

Texas, Comal County, Edwards Aquifer, Environmental Regulation, and Comal Springs Naturalist Timeline

Comal County Conservation Alliance

Lindheimer Master Naturalist

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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 in Sattler.

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 great 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.

20,000-14,000 years ago- Ashe Juniper pollen was found in Friesenhahn Cave in San Antonio proving Ashe Juniper(Mountain Cedar) has been in the Hill Country for many years.

15,000?-8,500 BP- Paleoindian- This period extends 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. The 15,000 dates may not be old enough.

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

7,950- 4,450 BP- Early Archaic Period- Native Americans increased reliance on deer, fish, and plants. There was a 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 worked 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 have been found. 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 Coahuiltecans, Karankawa, Tehuacana, Tonkawa, Lipan Apache and the Huaco (Waco) Indians.

1528- The third **driest** year between 1500-2008.

1571-1576- The second **driest** 5-year average between 1500-2008.

1644-the fourth **driest** year between 1500-2008.

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 before the major water withdrawals occurred from the Edwards Aquifer.

1691- The Old San Antonio Road, known as the King's Highway and El Camino Real de los Tejas was laid out by Domingo Teran de los Rios. This went from Nacogdoches in East Texas to Austin to San Antonio and then into Mexico. It was laid parallel to the Balcones Escarpment in this segment. It was based on existing Indigenous trails and trade routes.

1713- 1717- the **driest** 5-year average between 1500-2008.

1715- The fifth **driest** year between 1500-2008.

1716- Juan Espinosa encountered the springs.

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

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

1806- The **driest** year on record from 1500-2008 by tree ring studies.

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. He is credited with discovering hundreds of plant species. 48 species and sub-species of native plants bear the Lindheimer name. And a sub-species of the Texas Rat Snake.

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. Since Texas was not a Federal territory where the US Government owned large parcels of land, 95% of land in Texas is privately owned.

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”. The Comal Springs are the second largest springs in the US and the largest west of Silver Springs in Florida. The spring complex consists of 9 large springs and hundreds of smaller springs according to the USGS. The average daily discharge is 314 cubic feet per second which is 203 million gallons per day.

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.

1847 – Hueco, Huaco or Waco Springs was settled by German Settlers at an old campsite of the Waco Indians. The springs on the Guadalupe River produce about 26,000 acre-feet of water a year.

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

1850- The City of **New Braunfels** was the fourth largest city in Texas.

1857- The **second driest** year on record between 1500-2008.

May 15, 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. This is a maternity colony and is the largest bat colony in the world. It is the largest collection of mammals in the world.

July 8, 1869- The Guadalupe River record **flood** is estimated to be 37.65 feet. The Comal also flooded.

1870- Texas **Drought**

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

1878- The bison herds had periodically roamed through Central Texas including Comal County. However, in 1878 the Southern Plains herd was nearly wiped out in the “Great Slaughter”.

1885-1887- Texas **Drought**

1889- The Irrigation Act of 1889 adopted the law of prior appropriation of water rights. Senior rights superseded more junior water rights. In an effort to improve the 1889 Act, the legislature passed the 1893 Act and then the Irrigation Act of 1895, which extended the scope of the 1889 Act and confirmed the dual system of water rights: common-law riparian rights, as previously recognized by the courts, and statutory prior appropriation rights established by the legislature. http://glennjarvis.com/water-rights-adjudication/3_Hist_Development_TX_Surf_Water_Law.pdf

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

1896 and 1897- In the 18th Annual Report of the USGS, Vaughan and Hill described the Edwards Aquifer System and surrounding geology. It was named after Hayden Edwards, an original Settler of Nacogdoches. It is one of the most abundant artesian aquifers in the world. It covers 4,350 square miles of the Hill Country, stretching across 12 counties, including Comal County.

The Edwards Aquifer System is divided into three provinces: the Edwards (Balcones Fault Zone) Aquifer, the Edwards-Trinity (Plateau) Aquifer, and the Edwards (Washita Prairies) Aquifer. The Edwards (Balcones Fault Zone) Aquifer is further subdivided into the San Antonio segment, the Barton Springs segment, and the Northern segment.

A reasonable estimate is the aquifer contains between 25-55 million acre-feet of water, or 814,000,000,000 to 1,792,000,000,000 gallons of water. This is a unique karst aquifer, which due to its limestone karst nature of fast recharge is very susceptible to pollution.

It has three main zones, the Contributing, the Recharge and the Artesian, where the springs are located.

