

View of Painted Hills from Carroll Rim

8. The Painted Ridge is made up of claystones that are buried soils from the cooler environments that replaced the Clarno Jungle. Changes in the environment can be detected in the different soil types. The red beds are more moist, dense forests. The brown beds represents a mix of forest and grasslands. And the black beds represent waterlogged soils of swamps near the banks of ancient rivers. Rainfall during this period is estimated to have varied from 50-30 inches per year.

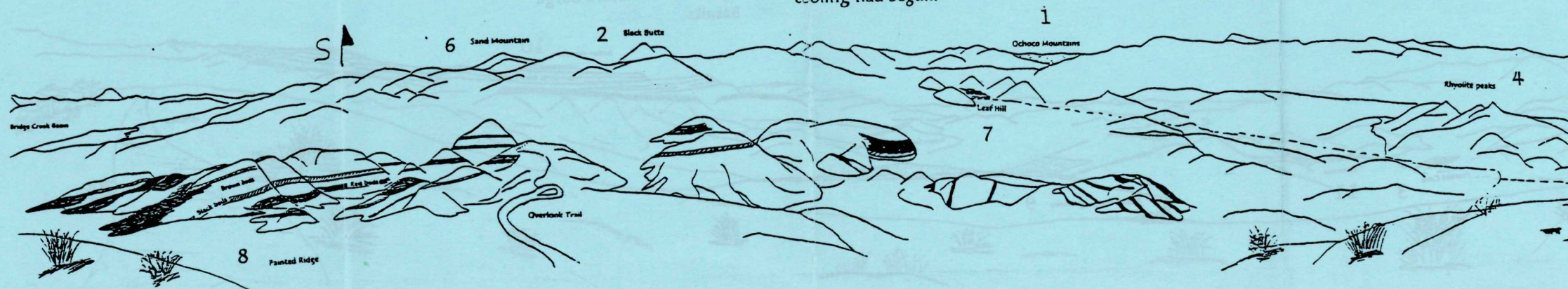
6. 37 MYA. The andesite of Sand Mountain is from another volcanic eruption that occurred 37 million years ago.

2. 55 MYA. About 55 million years ago, a new chain of volcanoes began to form. Lava travelled up through the ocean deposits and erupted through the foothills and core of the Ochocos. These were the Clarno volcanoes and they were active until about 40 million years ago. Black Butte is the remainder of one of the old Clarno volcanoes.

7. 33 MYA. Sometimes the lava flows blocked off streams and created lakes. Other lakes formed in low spots that collected water. Leaf Hill represents the bottom of an ancient lake from about 33 million years ago. Leaves of many different kinds of trees fell in the lake and were preserved. From these leaves we can tell the forest was no longer a jungle with palm trees, but instead, a deciduous forest with trees like alder, oak and maple. A major trend of global cooling had begun!

1. 100 MYA. If we go back about 100 million years ago, we find a shallow ocean where Prineville is today. At that time, the Ochoco Mountains were newly formed and made up of thousands of feet of rocks that had once been on the bottom of the ocean.

4. 44 MYA. One of the signals that the Clarno volcanoes were dying out was a series of rhyolite lava flows beginning about 44 million years ago which can be seen in the rhyolite peaks and the weathered rhyolite at Painted Cove.





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3. The Clarno volcanoes were part of a hot and humid sub-tropical environment, much like the jungles of Panama today. The weathering of the rock (due to an estimated 100 inches of rainfall per year) produced dark red soils which became compacted into claystones later on. You will see some of these red Clarno claystones at the Painted Cove.

11. Recent. Today, the Painted Hills is a near-desert ecosystem with only 12-14 inches of rain per year. The major drainages in the Painted Hills area today are Bridge and Bear Creeks. You drove through Bridge Creek Basin as you entered the Painted Hills and the Reservoir near Painted Cove was created by the damming of waters from Bear Creek which flows behind the Painted Cove and between the rhyolite peaks.

5. 37.9 MYA. A white volcanic ash layer represents the beginning of the John Day Formation and is called the "A-Layer", also known as "the John Day-A". This layer was deposited 37.9 million years ago and represents the beginning of a new chain of volcanoes farther to the west, the Ancestral Cascades, which were the grandfathers and grandmothers of the Cascade volcanoes that are active today.

9. 28.7 MYA. Here at Carroll Rim we are standing on top of the Picture Gorge Ignimbrite. This rock formed when a huge eruption, similar to Mount St. Helen's, but much more explosive, occurred. A fiery ash cloud of rock particles, suspended in hot gases and liquids flowed for over 100 miles and cooled. The Picture Gorge Ignimbrite has been dated at 28.7 million years ago. This layer often stands out as a single hard dark layer below and separate from the dark layers of the Picture Gorge Basalts.

10. 16 MYA. Sutton Mountain looks striped because its top is made up of a series of lava flows, the Picture Gorge Basalts, which flowed from cracks in the earth near the town of Monument between 16-15 million years ago.

