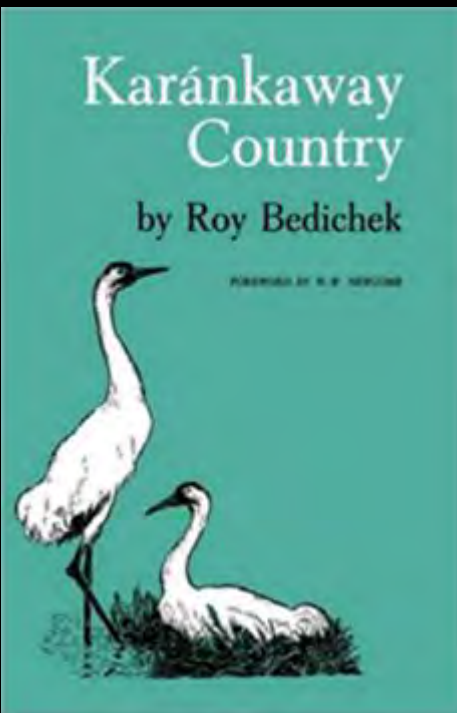




Another Colorado: Austin and the River

Kevin M. Anderson, Ph.D.

Austin Water – Center for Environmental Research

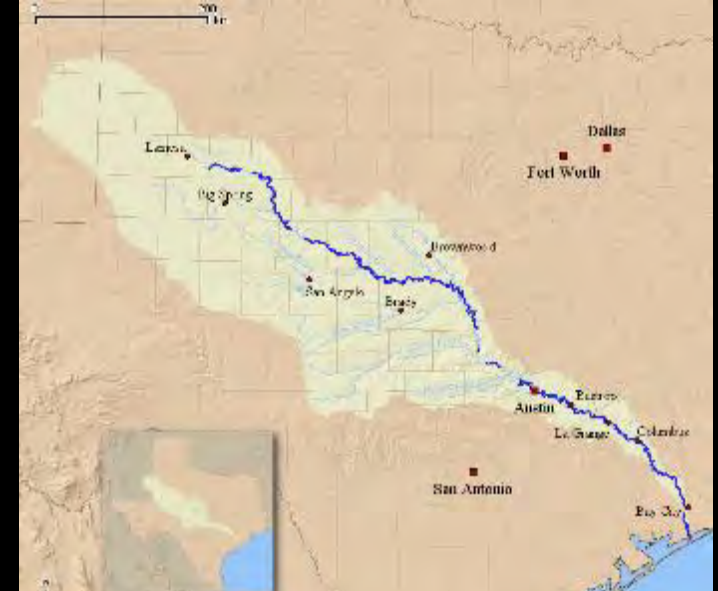


Which Colorado?

