



Capulin Volcano National Monument

Geology

The “striking example of the recently extinct volcano” is the very reason Capulin Volcano was proclaimed as a national monument by President Woodrow Wilson in 1916. Capulin Volcano is a cinder cone and part of the Raton-Clayton Volcanic Field that covers 7,500 square miles of northeastern New Mexico. The volcano erupted approximately 59,100 years ago ($\pm 6,000$ years) and is unique in that it reaches an approximate height of 1,300 feet (396 m) and is nearly intact in spite of its explosive origin. Visitors are offered a unique sightseeing opportunity by driving Volcano Road, which spirals around this extinct volcano, ending at the top. The sweeping vistas from the top of the volcano not only include the surrounding High Plains and distant Rocky Mountains, but also the different types of volcanic features, such as lava flows and tumuli—small, dome-shaped mounds on the surface of a lava flow—that add to the beauty and uniqueness of Capulin Volcano National Monument.

Status and Trends

There are many geologic features throughout the monument, but the condition assessment focused on the cinder cone, since it is the most prominent feature in the monument and comprises over half (56%) of the monument acreage. Erosion is a natural process and can be expected to occur on a feature such as the volcano, especially due to its highly erodible soils and steep slopes. But the acceleration of erosion, specifically below Volcano Road, and the severity of erosion are the result of the road’s impervious surface and the concentrated runoff. Much of the accelerated erosion that is occurring below the road is typically located where culverts have been placed, concentrating and increasing the velocity of the rainfall and snowmelt, scouring the mountainside. Accelerated erosion also occurs where sheets of runoff flow off of the road’s surface. Sixty-six percent of the 29 culverts are showing signs of accelerated erosion. Additionally, many of these areas are exhibiting severe erosion, with some gullies extending all the way down the mountainside to the bottom grasslands. Gully widths were also measured to determine erosion severity, showing high variability, with the widest gully measured at 390-feet across. Overall, the high proportion of culverts exhibiting accelerated and severe erosion indicate a significant concern for the condition of the cinder cone.

Discussion

The geologic resources located throughout the monument are unique and varied, however, none are as prominent nor possess the steep slopes and loose soils as found on the



Rocky volcanic outcrops at Capulin Volcano National Monument.

volcano. Additionally, the volcano itself is the reason it was proclaimed a national monument, elevating the significance of this resource to the monument’s establishment. As with many situations, coupling preservation with resource access is a fine balance. This is the situation with preserving the volcano, while providing access to the top via Volcano Road—the very development that is causing the accelerated and sometimes severe erosion to the cinder cone.