

## Comal County, Edwards Aquifer, and Comal Springs Timeline

Comal County Conservation Alliance  
Lindheimer Master Naturalist

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### TIMELINE

**Approximately 108,000,000 years ago** – dinosaurs, which were probably Acrocanthosaurus and Iguanodons, walked across a shallow sea and left tracks at what is now the Heritage Museum.

**From 20,000,000 to 8,000,000 years ago-** was the last movement of the Balcones fault zone which overlies the ancient 300,000,000 million year old Ouachita Mountains. The Balcones Escarpment is the most visible feature of the fault zone. At the base of the escarpment lie the springs. Geologists are unsure of the exact timing.

**21,700 BP-** Paleoindians possible at the Comal Springs. The Gault site at Florence, TX has artifacts possibly dating back to 21,700 BP.

**15,000?-8,500 BP- Paleoindian-** This period extend from the earliest peopling of the Americas to about 8,500 years ago. Native Americans used atlatls to hunt megafauna, but also ate many other animals. The weather was cooler and wetter.

**8,500- 1,250 BP- Archaic Period (consists of 3 Sub- Periods)**

**7,950- 4,450 BP- Early Archaic Period-** Native American increased reliance on deer, fish and plants. There was greater density of stone artifacts, fire-cracked rock middens and task specific tools. Most campsites were along the springs of the Edwards Plateau. There were low population densities.

**8,000 BP-** the earliest point found so far at the Headwaters of the Comal site.

**6,000- 4,000 BP- Middle Archaic Period-** The climate became drier towards the end of the period and the Native Americans became more reliant on acorns. The population increased.

**4,000- 700 BP- Late Archaic Period-** Not sure about the population levels. Large cemeteries, grave goods, and exotic trade items are known to occur. The frequency of burned middens and open campsites increased.

**1,250- 800 BP- Late Prehistoric Period (Austin Phase)** - A hallmark of this period was the introduction of the bow and arrow. The first pottery appeared in Central Texas. Burned rock middens increased. Populations were concentrated along creeks.

**800 BP- European contact (Toyah Period)** - there was an increase in very fine points and increased movement, perhaps to hunt bison. There is an increase in ceramics. Known tribes in the Comal region in historic times were the Karankawa, Tonkawa, Lipan Apache and the Huaco (Waco) Indians.

**1689-** The Guadalupe River was first named by Europeans after Nuestra Señora de Guadalupe by Alonso de León. It was renamed the San Augustin by Domingo Terán de los Ríos. However the Guadalupe stuck.

**1691-** Father Damian Massanet wrote about the Tonkawa Native Americans at the Comal Springs. It was called Conaqueyadesta by the Native Americans and Las Fontanas and Comal by the Spaniards. It was an artesian fountain at that time.

**1691-** The Old San Antonio Road, known as the King's Highway and the Camino Real was laid out by Domingo Teran de los Rios.

**1756-** Mission Nuestra Senora de Guadalupe founded near the springs. It was only occupied in 1756-1758.

**1764-** The French explorer St. Denis visited Comal Springs.

**1807-** Baron de Bastrop secured a land grant that included the Comal Springs.

**November 10, 1821-** Mexico gained independence from Spain and Texas became a Mexican Federation.

**1831-** Juan Martin de Veramendi, Mexican Governor of Coahuila and Texas, was awarded five leagues of land which included the Comal Springs.

**March 2, 1836-** The Texas Declaration of Independence was signed.

**1840-** The Republic of Texas adopts the English common law riparian principle that gives landowners the right to reasonable use of water for irrigation or for other purposes.

**1844-** Ferdinand Jacob Lindheimer, the German born botanist, moved to New Braunfels and started collecting plant specimens for George Engelmann and Asa Gray.

**March 14, 1845-** Prince Carl of Solms-Braunfels bought the 1,265 acre Comal tract.

**March 21, 1845-** The German immigrants arrived on the Comal Tract.

**December 29, 1845-** Texas becomes a state.

**1846-** Ferdinand Roemer and Ferdinand Jakob Lindheimer describe the flow of the Comal springs as “four or six more springs of even greater volume (than the first) of water. Every one of them could turn a mill at its source.”