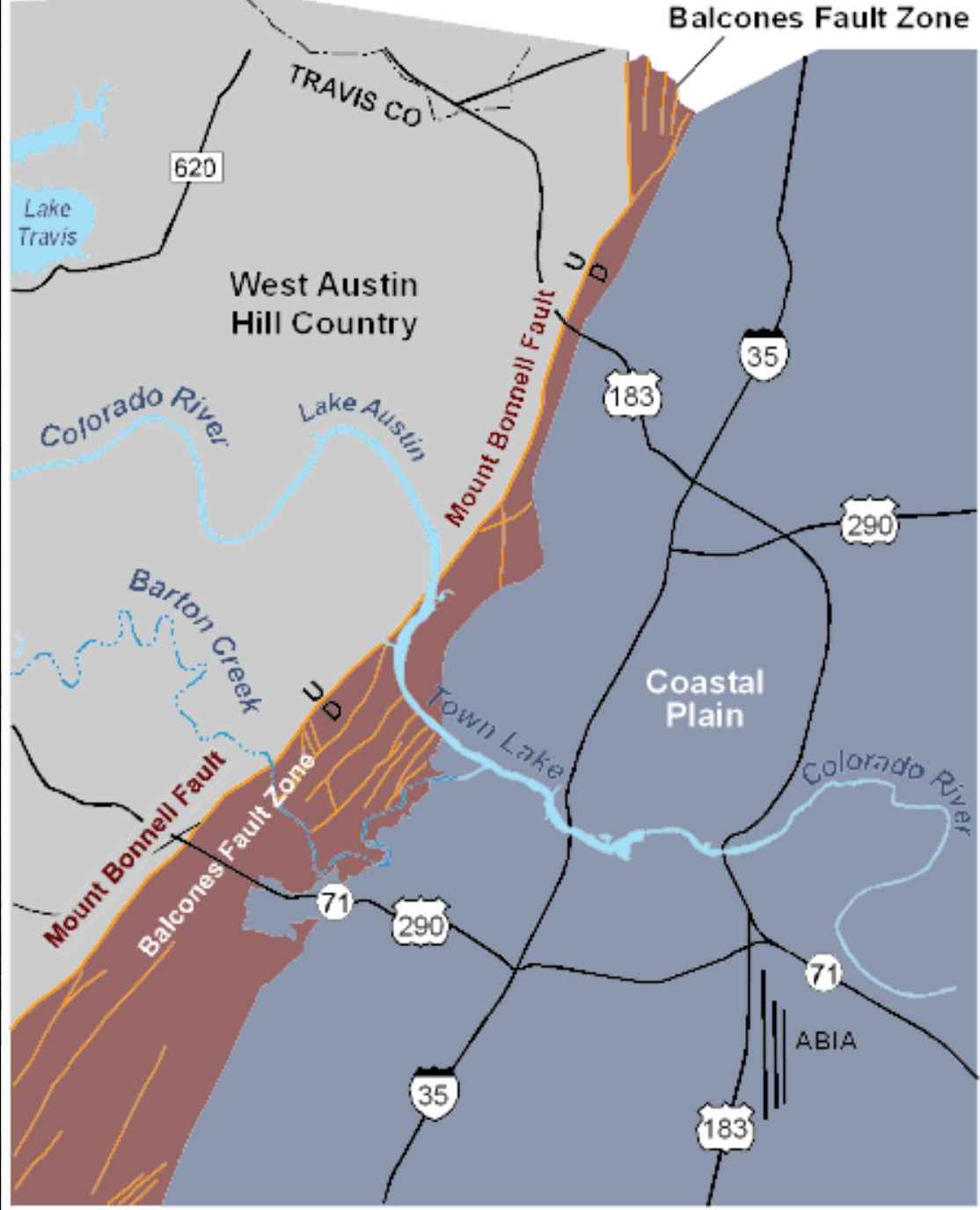
“Another Colorado” Jimmie Dale Gilmore

Down by the banks of the Colorado
My true love and I one night did lie
And we laughed and played and made fun
Of the entire world spinning 'round the sun
Down by the banks of the Colorado

There is another Colorado
Wise men have told me, wise women too
That I may find sweet El Dorado
Down by the banks of one sweet Colorado

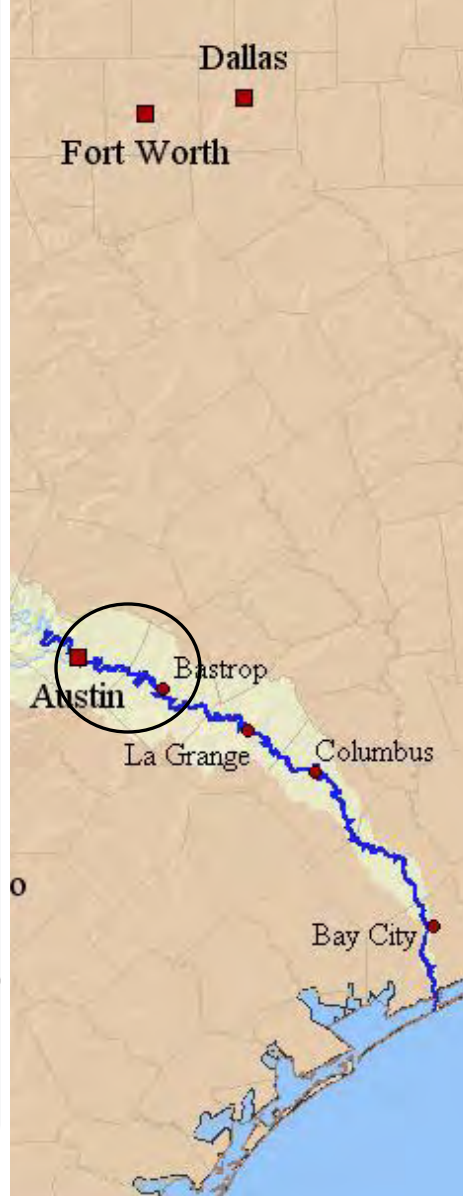


Major movement along the fault between 20-25 million BP



Modified from **Rock Type Map of the Austin Area, Texas**, by L. E. Garner and K. P. Young, 1976

in
-mile (1,387 km) long.
ted States.



