

BONNEVILLE LANDSLIDE

BRIDGE OF THE GODS



Hundreds of years ago, an entire hillside along the Columbia River collapsed in a massive landslide covering an area of about six square miles. The Bonneville landslide was so huge that it created a natural dam in the Columbia River, forming a temporary lake stretching all the way to Wallula Gap, 150 miles upriver. The deposit is known as the "Bridge of the Gods", because it temporarily connected the land on both sides of the Columbia River. The modern-day bridge at Cascade Locks is named after this prehistoric land bridge.

The Bonneville landslide's headscarp is exposed on Table Mountain, which has an almost vertical 800-foot-tall open face close to its peak. Table Mountain is composed of Columbia River Basalt (CRB) lava flows, that sit on top of the sedimentary Eagle Creek Formation. The sedimentary rock weathers into clay as water trickles down through cracks in the CRB lavas. The Bonneville landslide, like many of the large landslides in the Cascade landslide complex, was activated when CRBs slid along this weak clay layer.

LANDSLIDE COMPLEX

The Bonneville landslide is just one of several overlapping landslides within the much larger Cascade landslide complex.

A headscarp is a steep exposed area at the uppermost limit of a landslide

Greenleaf Basin rock avalanche

Landslides often have **hummocky topography**—uneven terrain made up of large blocks of land deposited during the landslide.

Many of the lakes on the Bonneville landslide are large **sag ponds**—bodies of water that occupy depressions in the landslide deposit.

The **Piper Road landslide** activated in 2007 after heavy rainfall. The slide affected two homes and threatened nearby infrastructure. More than 1.5 million dollars was spent to mitigate the hazard.

Before construction of the Bonneville Dam this was the site of the **Cascades Rapids**, namesake of the Cascade Range.

After crossing into Washington, thru-hikers on the **Pacific Crest National Scenic Trail (PCT)** traverse several miles of the Bonneville landslide on their way north to Canada.

When did this huge landslide happen? Using methods such as radiocarbon and tree-ring dating, scientists can figure out the timing of a geologic event. The most recent investigations tell us that the Bonneville landslide occurred in the mid-1400s.

Areas of the Cascade landslide complex are still moving today. A satellite mapping technique known as InSAR measures small movements on Earth's surface. Using this technology, researchers determined that a section of the Cascade landslide complex had moved 2.3 feet downslope between 2007 and 2011. That may not sound like a lot, but it tells us that this area is still in motion. This movement could impact structures built on the landslide.



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