CONSTRUCTION IN LAVA RIVER CAVE

In Celebration of Newberry National Volcanic Monument



Pictured Above, LRC Entrance with Historic Stone Stairs - Photo Courtesy of USFS

Central Oregon's Ancient Tunnel

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Lava River Cave is an ancient lava tunnel that spans a large part of the Newberry National Volcanic Monument near Bend, Oregon. It is Oregon's longest uncollapsed lava tube, and is one of three commercial caves in the state. It is the only "show-case" cave on the Deschutes National Forest that has improvements allowing visitors to experience walking inside a lava tube. The cave is a nationally significant recreation asset, with more than 1,000 visitors per day during the busy summer season.



Photo by Amy Jensen



Lava tubes like Lava River Cave are formed in flows of pahoehoe (pahoy-hoy) basalt. This type of lava is very fluid and moves quickly downslope. Lava tubes are crusted over channels which push lava to the advancing front of the flows. Crust formation starts near the vent where the lava originally spews from the Earth, then gradually progresses downslope along the lava stream. The crust is first a thin ledge-like protrusion extending inward from the sides of the lava channel. Eventually, the ledges meet to form a roof across the channel.

Photo by Jessica Belt

The roof gradually thickens as surges of lava break through and spread out as thin layers. Additional lava linings to the underside of the roof provide even more support. When the molten river of lava stops, the tube drains, leaving an empty "cave". Typically, lava tubes are discovered when a part of their roof collapses and exposes an underground cavern. Several things could cause that collapse, including cooling and shrinkage after lava empties from the cavern, the freezing of water that eventually dislodges rocks, or severe earthquakes.

Geologists believe that Lava River Cave was likely formed around 80,000 years ago from an eruption near Mokst Butte. The volcanic flow that formed Lava River Cave is believed to be the same flow that exists underneath much of the Bend area. The presence of obsidian flakes discovered at the cave leads archaeologists to believe that Indigenous Peoples have been utilizing this cave long before European-American settlers arrived in Central Oregon. With a year-round temperature of 42 degrees Fahrenheit, niche ecosystems, and the shelter that caves inherently provide, there are no shortage of reasons why people groups in the area would have utilized the cave. In fact, the City of Bend used the cave as a refrigeration site prior to modern technology.





Graphic Courtesy of USFS

Today, Lava River Cave is operated by The Deschutes National Forest with assistance from nonprofit partner Discover Your Forest, alongside a dedicated staff of volunteers who provide interpretive talks to visitors prior to entry of the cave. Lava River Cave is nearly a mile long, with the initial 700' descent into the cave requiring boardwalks, stairs, and railing structures to allow visitors safe passage over the uneven rocky ground. Historically, wood and steel stairs throughout the cave were steep and narrow, with inadequate handrails and materials often deteriorated beyond repair. There was also inadequate coverage throughout the cave, leaving visitors to walk over the rocky, uneven, and often slippery cave floor.



Hand-rails laid during 2020 construction. Photo by Amy Jensen

In 2009, an improvement project commenced at the cave, beginning parking lot improvements. with Further construction continued in with the design 2014 and construction of 300' of new steel stairs and boardwalks inside the cave. Historic stone stairs at the cave's entrance were repaired in 2015 to address safety concerns. This year, Deschutes National the Forest oversaw the construction of the 400' of steel remaining stairs. boardwalks, and handrails inside the cave and completed the final phase of the in-cave construction work. The window for construction was small. as the cave plays home to thousands of bats beginning in Fall of every year.

The contractor completed all work with hand tools, utilizing a generator placed outside the cave sink to power tools and balloon lights during construction. Materials like steel handrails, boardwalk grating, and stair treads were all transported from the parking area to the cave entrance by crane, and then carried in by hand. The construction of the new stairs and boardwalks improved Universal Access for visitors by providing a uniform and predictable walking surface, greatly improving safety and accessibility within the cave and allowing visitors with varying abilities the opportunity to experience this rare cultural and natural resource. Walkways are now uniform width, with handrails and landings placed periodically. This removes existing bottlenecks and allows for two way traffic, which is important during much of the season when the cave is at full capacity. The new infrastructure is also modular, which allows sections to be easily replaced if damaged by falling rocks. The project's completion greatly enhances visitor experience, satisfaction, and safety while protecting important resources. The stair and boardwalk improvements keep visitors on a designated path to mitigate impacts on cultural and natural resources inside the cave and to avoid disturbance to wildlife such as bats. Above all, the project ensures the continued use of the cave for education and interpretation of these rare natural and cultural resources.



Members of the 2020 construction crew. Photo by Amy Jensen



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