Prehuman Natural History of the River - 20,000BP

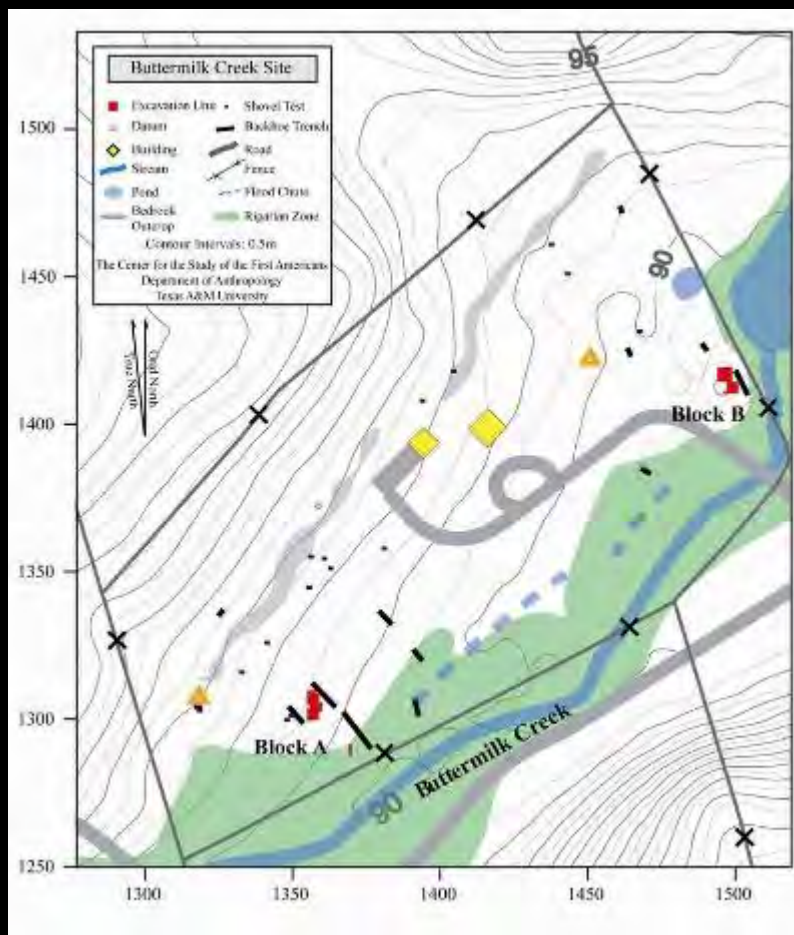
The Last Glacial Maximum (LGM) occurred about 20,000 years ago, during the last phase of the Pleistocene epoch. At that time, global sea level was more than 400 feet lower than it is today, and glaciers covered approximately 8% of Earth's surface.



Humanized Landscape – Buttermilk Creek Complex 15,000BP – Salado, Texas



Pre-Clovis 15,000BP



Clovis 13,000BP

Humans settled in the area because of its natural resources like permanent water, food to gather and hunt and abundant tool-making materials like flint.

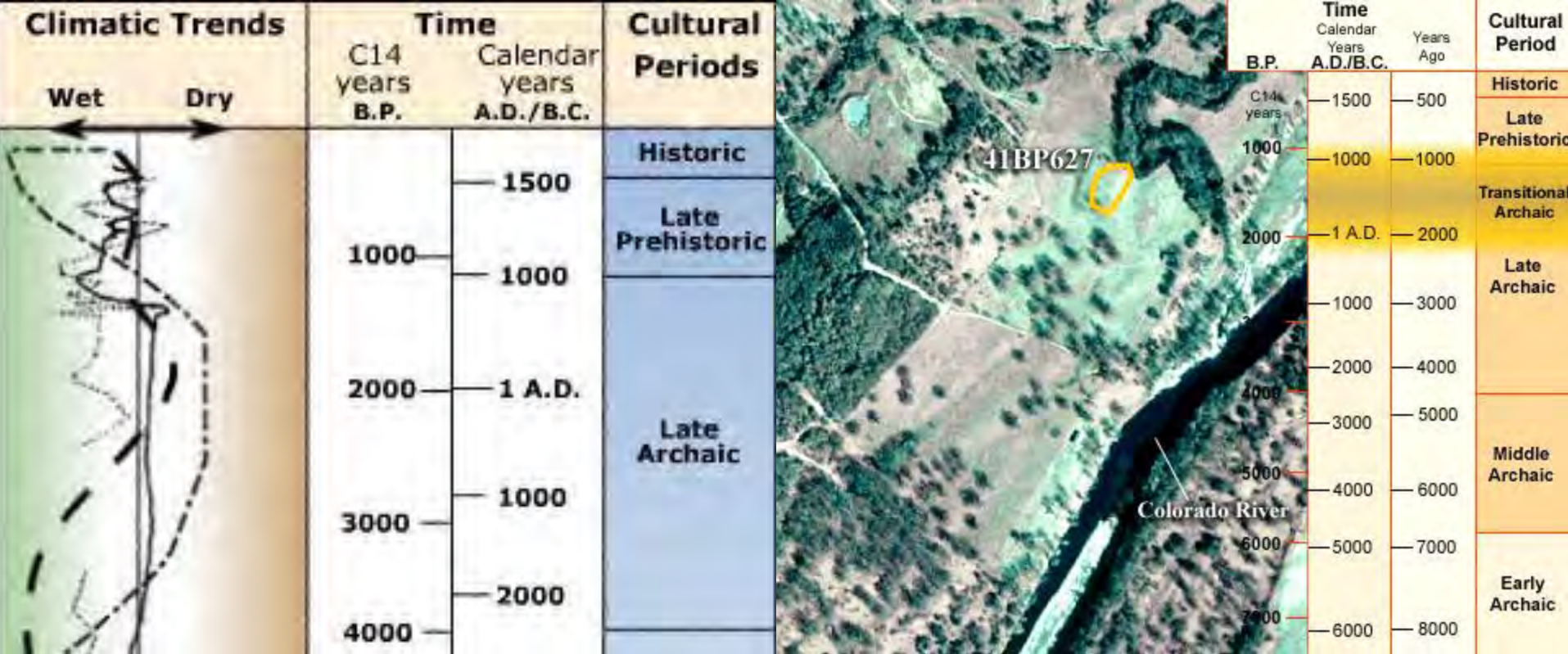
The McKinney Roughs site 2000BP – 1000BP