<https://pubs.er.usgs.gov/publication/ar18>

1898- The **Comal Courthouse** was built with limestone quarried 10 miles north of New Braunfels on the land owned by Edward Mandel House.

<https://www.hmdb.org/m.asp?m=111237>

1898- Landa Park was established.

1900- Comal County is on the Western edge of the distribution of the **Passenger Pigeon**. They were served on the menu in hotels and restaurants in Austin. Passenger Pigeons once numbered between 3-5 billion birds in the US. The last Passenger Pigeon was killed in Texas in 1900. The last Passenger Pigeon in the US died in 1912.

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.

1904- Texas Constitutional Amendment was adopted authorizing the first public development of water resources.

1905- The legislature authorized the creation of drainage districts.

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**

1911- Global CO₂ levels are 300.1 ppm for the first time in 1000 years. Prior to the Industrial Revolution the average CO₂ levels were 280 ppm for the previous 6,000 years.

<https://www.noaa.gov/news-release/carbon-dioxide-now-more-than-50-higher-than-pre-industrial-levels>

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- The Texas Legislature formed the **Texas Board of Water Engineers**, a predecessor agency to both the Texas Commission on Environmental Quality and the Texas Water Development Board (TWDB).

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.

December 13, 1913- Flood on the Guadalupe below the confluence of the Comal measured 38.5 feet and had a flow rate of about 220,000 cfs.

1915-1918- Texas **Drought**. **1917- 1918** is the third worst recorded drought.

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

1917- The Texas Legislature formed conservation and reclamation districts (later known as river authorities).

1919- The Texas Legislature formed freshwater supply districts.

1923- The Legislature formed the **State Parks Board**.

1924-1925- Texas **Drought**

August 2, 1925- The Landa family sold the park and springs to J.E. Jarratt Investment Company. They got 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 *Mott 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 clean 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.

1937- The **Works Progress Administration** workers built the walls and retaining walls around the large Comal spring in Landa Park.

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.

1952-1956- The third **driest** 5-year average between 1500 and 2008. So, the “**Drought of Record**” was not the worst since 1500 when tree ring studies are considered.

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 35,000 cfs. The **Guadalupe River** peaked at 30.65 feet and 72,900 cfs.

1953- The Texas Legislature responded to the drought of record by establishing the **Texas Water Resources Committee** in 1953 to survey the state’s water problems.

1953- The **Texas Water Pollution Control Advisory Council** was formed.

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

1956- Landa Lake went **dry**. The Comal Springs dried up for 144 days (June 13- November 30. The J-17 well level dropped to 618 feet. The endangered **Fountain Darters** in the Comal Springs died out during the drought. They were replaced with Fountain Darters from the San Marcos Springs after the lake re-filled.

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

August 17, 1956- The **Edwards Aquifer J-17 Index Well** had a historic low reading of **612.5** feet.

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

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

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.

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. However, the legislature gave them no regulatory authority.

1959- The New Braunfels 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 the Natural Bridge Caverns.

1961- The **Texas Water Pollution Control Advisory Council**, established in 1953, became the **Texas Water Pollution Control Board**.

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**

1962- The **Texas Board of Water Engineers**, established in 1913, became the **Texas Water Commission**.

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.

1963- The **Texas Parks and Wildlife Department** was established by the Fifty-eighth Legislature in 1963, consolidating the operations of the Texas Game and Fish Commission and the State Parks Board.

1964- The Canyon Lake Dam was completed.

1965- The **Texas Water Commission Board** which was established in 1962 then became the **Texas Water Rights Commission**.

1965- The **Texas Air Control Board** was formed.

1967- The **Texas Water Quality Board** was established from the **Texas Water Pollution Control Board**.

1967- **Texas Water Rights Adjudication Act** was passed. It took almost 125 years after statehood for Texas to address all water resource rights and provide a means of adjudicating the nature and extent of all surface water claims. By the ACT the common-law riparian right was converted into an appropriative right.

1968- The **Balcones Quarry** broke ground. CEMEX purchased the quarry in 1994. In 2018 it produced over 10 million tons of crushed limestone every year and it was the largest crushed stone quarry in the nation. <https://www.cemexusa.com/-/cemex-s-balcones-quarry-marks-50th-anniversary-milestone>

1970, October 13- The **Fountain Darter** was listed as Endangered.

1970-1971- Texas **Drought**

1971- The Texas legislature authorizes the creation of **Municipal Utility Districts (MUDs)**. This has good and bad ramifications in the development of rural areas.

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.