**1846-** Johann Klingemann buys the three upper Headwater springs of the Comal River.

**March 1846-** The Texas legislature forms Comal County. Comal means “flat dish” in Spanish.

**June 4, 1847-** William Meriwether bought the land on both sides of the Comal Springs.

**1850-** The City of Bulverde was founded as the Pieper Settlement. Native Americans living in the area from 2,500 to 600 BC used a type of point now named as the Bulverde Point

**June 1860-** Joseph Landa bought the 680 acre tract including the Comal Springs.

**1860s-** The Bracken Bat Cave was mined for guano to be used for making munitions.

**1869 or 1870-** The Comal River record flood is estimated to be 37.65 feet.

**1870-** Texas Drought

**June 19, 1872-** A flood in New Braunfels wiped out the iron bridge across the Comal River.

**1885-1887-** Texas Drought

**May 28, 1892-** The Sierra Club was founded by John Muir.

**1904- Rule of Capture-** The Texas Supreme Court decided in *Houston & Texas Central Railroad Co. v. East* that underground water would be regulated by the common-law rule regarding groundwater called **the rule of capture** or the English rule, which essentially provides that, absent malice or willful waste, landowners have the right to take all the water they can capture under their land and do with it what they please, and they will not be liable to neighboring landowners even if in so doing they deprive their neighbors of the water’s use.

**1907-** The City of New Braunfels buys the Headwaters Springs from Fritz Klingemann. The City needed the springs because the industry along the Comal River had polluted the river downstream and the city needed clean water.

**1908-1912-** Texas Drought

**1913-** The J-17 Edwards Aquifer Test Well was drilled. It has ranged from 612 feet in the fifties to 703 feet in 1991-92.

**1913-** Using the **rule of capture**, the newly established Texas Board of Water Engineers declares non-appropriated waters in the state to be the property of the state and abolishes riparian rights that applied to land acquired from the state after 1895.

**1915-1918-** Texas Drought

**1915-** The Texas legislature approved the formation of the Texas Agricultural Extension Agency

**1924-1925-** Texas Drought

**August 2, 1925-** The Landa family sold the park and springs to J.E. Jarratt Investment Company. They get into financial difficulty after the stock market collapse and the park was closed.

**1925-** The Texas Legislature authorizes the formation of water control and improvement districts.

**1926-** The Texas Supreme Court, in *Motl v. Boyd*, determines that riparian rights are attached only to the ordinary flow and underflow of rivers.

**1931-** The Texas Legislature passes a law designed to prevent artesian water wastage.

**1933-** The City of New Braunfels uses federal money to build a cistern wall around the Headwaters springs and cleaned up the property.

**1933-1934-** Texas Drought.

**1935-** Establishment of the Guadalupe-Blanco River Authority as a successor to the Guadalupe River Authority which was established in 1933.

**April 17, 1936-** The City of New Braunfels bought Landa Park and the springs.

**1938-1940-** Texas Drought.

**1939-** The Texas State Soil and Water Conservation Board is established to enforce the state's soil and water conservation laws.

**1945-** The legislature authorizes the Texas Department of Health to enforce drinking water standards for public water supply systems.

**1948-** The Federal Water Pollution act passed.

**1949-** The Texas legislature declares groundwater to be private property. The legislature also provides for the voluntary establishment of underground water conservation districts.

**1950-1957-** Drought of Record in Texas

**August 1952-** the channel of Comal Springs in Landa Park went dry.

**September 11, 1952-** The Guadalupe went from having almost no flow to near record flood stage in 48 hours. The Comal River peaked at 36.14 feet and 35,000cfs. The Guadalupe River peaked at 30.65 feet and 72,900 cfs.

**1954-** The big Comal spring went dry.

**1956-** Landa Lake went dry. The endangered Fountain Darters in the Comal Springs died out during the drought. They were replaced with Fountain Darters from the San Marcos Springs.

**1956-** President Eisenhower declares 244 of the state's 254 counties as drought disaster counties.

**1957-** Legislation was passed enabling the construction of Canyon Lake Reservoir. It was completed in 1964.

**1957-** The Texas Water Development Board was formed by the Texas Legislature to oversee all water projects in Texas and loans money for water projects.