The story of the McKinney Roughs site begins some 2100 years ago when a succession of ancient peoples began camping on a small knoll in the Colorado floodplain.

Discovered prior to the construction of a resort hotel complex, the McKinney Roughs site is an important Transitional Archaic site.

Prehistoric living surfaces were preserved almost as they were left by campers one to two thousand years ago, providing a "snapshot" of prehistoric lifeways along the Colorado River.





The McKinney Roughs site 2000BP – 1000BP

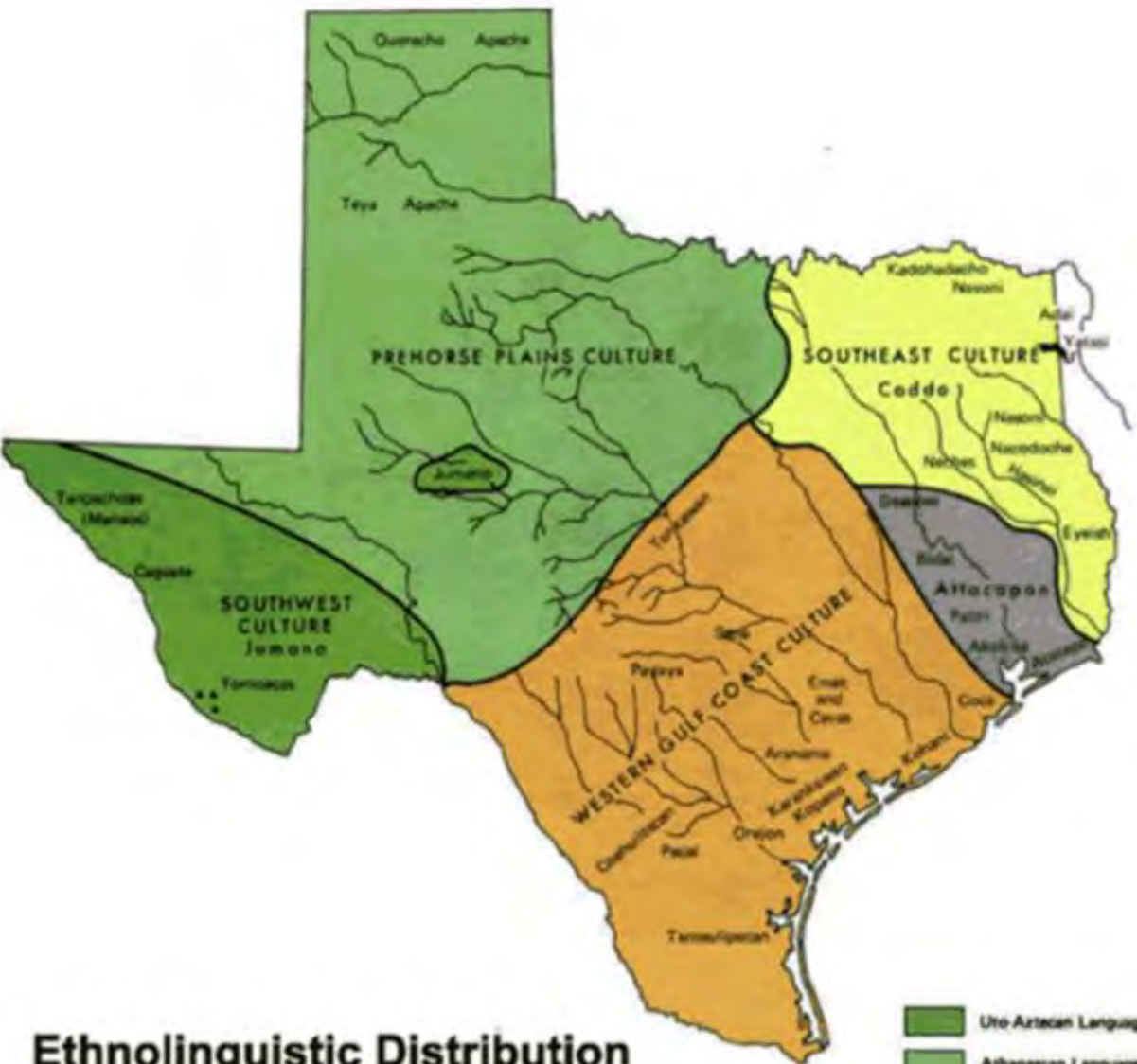
- Prehistoric sites are often found along the *riparian corridors* of rivers and creeks where concentrated plant and animal resources provided a strong economic basis for life.
- Occupation of the McKinney Roughs site occurred during a period of widespread change in the region. *During this time, climatic conditions became wetter, following centuries of dryness.*



