

New Mexico: Land O' Lakes?

By Shannon Wagers

There aren't many natural lakes in New Mexico. All of our large recreational lakes are man-made reservoirs, created mostly for irrigation, flood control, or in a few cases, hydroelectric power generation. The few permanent natural lakes we have are snowmelt lakes, called tarns, high in the Sangre de Cristo Mountains or in groundwater-filled sinkholes like those at Bottomless Lakes State Park near Roswell. None of them is more than a few acres in surface area.

However, our state hasn't always been so dry. Several large bodies

of fresh water and many smaller ones once dotted the landscape, although you'd have to travel back in time thousands of years to see them. During what geologists call the Pleistocene Epoch, which lasted from 2.6 million years to 10,000 years before the present, continental glaciers covered much of North America, extending as far south as northern New Mexico. In this cooler, wetter environment, rainwater and snowmelt runoff collected in low-lying basins to form vast lakes, some of which existed for thousands of years. Early nomadic hunter-gathers, who arrived here at least 13,000 years ago, camped along their shores, and probably fished in them. Of these Ice-Age lakes, only brackish remnants are left today, but deep lakebed sediments reveal their former extent.

The next time you head east on Interstate 40, past the Sandia and Manzano mountains, look out across the Estancia Valley. If you use your imagination, you can almost see the ancient shoreline of what geologists have dubbed Lake Estancia, which once filled the valley. Its size fluctuated, but

at its greatest extent it covered about 450 square miles, stretching from near the present village of Stanley south to around Cedarvale, in Torrance County. (For comparison, Elephant Butte Reservoir, New Mexico's largest modern lake, is only 62 square miles when completely full, which it hasn't been lately.) The last remnants of Lake Estancia are some salt flats near the town of Willard (visible from U.S. Highway 60) that host a few ephemeral playa lakes in the rainy season but are otherwise dry. In Colonial times, salt mined from the playas was an important trade commodity, exported to the mining districts of Chihuahua and Zacatecas, where it was used in the extraction of silver from its ores.

Farther south, Lake Otero filled the Tularosa Basin in the late Pleistocene, covering as much as 1,600 square miles, an area larger than the state of Rhode Island. Water flowing into the lake picked up soluble gypsum from the surrounding mountains. Later, as the climate warmed and the lake slowly evaporated, the gypsum was left behind and sculpted by the wind into the dune fields of White Sands National Park. Thousands of fossil footprints record the presence of people and animals that roamed the shores of the ancient lake. Some recently discovered human footprints are believed to be up to 23,000 years old. If this age is confirmed, it would push back the date of the earliest known human habitation on this continent by several thousand years. An ephemeral playa lake, called Lake Lucero, is all that remains of Lake Otero today. Most of the time, it's dry. National Park Service rangers conduct guided tours to Lake Lucero during the cooler months. Check the park's website, www.nps.gov/whsa, for details.

West of the former mining town of Magdalena in Socorro County, U.S. Highway 60 runs in a nearly straight line for more than 20 miles across a juniper-studded



grassland called the plains of San Agustin. Twenty thousand years ago this was Lake San Agustin, 40 miles long and up to 250 feet deep. Today, the giant antenna dishes of the National Radio Astronomy Observatory's Very Large Array straddle the northern shoreline of the former lake.

High in the Jemez Mountains, the Valles Caldera, a 13-mile-wide crater formed by a massive volcanic eruption, has hosted at least four lakes over the course of its 1.25-million-year history. The first, which formed soon after the eruption, filled the entire caldera. The uplift of a resurgent dome in the center of the caldera has reduced the size of later lakes. The most recent one formed about 55,000 years ago. At present the caldera is drained by the Jemez River and its tributaries, but the lush Valle Grande in the eastern portion of the caldera still resembles an ancient lakebed, as anyone who has driven along its margin on State Road 4 can attest.

With abundant moisture and lots of large, meaty animals to eat, New Mexico must have been a comfortable place to live in the late Pleistocene. However, over time the climate became warmer and drier, the lakes dried up, and the Ice-Age mammals died off. Now, as global warming continues at an accelerated pace due to human activity, the few natural lakes we have left may soon disappear, and possibly the artificial ones as well.

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