



U.S. Fish & Wildlife Service

San Lorenzo Canyon

Sevilleta National Wildlife Refuge

Welcome to San Lorenzo Canyon

A scenic area of sheltered caves, sandstone cliffs, arches and hoodoos, San Lorenzo Canyon is rich in history and natural beauty. The geological formations make it an excellent spot for hiking and photography. The Canyon is jointly managed by the U.S. Fish and Wildlife Service and the Bureau of Land Management as a primitive recreation area. There are no restrooms or drinking water. All trash must be packed out!

A large rock face divides San Lorenzo into lower and upper sections. You can drive through the lower section. When it appears that the canyon ends at a rock face, climb over or around and hike the upper canyon until it too ends at another rock face. Each section can be hiked in about 30 minutes, but allow yourself the benefit of several hours for exploration of the small springs and streams in the arroyo bottoms and the cave site.

Geology

San Lorenzo Canyon, itself less than a million years old, reflects millions of years of earth history in a complex landscape formed by the interplay of tectonic plate movements and erosion.

Just before the mouth of the canyon on the right is a textbook example of the Rio Grande rift called an “angular unconformity” formed by crustal extension within the Rio Grande rift. It is a small, isolated mesa looking much like a tilted,



sliced loaf of bread with a cap on top. The tilted beds of sand and mud-stone (ancient stream deposits, faulted and tilted by rifting, beveled by erosion; once buried, now exposed) are about 7-10 million years old and the horizontal (naturally “cemented” gravel) cap is about 0.5 million years old. This happened long before the formation of the long south flowing river, now known as the Rio Grande, when this area was a topographically closed basin formed by crustal extension along the rift. Since 30 million years ago, differential motion of tectonic plates has caused the Colorado Plateau to drift very slowly westward, away from the Great Plains, and create the north-trending rift basins. Extension is commonly accommodated by numerous crustal blocks that tilt and slide contemporaneously, much like falling dominoes. Tilted strata, as at the angular unconformity, are a common feature in the Rio Grande rift.

This pattern is reflected on a bigger, less obvious, scale within the canyon itself. As you hike, keep watching for the various colors and tilts of the layers. The geologic strata tilt in various directions due to the combined effects of several faults that mark the tectonic history of north-central New Mexico. The fault blocks slip and tilt much like books on a shelf.

In lower San Lorenzo Canyon you will also see the effects of wind and water erosion which have sculpted the near horizontal beds of volcanic-rich conglomerate (cemented stream gravels) and sandstone into narrow chimneys, towers and formations called hoodoos. The depressions and holes you see in the canyon walls were formed by water erosion; perhaps accentuated by the freezing and thawing within more permeable rock layers to form recesses.

Near horizontal sedimentary rock layers in lower San Lorenzo Canyon are exception to the ‘rule’ of tilted rock layers with mountain blocks of the Rio Grande rift.

Photographs by Sandra Noll



Small stream and 3-foot-high water fall over gray lava rock at San Lorenzo Spring, western end of the Canyon.

Photograph by Sandra Noll

Volcanic strata in the canyon range in age from 32-27 million years old. Red and brown conglomerate beds were eroded from up-thrown side of fault blocks of the older volcanic strata. Stream-deposited conglomerates contain light grey ash beds that range in age from 12 to 18 million years old. The reddish cast of the conglomerates reflects their deposition in shallow streams in a warm and semi-arid climate. Volcanic rock fragments in conglomerates are distinguished by tiny crystals “floating” in a chalky dull matrix (original liquid magma) Colorful veins within the lava rock where water seeped through and minerals in the water crystallized. The most prevalent veins are composed of calcite/calcium carbonate (white), jasper/quartz (red) and celadonite (blue-green to green). There are no copper-related turquoise deposits. Rock collecting is expressly prohibited.

Plants and Animals

The canyon is home to Chihuahuan Desert plant and animal life. You will notice a variety of grasses, four-wing saltbush, sage and cacti. You may see several kinds of lizards, snakes, rabbits, and birds including hawks, quail, roadrunners, sparrows and cliff swallows whose mud-daub nests you can see on the canyon walls near the western end. Deer, coyote, bobcat, bighorn sheep and mountain lion have also been sighted in the canyon although you are more likely to see their tracks.

Culture/Archeological History

The area of San Lorenzo Canyon contains fences and other remnants of old ranches and homesteads. There is evidence that the area was used long before these residents arrived. The Lemitar Shelter, visible in the north wall of the lower canyon, has been the subject of archeological research over the past 50 years. All evidence of prior exploration has been removed and what one sees today is simply a shallow cave with carbon deposits on the roof. Digging, tampering with, or removal of any artifact, plant, animal or mineral is strictly prohibited.



Cave area of archeological research.
Photograph by Sandra Noll

For Further Information

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December 2009

Rock veins of calcite and jasper in vesicular lava rock. Vesicles (small dark holes) represent gas bubbles in the original liquid (lava). Some vesicles are also filled with white calcite.

Photographs by Sandra Noll

Map to San Lorenzo Canyon