THE INDIANS OF TEXAS

FROM PREHISTORIC TO MODERN TIMES

W. W. NEWCOMB, JR.



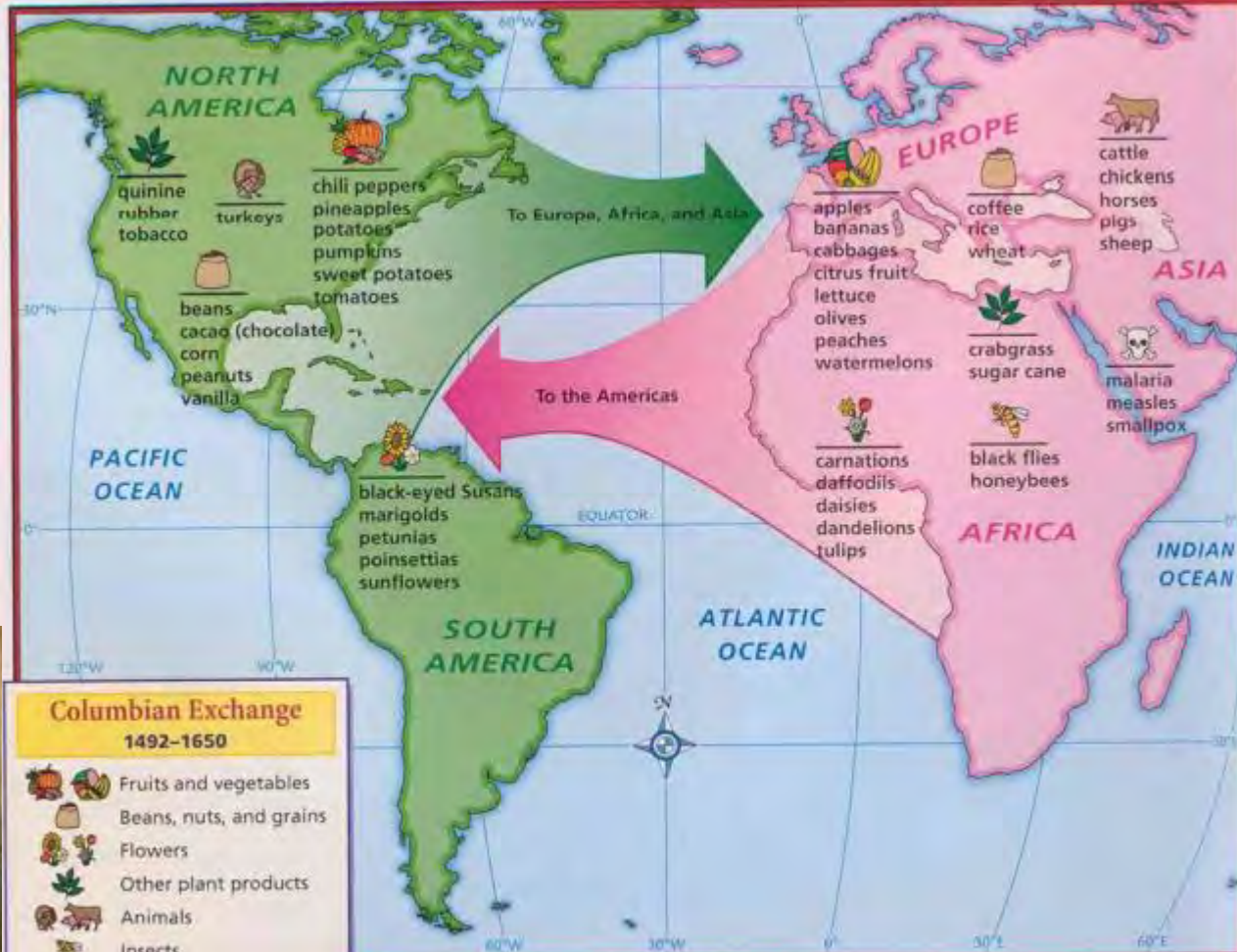
Ethnolinguistic Distribution of Native Texas Tribes in 1500