**1957-** The Water Planning Act of 1957 mandates a process for developing a plan to meet the state's future water needs.

**1958-** Construction began on the Canyon Lake Dam.

**April 28, 1959-** The Texas Legislature passed the bill enabling the Edwards Underground Water District (EUWD). The first meeting was held on August 12, 1959.

**1959-** The city waterworks was turned over to New Braunfels Utilities (NBU). The Klingemann property was used as the operations base for NBU until 2004.

**March 1960-** The entrance to the Natural Bridge Cavern was known for many years. Four students from St. Mary's University explored the entrance and discovered the larger passages of Natural Bridge Caverns.

**1961-** The Edwards Underground Water District signed an agreement with the US Corp of Engineers to survey the underground waters of the Edwards Aquifer.

**1961-1967-** Texas Drought

**1963-** The Clean Air Act was passed. This has been amended multiple times.

**1963-** The Honey Creek Cave was known for at least a century, but was first surveyed in 1963. It is the longest known cave in Texas.

**1964-** The Canyon Lake Dam was completed.

**1970-1971-** Texas Drought

**1971-** The Texas legislature authorizes the creation of Municipal Utility Districts (MUDs).

**1972-** The U.S. Congress passes the Federal Clean Water Act, which requires standards for all point source discharges into receiving water bodies. The law requires a minimum of secondary treatment of all municipal sewage water.

**May 11, 1972-** 16 inches of rain fell on the Blieders Creek watershed which caused a flood in Blieders Creek, then the Comal River and then into the Guadalupe River. The peak flow in the Comal was 60,800 cfs and the Guadalupe River was 92,600 cfs.

**1974-** The U.S. Congress enacts the Safe Drinking Water Act.

**1974-** Blieders Creek dam was built to try and prevent another flood.

**1981-** The state acquired 505 acres of land from David Bamberger to start the Guadalupe State Park.

**1983-** The Guadalupe River State Park opened.

**1984-** A revised Texas Water Plan addresses future demand for water by identifying conservation strategies for increasing water resources.

**1985-** The Nature Conservancy acquired the Honey Creek Ranch and later sold it to Texas Parks and Wildlife.

**1987-** The U.S. Congress passes the Federal Water Quality Act intending to reduce nonpoint source water pollution.

**1987-** The Wellhead Protection Program, approved by the U.S. Environmental Protection Agency, is initiated in Texas.

**1987-** The Edwards Underground Water District (EUWD) develops the state's first region-wide drought management plan.

**1988-1990-** Texas Drought

**1991-** Sierra Club v Babbitt lawsuit about the Comal Springs and the violations of the Endangered Species Act was judged in favor of the Sierra Club.

**1991-** The Texas Clean Rivers Act establishes a state program called the Clean Rives Program to reduce nonpoint source water pollution.

**March 1991-** Ron Pucek opened his Living Waters Artesian Springs catfish farm in southern Bexar County in March of 1991. Because the "right of capture" prevailed, he was free to take as much water from the Aquifer as he could put to a beneficial use. News reports indicated he had drilled the world's largest water well, 30 inches in diameter, and was using about 45 million gallons per day - enough water to support 250,000 people, about one-fourth of San Antonio's population at the time. This was drilled into the Edwards Aquifer.

**1992-** Bat Conservation International bought Bracken Cave. The cave is a maternity colony and home to 15-20,000,000 Mexican Free-Tailed bats. The largest collection of mammals on earth. They now own 1,500 acres.

**1992-** The Texas Water Commission declares the Edwards Aquifer to be an underground river; however, the Texas Supreme Court rules this attempt to regulate the Edwards Aquifer unconstitutional.

**1993-** Sierra Club v Babbitt Appeal denied in favor of the Sierra Club. The U.S. Fish and Wildlife Service (USFWS) did not agree with the appeal or participate in the appeal.

**1993-** Because of the Sierra Club lawsuit, the Edwards Aquifer Authority was formed with the Edwards Aquifer Act (SB 1477) of 1993. The EUWD was dissolved on the formation of the Edwards Aquifer Authority.

**1993-** Texas Natural Resources Conservation Commission (TNRCC) was formed from combining the Texas Water Commission and the Texas Air Control Board.

