

Craters of the Moon National Monument Cave Management Update

By John Apel and Anne Tillery

Substantial improvements in the Craters of the Moon cave management program were made in 1999, the 75th anniversary of the monument. Since the early years of the monument, lava-tube caves have been one of its most popular features. Throughout most of the monument's history cave management consisted largely of developing visitor access. Systematic efforts to inventory caves began in the 1980s but lacked continuity.

Largely through the efforts of Anne Tillery, a Geologist-in-the-Park intern sponsored by the Geological Society of America, a comprehensive cave inventory database was created in 1999. Previous inventory efforts had resulted in several overlapping inventories each organized somewhat differently and limited to hard copy files. Once these lists were sorted and compiled, we learned the total number of caves increased from the previously reported figure of "around" 75 to just over 100. All existing information from previous inventories, staff reports and memos, published articles, and maps were organized in separate folders for each cave. A Microsoft Access® database was then created to include basic attribute information. A one-page summary of the database was printed for each cave and this along with a location map was organized in a three-ring binder for quick reference.

Existing cave location information ranged from penciled markings on topographic maps to uncorrected GPS coordinates. Anne used this existing information, along with available descriptive information of the caves to relocate most of the documented caves. Once located and verified the cave entrances were mapped using a Trimble GeoExplorer® II GPS unit. Differentially corrected field coordinates were exported as an ArcView® file for use in the monument GIS. In the process of relocating the "known" caves, Anne and her field assistant, Carolyn Davis, found almost thirty "new" caves, which were not documented in monument records. The monument hopes to complete this first phase of cave inventory next year by relocating and using GPS to map the location of the remaining caves known to exist in the remote southern portion of the monument. The inventory database will also be expanded to include more detailed biological, geological, and cultural resource information.

Another significant cave project was the construction of a "bat friendly" gate in Arco Tunnel, the largest lava tube cave in the monument. Access to Arco Tunnel had been controlled since the early 1960s through a permit system and locked gates (not designed with bats in mind). Built in the 1980s, the most recent gate consisted of an 18"X18" square culvert with a sliding bar placed in a low passage 350 feet from the entrance. The monument began to consider a new gate after small numbers of hibernating Townsend's big-eared bats were discovered in the cave in the mid-1990s.

Alternative designs and locations for a new gate were considered with assistance from the neighboring Bureau of Land Management (BLM) Shoshone Field Office. In recent years their office had built several bat gates using volunteers from the Gem State Grotto. Jim Hathorn with the Gem State Grotto was contacted and agreed to design the gate and organize a crew of volunteers to build it. A contemporary angle iron gate design was

proposed for a location just inside the twilight-zone of the cave and an environmental assessment was prepared. The Columbia Cascades Cluster provided NPS funding to purchase materials and rent equipment. A significant logistical challenge was overcome when the Shoshone BLM office offered their fire program's contract helicopter to transport the 1.5 tons of angle iron to the remote site. BLM staff also welded the gate's prefabricated door assembly and loaned tools for the project. All other equipment, such as welders and generators, were transported by monument staff one mile over a narrow trail using a 6-wheel all-terrain vehicle or on backpacks.

Numerous logistical problems and equipment malfunctions were eventually overcome and the Gem State Grotto volunteers completed construction of the gate over the course of one weekend in late August. The project could not have been completed without the very generous assistance of the Gem State Grotto and BLM's Shoshone Field Office.