- Uto-Aztecan Language
- Athapaskan Language
- Caddoan Language
- Coahuiltecan Language
- Tunican Language

Source: Lydia L. M. Skellin, *An Ethnohistorical Survey of Texas Indians*, Texas Historical Survey Committee, Office of the State Archeologist, Report No. 22, Austin, 1972.

1492

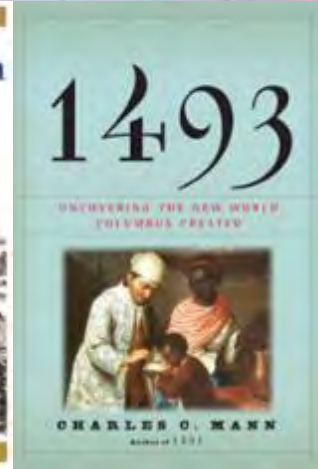
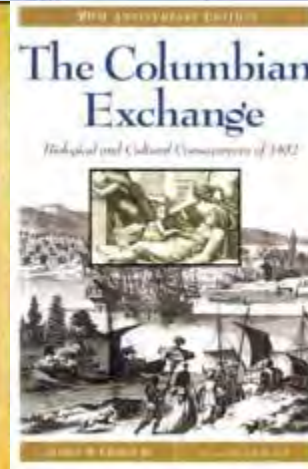
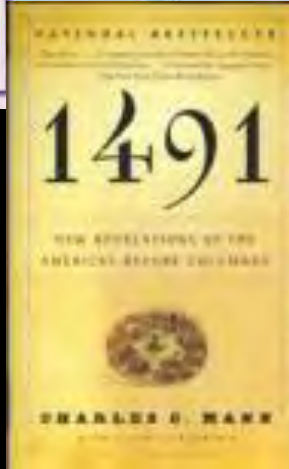
The Columbian Exchange



