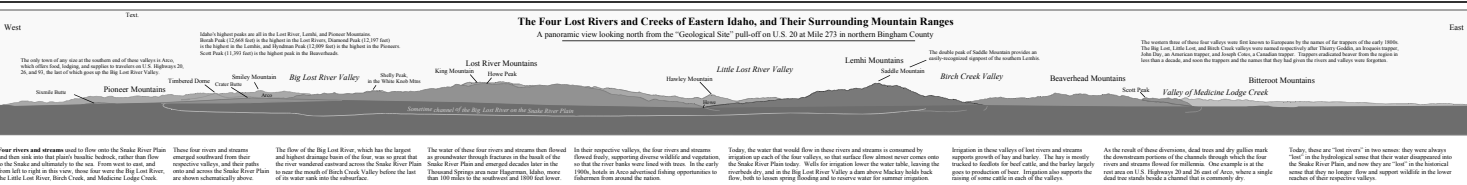


The sketch above is a synthesis of views, rather than a view from one point. In actual views from the ground, positions of nearer features (for example, Timbered Dome) will shift relative to more distant features (for example, Smiley Mountain). Shelly and Sheep can only be seen from locations sufficiently far west to not be blocked by Appendix Hill. They can be seen from west of the Bate County Airport.

Big Cinder Butte and Inferno Cone consist of volcanic material erupted in the last ten thousand years. Blizzards Mountain and Scorpion Mountain consist of sandstone and conglomerates (mostly gravels) that are about 340 million years old. Timbered Dome consists of sedimentary rocks that are about 150 million years old and that, at its top, have been infiltrated by silica to form a material called "jaspwood". The Lost River Lava Flow is about 40 thousand years old, younger than the sediments of the Big Lost River on which it sits. Smiley Mountain consists of volcanic and intrusive igneous rocks that are about 50 million years old. Sheep Mountain and the hilly ridge blocking the view into Anderson's consist of volcanic rocks (including the "Challis Volcanics") erupted about 50 million years ago. Shelly Peak consists of intrusions that are about 350 to 360 million years old. Appendix Hill consists of intrusions (intrusions of ancient seas) that are about 350 to 360 million years old. The same is true of Arco Peak and Number Hill. The Lost River Mountains consist of sedimentary rocks that are 400 to 380 million years old. Many of its mountains, and Shelly Peak as well, were sculpted by glaciers over the last two million years.

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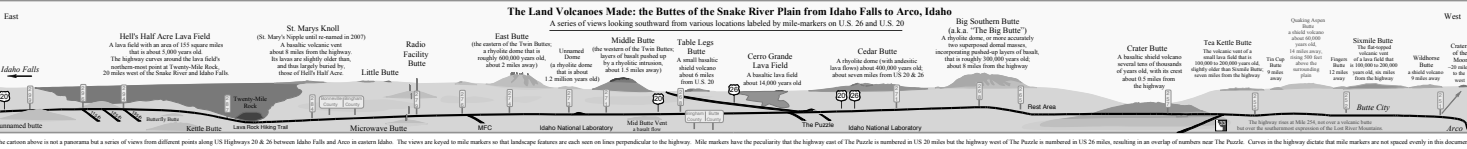


Most of the water from these four valleys was first harnessed by Europeans by the names of fur trappers of the early 1800s. The Big Lost, Lemhi, and Snake River valleys were named respectively after Thomas Coulter, an English trapper, John Day, an American trapper, and Joseph Cook, a Canadian trapper. Trappers established beaver dams from the riparian to the riparian, and soon the support and the names for the fur had gone from the coast and valleys westward.

The western ends of these four valleys were first harnessed by Europeans by the names of fur trappers of the early 1800s. The reason: banks of the mountains here allowed trappers to establish beaver dams from the riparian to the riparian, and soon they were "cut" in the historical sense that they no longer flow and support wildlife in the lower reaches of their respective valleys.

Today, these are "lost rivers" in two senses: they were always "lost" in the hydrological sense that their water disappeared into the Snake River Plain, and now they are "lost" in the historical sense that they no longer flow and support wildlife in the lower reaches of their respective valleys.