1973- Congress enacted the **Endangered Species Act**.

May 18-19, 1974- first exploration and mapping of the Double Decker Cave in Comal County. This cave is located between the Natural Bridge Caverns and the proposed Vulcan Quarry over the Recharge Zone.

https://digitalcommons.usf.edu/cgi/viewcontent.cgi?article=1365&context=texas_caver

<https://www.stop3009vulcanquarry.com/news/quarries-pose-risk-local-caves-water/>

1974-75- Texas acquires the land for **Guadalupe River State Park**. The state acquired 505 acres of land from David Bamberger that is now the Bauer Unit of the park.

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

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

1977- The **Texas Water Rights Commission**, the **Texas Water Development Board**, and the **Texas Water Quality Board** were combined to form the **Texas Department of Water Resources**.

1980- Congress made the **Conservation Easement** deduction provision a permanent part of the Internal Revenue Code. Pursuant to Internal Revenue Code § 170(h) (§ 170(h)). This is a key ingredient in preserving land from development.

1981- The **Nature Conservancy** acquired 1,825 acres of land in Comal County. This was transferred to the Texas Parks and Wildlife Department in 1985.

1983- The 1,938-acre **Guadalupe River State Park** opened

1983- Texas approves **Conservation Easements** and it is codified in the Natural Resource Codes #183.

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

1985- A borehole was drilled into the **Honey Creek Cave** to allow better access. Honey Creek Cave is the longest cave in Texas. It is 22 miles long as of 2022.

1985- **The Nature Conservancy** acquired the Honey Creek Ranch and later sold it to Texas Parks and Wildlife. This became the 2,294-acre **Honey Creek Natural Area**.

1985- The Texas Department of Water Resources was split into the **Texas Water Commission** and the **Texas Water Development Board**.

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.

1987- The **Black Capped Vireo** was listed as Endangered. It was de-listed in 2018.

December 23, 1989- The lowest temperature ever recorded in New Braunfels was 2 degrees.

1988-1990- Texas Drought

1990 May 4- The **Golden Cheeked Warbler**, which only nests in the Texas Hill Country, was listed as Endangered.

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. The plaintiffs included environmental groups ([Sierra Club](#)), water districts ([Guadalupe-Blanco River Authority](#) and Bexar Metropolitan Water District), municipalities (City of [San Marcos](#) and City of [New Braunfels](#)), and utilities (Green Valley and Atascosa Rural Water Supply corporations). The defendants included, government agencies (US [Fish and Wildlife Service](#), State of [Texas](#), [Texas Parks and Wildlife Department](#)), City of [San Antonio](#), and multiple industrial water users.

1991- The **Texas Clean Rivers Act** establishes a state program called the **Clean Rivers 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.

June 14, 1992- The **J-17** Edwards Aquifer well recorded a record high level of **703.3** feet.

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 Legislature consolidated several programs into one large environmental agency now known as the **Texas Commission on Environmental Quality**.

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(EAA)** was formed with the Edwards Aquifer Act (SB 1477) of 1993. The **EUWD** was dissolved on the formation of the **Edwards Aquifer Authority**. However, the Department of Justice placed a hold on the **EAA** because it violated the Voting Rights Act.

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

1993- **Oak Wilt** was discovered in Texas in 1960. The local Texas Forest Service agent said it was present in Comal County when he arrived in 1993. Oak Wilt is caused by a fungus, *Bretziella fagacearum* and is spread over distances by a nitidulid beetle. Oak trees can also spread the fungus through root interaction.

1995- House Bill 3189 revised the governing board of the **EAA** and the Department of Justice pre-approved the bill allowing the formation of the **EAA** board.

1995-96- Texas **Drought**

1996- The **EAA** officially begins operation.

1996- The average annual contribution of **Comal & San Marcos Springs** discharge to the Guadalupe River is 373,000-acre feet. The average discharge of the Guadalupe is 1.25-million-acre feet. While the contribution of the springs during droughts decreases as surface water runoff is unavailable, it actually increases in terms of the proportion of the flow that is provided during droughts. This year the springs accounted for 70% or more of the flow reaching Victoria and nearly 40% of what reached San Antonio Bay. At one point in the summer of 1996, the springs accounted for **81.7%**.

<https://www.gbra.org/news/drought/edwards-aquifer/#:~:text=The%20Comal%20and%20San%20Marcos,Guadalupe%20is%201.25%20million%20acft.>

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.

1997- The **Comal Springs Dryopid Beetle** was listed as Endangered.

