soil should be visible.

### **Extent of Sedimentary Rocks**

The limestone outcrops in the Black Hills extends to the Redwall Limestone seen in the Grand Canyon to The Grand Teton Range where it is called the Madison Limestone. The limestone then extends into the Canadian Rockies. This limestone can be traced over large areas of the United States. We do not observe such extensive layers being laid down today. Today's sedimentation is limited; for such a vast area to be covered required some catastrophic event of biblical proportions for it to be produced.

### **Geological evidence for strata laid down in a Flood**

- 1. no evidence of weathering or erosion on boundaries between layers**
- 2. sharp "knife-edge" contact between layers**
- 3. lack of bioturbation**
- 4. lack of soil layers**

**Fossils:** The world wide flood would have produced, as Ken Ham says, "billions of dead things buried in rock layers laid down by water all over the world". 95% of all know fossils are marine invertebrates. These creatures would have been the first to be caught in this epic flooding event. As the storms, tidal surges and tsunamis continued more and more of the land would become flooded burying plants and creatures. Those to be trapped and buried first were the marine creatures then those living closest to the shore (amphibians), and finally those farther in land, like the reptiles and finally the mammals. The surging flood waters covering these land creatures would have also brought in sea creatures. That is why in the Badlands of Theodore Roosevelt National Park, fossils finds are clams, snails, crocodiles, alligators, turtles and *Champosaurus gigas* a 10 foot long crocodile-like creature.

**Volcanoes, the Flood and Bentonite Clay** .....The park layers are full of volcanic ash. Volcanic ash would have been spewing out from hundreds of volcanoes during the Flood and after the Flood as the earth began to settle down. Volcanic ash weathers and decomposes into bentonite clay. Bentonite clay is mined worldwide. In the northern high plains hundreds of bentonite beds exist. Because it absorbs water wonderfully it is used in such industries as drilling wells, lining landfills, and kitty litter. These clays when wet expand and become very sticky and slick. In the Badlands area great amounts of volcanic ash were deposited over an extensive area. Notice the thick whitish-gray layers

of bentonite clay, which used to be volcanic ash! When exposed on the surface and dried



out they appear crumbly.

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