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The buttes above are not a panorama but a series of views from different points along US Highways 20 & 26 between Idaho Falls and Arco in eastern Idaho. The views are keyed to mile markers so that landscape features can be seen in perspective relative to the highway. Mile markers have the peculiarity that the highway east of the Puzzle is numbered in US 20 miles but the highway west of the Puzzle is numbered in US 26 miles, resulting in an overlap of numbers near the Puzzle. Caters in the highway diagram that mile markers are not geologic views in this document.

The landscape north of US Highways 20 and 26 from Idaho Falls to Arco is a sampler of volcanic features, that have been so greatly pushed ahead of volcanoes to display upright volcanic domes. It is the result of volcanic eruptions over the last million years, and as recently as last year, when a blink of an eye in geologic time.

A butte ("bunt") is an isolated hill, typically with steep sides and topped with a relatively flat top. A butte can consist of any geological material, but all of the buttes shown on this document are volcanic. Features: They rise from a very flat plain, a common volcanic landscape, that has been eroded here over the last 5 to 1 million years. The unnamed butte at Mile 299 provides a view across the landscape and instead piles up in a dome, whereas a volcanic butte (with less volcanic) will flow for miles and miles to make a lava flow.

Igneous rocks are the rocks that form from magma (molten material) and volcanic rocks are the igneous rocks that form when magma rises from Earth's surface all the way to the surface. Magma has a spectrum of chemical compositions that range from rich in magnesium and iron ("magnesian") in the middle-up way (for them to be rich in silica and aluminum ("silica") in the middle-up way) to silica-rich. This chemical distinction leads to two things that one can see: black basalt (like the Hells Half Acre Lava Flow) and a more felsic lava (like the Lava Field at Arco). Both of these lava flows contain dark minerals that are commonly covered with light-colored ash or sand that with a coating of white calcite, a secondary surficial coating of calcite carbonate common to our environment.

The difference between volcanic thuyphylite magmas and felsic basaltic magmas is that the igneous rock that is composed with thuyphylite and monzonite lava flows that have an equally large or even larger area. For example, the Big Southern Butte has a footprint of about 19 square miles, which looks much more modest, produced a lava field with a larger area, of 12 square miles. Even larger, Cedar Butte (which most people drive without noticing) has a lava field with an area of 41 square miles. Thus, the Big Butte might be called "Big Southern Big Butte", in distinction to the basaltic butte that is "the world", and the butte given Butte County its name.

The Big Southern Butte is actually the most prominent of the buttes of the Snake River Plain. It rises to 7548 feet (2300 m) above sea level, and thus about 3400 feet (1030 m) above the Snake River Plain, with slopes exceeding 30° on its sides. Clouds sometimes cover an upper reaches when the surrounding plain is clear. The House of Long Management says that the Big Southern Butte is "one of the largest volcanic domes in the world", and the butte given Butte County its name.

The Big Southern Butte is actually the most prominent of the buttes of the Snake River Plain, which is usually called "the Big Butte". However, there is also a "Big Butte" near Grangeville in Blaine County, Idaho, and no distinction between the two is made. One might say that the one at Grangeville was really called "southern" and the butte here would more logically be called "Snake River Big Butte" - but it is formally named the Big Southern Butte.

Crater Butte is a shield volcano covering more than 50 square miles and reaching an elevation of 5367 feet above sea level. A 100-foot deep crater at the top of Crater Butte was its name, but that crater is inaccessible by visitors because it is in the western area of the Idaho National Laboratory. Crater Butte is sufficiently high that, from the highest point of Highway 20 to 26 north of the Park, the Teton can be seen in the eastern horizon on clear mornings. It is also high enough that it can be seen in the far west in the view in the panel above this one.

All of the rocks and geologic features in the Snake River Plain are remarkably young by geological standards: hardly anything seen at the surface is more than a million years old. For comparison, the rocks in the western area of the Idaho National Laboratory, Crater Butte, are sufficiently high that, from the highest point of Highway 20 to 26 north of the Park, the Teton can be seen in the eastern horizon on clear mornings. It is also high enough that it can be seen in the far west in the view in the panel above this one.

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