1997- The **Comal Springs Riffle Beetle** was listed as Endangered.

1997- The **Peck's Cave Amphipod** was listed as Endangered.

October 17-18, 1998- New Braunfels **flood** caused by 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. The highest daily rainfall in Comal was 18.35 inches.

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 (GCD)** that can regulate groundwater use and collect fees. Some GCDs grandfather existing wells from regulation. Often all existing wells do not have to register, making it difficult to make sure abandoned wells are properly capped.

1999-2002- Texas **Drought**

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

<https://txmn.org/lindheimer/>

January 16, 2000- 2,800 gallons of diesel fuel leaked from a storage container at the Cemex Quarry. This leaked into the Edwards Aquifer Recharge Zone. The employees did not discover the leak until Monday and did not report it until Tuesday. Cleanup began on Wednesday. However, this was too late. Measurable amounts of fuel components were discovered 6.5 miles away at Hueco Springs in about 3 days and it spread 4.5 miles to the Comal Springs in about 5 days. Landfills are prohibited over the Edwards Aquifer, but not quarries.

September 5, 2000- The highest temperature ever recorded in New Braunfels was **112 degrees**.

December 2000- The following cave dwelling invertebrates dwelling in the karst of the Edwards Aquifer were listed as endangered by the USFWS:

<https://www.edwardsaquifer.net/species.html>

- [*Rhadine exilis* \(no common name\)](#)
- [*Rhadine infernalis* \(no common name\)](#)
- [*Helotes* mold beetle \(*Batrisodes venyivi*\)](#)
- [*Cokendolpher* cave harvestman \(*Texella cokendolpheri*\)](#)
- [*Robber Baron* Cave spider \(*Cicurina baronia*\)](#)
- [*Braken Bat* Cave meshweaver \(*Cicurina venii*\)](#)
- [*Madla* Cave meshweaver \(*Cicurina madla*\)](#)
- [*Government Canyon* Bat Cave meshweaver \(*Cicurina vespera*\)](#)
- [*Government Canyon* Bat Cave spider \(*neoleptoneta microps*\)](#)

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

<https://npsot.org/wp/lindheimer/>

2002- The **Greater Edwards Aquifer Alliance** formed. <https://aquiferalliance.org/>

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 changed to 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 upstream from Canyon Lake experienced 35 inches of rain. The water topped the spillway at 4:28 P.M. on July 4th. The peak flow going over the spillway was on July 7, 2002, and it was 7 feet deep. The overflow of the spillway continued for 6 weeks. This flow scoured the landscape below the spillway down to bare limestone. The Guadalupe River in New Braunfels reached 69,300 cfs. The flood killed 9 people and damaged or destroyed 48,000 homes. <https://www.gbra.org/recreation/canyon-lake-gorge/>

December 2003- **San Antonio Water System (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 paid more than \$30 million for water sales, leases, land, and equipment.

September 4, 2004- **The Hill Country Alliance** is formed in response to the escalating challenges brought to the Texas Hill country by rapid development occurring in a sensitive eco-system. <https://hillcountryalliance.org/>

April 21, 2005- The **Wuest** family established a **Conservation Easement** on two parcels of land adjacent to the Natural Bridge Cavern.

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**

December 2007- Chris and Michelle Phelps placed 391 acres in a **Conservation Easement**.

2007- The **Friends for the Preservation of Historic Landa Park** was formed. <https://friendsforlandapark.org/>

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 Edwards Aquifer.

Mach 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. It is not open to the public.

September 9, 2009- Canyon Lake's minimum level since filling was 892.70 feet.

December 2009- Chris Phelps placed 89 acres of the Good Bull Ranch in a **Conservation Easement**.

December 2011- 918 acres of the Gold Dust Ranch was placed in a **Conservation Easement**.

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. This is a regional 15-year plan designed to protect the water flow and species in the Edwards Aquifer region.

2011-2013- Texas **Drought**

December 2013- The **Laas** family established a **Conservation Easement** on 129 acres adjacent to the Honey Creek State Natural Area.

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

March 15, 2014- The Global CO₂ level is **400.68 ppm**.

2014- Bracken Bat Cave, 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. Although most of this land is in Comal County, the Comal County Commissioners Court did not participate. <https://www.batcon.org/our-work/protect-restore-landscapes/bracken-cave-preserve/>

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 at the Comal** in New Braunfels. <https://headwatersatthecomal.com/>

June 8, 2017- Invasive **Zebra Mussels** were discovered in Canyon Lake.

