



## Capulin Volcano National Monument

# Soundscape

The National Park Service considers a park's natural sounds to be comprised of physical resources, including natural (for example, wind, water sounds, bird songs, leaves rustling) and cultural (for example, battle reenactments, quiet reverence, living history). These natural sounds are a park's acoustical resources and are essential to wildlife survival and visitor experiences. The preservation of the monument's acoustical environment is vitally important to overall ecosystem health. The peer reviewed literature widely documents that sound plays a critical role in intra-species communication, courtship and mating, predation and predator avoidance, and effective use of habitat. Additionally, similar studies have shown that wildlife can be adversely affected by sounds and sound characteristics that intrude on their habitats.

While not necessary for survival, national park visitors also prefer sounds of nature and natural quiet while visiting parks. The natural sounds create what is considered to be the natural ambient sound level (baseline condition) within a park, and the locations where these natural sounds occur are referred to as acoustical environments. Noise, on the other hand, is any human-created sound, aside from culturally relevant sounds, that degrades or masks these natural sounds, and is therefore considered undesirable. A person's ability to detect and hear sounds (audibility) of both natural and human-generated sounds, and how the acoustical environments are perceived by visitors comprise a park's "soundscape."

### Status and Trends

At Capulin Volcano NM, a variety of sounds, including wildlife, weather, and anthropogenic noises such as vehicles, conversation, aircraft, and visitor perceptions of those sounds comprise its soundscape. The levels of noise heard are largely influenced by a given location throughout the monument and by daily and seasonal patterns. Areas where developments are located, providing vehicle access and a concentration of monument visitors (such as parking lots) are the most probable locations to experience higher levels of noises due to traffic sounds as well as human conversations. Due to relatively low visitation, however, the noises generated have distinct daily and the seasonal patterns that tend to concentrate the timing of the noise, making noise-free opportunities readily available to any monument visitor.

### Discussion

The soundscape condition at the monument is strongly related to its seasonal nature of visitation. Data on monument visitation by month are available from 1979–2010, and in every year during this 32-year period, the number of visitors peaked during the months of June–August. In 2010, 59% of the total visitation (28,662 visitors) occurred during this time period alone. In addition to the seasonal nature of visitation, there is a daily variation as well. In the monument's 2003



Capulin Volcano National Monument parking lot in the summer.

visitor study, 31% percent of visitors surveyed arrived between noon and 2 pm, and 32% of the visitors departed between 1 pm–3 pm. To further refine the monument's visitation pattern, and subsequently identify the noisiest periods within the monument, the 2003 visitor study discovered that 19% of visitors surveyed arrived on Saturday. Given the highly concentrated pattern of visitation at the monument, sounds of nature often prevail, and even during the busiest times, if one is willing to explore areas away from the parking lots, such as hiking the Boca or Lava Flow Trails, natural sounds will abound.