Volcano Tour Teaches Visitors about the Areaâ€™s Geologic Past

by Scott_Staats

It started with a sound like distant thunder, but the skies were clear. Suddenly the ground shook for miles around. A volcanic vent opened on the inside of the calderaâ€™s rim and began sputtering lava and pumice, eventually giving way to the main lava flow. The lava slowly poured downhill igniting then burying every tree in its path.

The only people around to witness this fiery spectacle were Native Americans, as it occurred 1,300 years ago, very recently geologically speaking. This flow, known today as the Big Obsidian Flow, in Newberry National Volcanic Monument is the youngest lava flow in Oregon.

Paulina Lake (left), East Lake (right), the Big Obsidian Flow (below). All photos by Scott Staats. Established by Congress November 5, 1990, the monument was created in order to â€œpreserve and protect for present and future generations Newberryâ€™s remarkable geologic landforms.â€• Newberry volcano itself is an amazing feature. Though not as distinct from a distance as its neighboring Cascade volcanoes, at over 500 square miles in size, Newberry is one of the largest shield volcanoes in North America. Over 400 cinder cones dot its flanks.

Newberry has been erupting periodically over the last 500,000 years. Although referred to as Newberry Crater, it is actually a caldera, being wider than it is deep. The caldera is about five miles across and similar to Crater Lake in its formation. Massive eruptions from the volcano eventually caused a collapse within and later filled with a lake. In the case of Newberry, continued eruptions caused the large lake to split into two lakes, Paulina Lake and East Lake. East Lake sits about 50 feet higher than Paulina Lake.

I recently joined Wanderlust Tours on one of their half-day Volcano Tours to Newberry, one of my favorite places in Central Oregon. Our group consisted of Jim Pyacek, our guide and the Schultz family of five from Senora, California.

Jim Pyacek of Wanderlust Tours explains Paulina Lake geology to the Schultz family Our morning started with a hike along the shores of Paulina Lake. Pyacek stopped along the trail to explain some of the local flora, fauna and geology. We all stuck our noses up against a ponderosa pine and whiffed the vanilla or butterscotch smell it emits.

â€œI want to get people more engaged with their senses while out in nature,â€• said Pyacek. â€œThe more senses you use such as touch, smell and taste, the more you connect.â€•

Paulina Peak rose in front of us like a protective guardian over the lake. We soon reached the Inter Lake Obsidian Flow and found pieces of the volcanic glass all over the ground. Just a little farther along the northeast shore are a few hot springs, which I have soaked my feet in on previous hikes.

Returning to the van, we drove the bumpy, dusty three-mile road to the summit of Paulina Peak. I always say that geology is best appreciated from above and what better place to get the big picture than atop Paulina Peak, the monumentâ€™s highest point at 7,985 feet. The volcanic peaks of the Cascade Range stretch north to south in a straight line from Mount Adams at over 12,000 feet in Washington to Mount Shasta at over 14,000 feet in California.

From the summit, we looked down on the entire caldera as Pyecek explained Newberryâ€™s formation. We saw where the Big Obsidian Flow emerged from the rim of the caldera and snaked its way down toward Paulina Lake.

One hundred seventy million cubic yards of lava and pumice erupted from a vent in the volcano. At about a mile long and a mile wide, the area would cover about 640 football fields. The flow averages 150 feet thick or about the height of a 17-story building. The lava consists of 90 percent pumice and 10 percent obsidian, which has a composition similar to window glass. During the eruption the lava heated to about 1,600 degrees Fahrenheit.

Obsidian is one of the sharpest natural materials known to man and was used extensively by Native Americans for tools and trade. It has its own unique chemical fingerprint and Newberry obsidian has been traced to sites in British Columbia and around the Puget Sound area. Some doctors today use obsidian instead of steel scalpels, in eye surgery for example, since it is sharper and leaves little scarring. According to an interpretive sign along the one-mile trail through the flow, one archeologist even knapped some obsidian scalpels that were used in his own open heart surgery.

Paulina Creek Falls Before we knew it, our half-day tour was over. But not before a brief stop at Paulina Creek Falls. The 80-foot high falls and the areaâ€™s natural beauty has qualified Paulina Creek for federal

designation as Wild and Scenic.

â€œI enjoyed learning about the similarities of how Newberry and Crater Lake formed,â€• said Jim Schultz. His wife Marshelle, who is a school teacher, enjoyed seeing the bigger picture of how geology shaped Central Oregon. She noted that she also learned how to identify some of the areaâ€™s trees.

Their three sons also enjoyed the outing. Josh, 17, said his favorite part was the view from the top of Paulina Peak, especially looking down on the Big Obsidian Flow. Jacob, 14, thought Paulina Creek Falls â€œwas really cool.â€• Joey, 12, liked walking along Paulina Lake and looking at the obsidian.

â€œI just want people to realize that ecosystems are a necessary part of human existence,â€• said Pyacek. His goal is teach people about the geology of the area and some of the basics about nature while having fun at the same time.

Some evidence such as recent lava flows and the presence of hot springs suggests that Newberry is still an active volcano while other evidence such as cinder cones and large obsidian eruptions usually mark the end of a volcanoâ€™s life. So now the question arises -- is Newberry still alive and will it erupt again or should we start writing its epitaph on its lava flows? One thing is certain -- nature is not yet through sculpting and resculpting the land in central Oregon.

For more information, contact Wanderlust Tours at 541-389-8359.

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