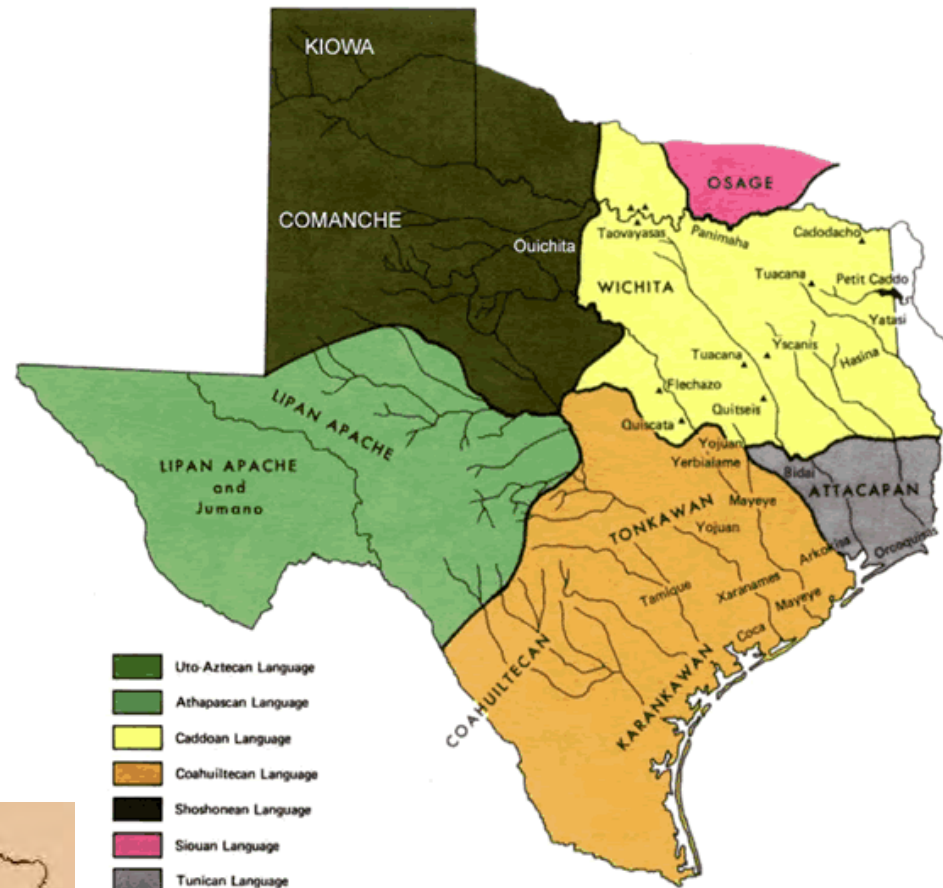
Columbian Exchange
1492-1650

- Fruits and vegetables
- Beans, nuts, and grains
- Flowers
- Other plant products
- Animals
- Insects
- Diseases

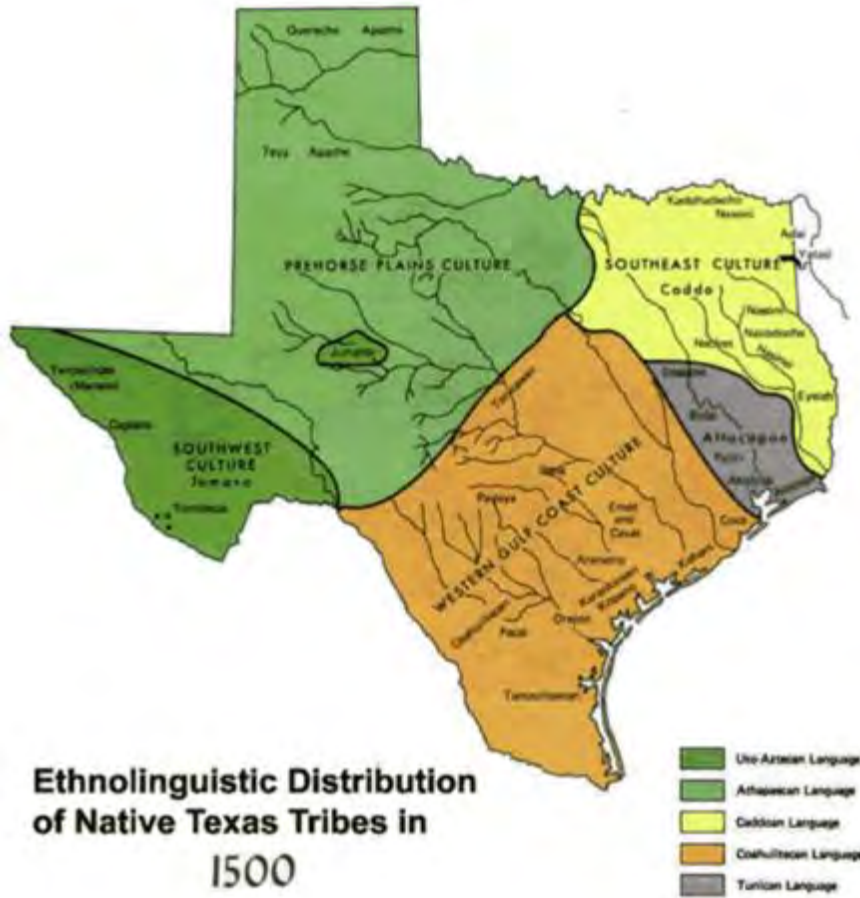
Colors show hemisphere of origin.