2017- After negotiating with **USFWS** for years, Comal County finally approved the **Comal County Regional Habitat Conservation Plan**. However, mitigation credits for taking of prime Golden-cheeked Warbler Habitat in Comal County goes to Bandera County, it does not stay in Comal County.

2017- Formation of the **Hill Country Conservation Network**. <https://hillcountryalliance.org/our-work/texas-hill-country-conservation-network/>

2017- Formation of the group **Stop 3009 Vulcan Quarry.**

<https://www.stop3009vulcanquarry.com/>

2018- Formation of the **Comal County Conservation Alliance (CCCA).**

<https://www.comalconservation.org/>

2018- Comal County has 40,000 acres of aggregate industry quarries. Quarries have much less stringent requirements to operate than other mining in Texas. As of 2021 there are 15 quarries in Comal County. The air around quarries are polluted by the production of silica dust, which is a known cause of pulmonary fibrosis, lung cancer, and silicosis. In addition, quarries use a lot of water to operate.

4-person single house dwelling: 146,003 gallons/year

800 ton-per-hour crusher*: 280,320,000 gallons/year

*This water usage excludes water necessary to suppress dust on conveyor belts, stockpiles, internal quarry roads, trucks, etc.

<https://www.stop3009vulcanquarry.com/news/texas-hill-country-risk-aggregate-mining/>

<https://www.citizen.org/news/the-texas-aggregate-industry-is-crushing-hill-country-dreams/>

2018- The **Great Springs Project** was formed to establish a corridor of protected lands between San Antonio and Austin, Texas, with a spring-to-spring trail connecting the Blue Hole in San Antonio with Barton Springs in Austin. <https://greatspringsproject.org/>

2018- Formation of **Preserve our Hill Country Environment.**

<https://www.preserveourhillcountry.org/#home>

2019- There are 293 deer per 1,000 acres in the Hill Country, the highest in the state. There are an estimated 5.9 million White Tail Deer in Texas. In 1900 there were about 150,000 Whitetail Deer in Texas.

May 30, 2019- The Comal Springs were listed in the National Register of Historic Places by the National Park Service.

https://www.edwardsaquifer.org/wp-content/uploads/2019/09/Comal_Springs_is_in_the_National_Register_of_Historic_Places.pdf

2021- Rob and Teresa Johnson placed their 123-acre JO Ranch in a **Conservation Easement.**

2022 February- Joyce Moore and Cindy Martinez placed their 621-acre Honey Creek Spring Ranch under a **Conservation Easement.**

2022- is the second **driest** year in the last 128 years of official weather records.

2010-2023- 338 species of birds have been identified in Comal County according to e-bird.

February 13, 2023- **The Global CO₂ is 421.13 ppm.** CO₂ levels are now comparable to the Pliocene Climatic Optimum, between 4.1 and 4.5 million years ago, when they were close to, or

above 400 ppm. During that time, sea levels were between 5 and 25 meters higher than today, high enough to drown many of the world's largest modern cities. Temperatures then averaged 7 degrees Fahrenheit higher than in pre-industrial times, and studies indicate that large forests occupied today's Arctic tundra. <https://www.noaa.gov/news-release/carbon-dioxide-now-more-than-50-higher-than-pre-industrial-levels>

March 23, 2023- Comal County has 4 County Parks. Kleck Park and Curry Park were donated to the County. Hidden Valley Sports Park is leased from the US Army Corp of Engineers. Jumbo Evans Park was purchased by the County.

The Morton Preserve was purchased by the county with grant funding, but it is not open to the public. Comal County does not have a County Park Department.

June 22, 2023- The Honey Creek Natural Area in Western Comal County grew by 515 acres (22%) with the acquisition of the majority of the Honey Creek Ranch Development for \$25,000,000. The purchase was funded by the Land and Water Conservation Fund. This was accomplished with the help of the Nature Conservancy, the Texas Parks and Wildlife Foundation, the Urbanczyks and others. GEAA members who supported conservation efforts early on including Texas Cave Management Association, the Amy Shelton McNutt Charitable Trust, S/M Hixon Family Foundation, Honey Creek Spring Ranch, the National Speleological Society, Bulverde Neighbors for Clean Water, the Dawson and Elmendorf families, Bulverde's Mayor Krawietz and City Council member Yvonne Chapman. The Comal County Conservation Alliance was a part of the Coalition.

September 12, 2023- Canyon Lake Reservoir is currently at the lowest level ever recorded since it was filled in 1968. It currently is 891.80 msl. With no significant rain in the forecast, it will probably go lower.

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