**1995-96-** Texas Drought

**1996-** The Texas Supreme Court upheld the Edwards Aquifer Act in *Barshop v. Medina Under. Wat. Cons. Dist.*

**1997-** The Texas Legislature formed the 16 Regional Water Planning Groups under the Texas Water Development Board (TWDB) to develop water supplies and prepare plans to meet the state's future water needs.

**October 17-18, 1998-** New Braunfels flood. 31 inches of rain. The Comal River was the highest ever recorded since 1869, at 39.2 feet and it was estimated to be between 130,000 and 180,000 cfs flow.

**1999-** Drought Preparedness Council established by the 76th Texas Legislature.

**1999-** The Texas Legislature passed Senate Bill 1911 to create county-based groundwater conservation districts that can regulate groundwater use and collect fees.

**1999-2002-** Texas Drought

**1999-** The first organizational meeting of the Lindheimer Master Naturalists was held.

**2000-** The Lindheimer Chapter of the Native Plant Society of Texas was formed.

**2002-** The Greater Edwards Aquifer Alliance formed.

**2002-** The TWDB's State Water Plan obligates state funding for development of water resources and became the first comprehensive statewide water management plan.

**2002-** The TNRCC was replaced with the Texas Commission on Environmental Quality (TCEQ).

**June 30-July 7, 2002-** The Guadalupe River flooded upstream from Canyon Lake causing the Canyon Lake Gorge. The region experienced 35 inches of rain. The water topped the spillway at 4:28 P.M. on July 4<sup>th</sup>. The peak going over the spillway was on July 7, 2002 and it was 7 feet deep. The overflow of the spillway continued for 6 weeks. The Guadalupe River in New Braunfels reached 69,300 cfs. The flood killed 9 people and damaged or destroyed 48,000 homes.

**2003-** In December, SAWS purchases the remaining tangible assets of Living Water Artesian Springs, Ltd., including its well, and an additional 3,125 acre-feet in water rights. Overall, SAWS pays more than \$30 million for water sales, leases, land, and equipment.

**2005-** The Hill Country Alliance is formed.

**2005-2006-** Texas Drought

**2006-** The USFWS implemented the Edwards Aquifer Recovery Implementation Program (EARIP) to try and reach consensus on maintaining the Edwards Aquifer at sufficient levels to protect the Endangered and Threatened species living in and around the aquifer.

**2007-2008-** Texas Drought

**2007-** The Friends for the Preservation of Historic Landa Park was started.

**2007-** The Texas Legislature enacted Senate Bill 3 to create the Edwards Aquifer Recovery Implementation Program. They were supposed to come up with a consensus plan for the aquifer.

**2008-** Using USFWS grant money Comal County purchased the 288 acre Morton Ranch as a Golden Cheeked Warbler Preserve. This is the only land Comal County has set aside over the aquifer.

**2010-2011-** Texas Drought

**2011- 2013-** The Edwards Aquifer Habitat Conservation Plan was approved by the New Braunfels, San Marcos and San Antonio city councils. It was approved by the US Fish and Wildlife Service in 2013.

**2013-** the USFWS approved the Edwards Aquifer Authority's Habitat Conservation Plan (HCP), which is a regional 15-year plan designed to protect the water flow and species in the Edwards Aquifer region.

**2013-** The Curry family donated the 52 acres for the James C. Curry Comal County Park.

**2014-** The Nature Conservancy, Bat Conservation International and others working together purchased 1.521 acres around the Bracken Bat Cave to preserve the buffer around the cave from development. With the Nature Conservancy Cibolo Bluffs Preserve, the Wuest Conservation Easement and the Natural Bridge Conservation Easement over 5.000 acres have been preserved.

**2014-** The Helena Kleck Vivian Living Trust donated 43.5 acres for the Kleck Comal County Park.

**June 17, 2015-** The Comal Trinity Groundwater Conservation District was formed by TX HB 2407.

**2016-** Ground was broken for The Headwaters of the Comal in New Braunfels.

**2017-** After negotiating with USFWS for years, Comal County finally approved the Comal County Regional Habitat Conservation Plan.



**2017-** Formation of the Hill Country Conservation Network.

**2018-** Formation of the Comal County Conservation Alliance.

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