Ethnolinguistic Distribution of Indians in Texas in 1776



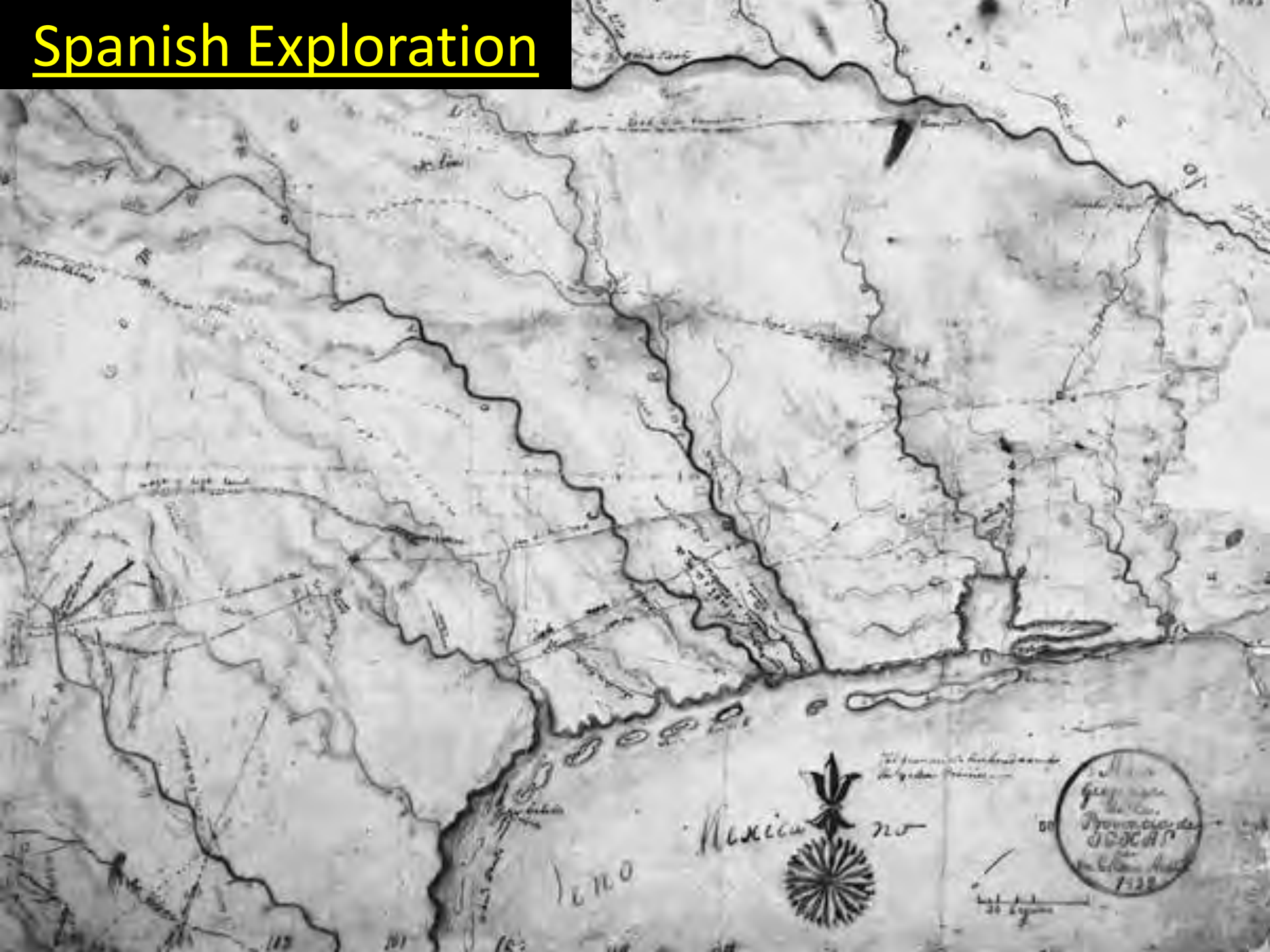
Ethnolinguistic Distribution of Native Texas Tribes in 1500



1500-1700



Spanish Exploration



The Overlooked Entrada: The Espinosa-Olivares-Aguirre Expedition of 1709

Anibal Gonzalez

In April 1709, two Franciscan priests and 15 soldiers came from the Rio Grande all the way to the Colorado looking for a delegation of Tejas Indians they never found...it is probable that they camped not far above the Hornsby Bend of the Colorado in Eastern Travis County.

“We came to the river, which has a guard on either side of luxuriant trees, nut trees [nogales], ash trees, poplars [cottonwood], elms, willows, mulberries, and wild grapevines much taller and thicker than those in Castile. It has sand banks which mark how high it rises, a quarter of a league wide. The water is of the best we have found.”

Difficulty traveling downriver because “the monte that offered itself to our sight was so much that we could not penetrate it.”



The Ancient Bottomland Forest

El Monte Grande (del Diablo)

Monte – a sizable almost impenetrable forest – a thicket



El Camino Real and Puesta del Colorado (Bastrop)

In 1804, the Spanish established a presidio or fort at this location named *Puesta del Colorado*. The purpose was to protect the Colorado River crossing of El Camino Real, the King's Highway, also known as the Old San Antonio Road.



Early Anglo Settlement



Settlement begins 1820s - Baron de Bastrop

The Baron de Bastrop obtained permission from the Spanish to found a German colony and selected the site in 1823, but subsequently failed to establish a settlement.

The town was named Bastrop by Stephen F. Austin in honor of the baron, a longtime friend and coworker.

His real name was Philip Hendrick Nering Bogel and he *was formerly a tax collector in Holland who had fled that country when charged with embezzlement.*

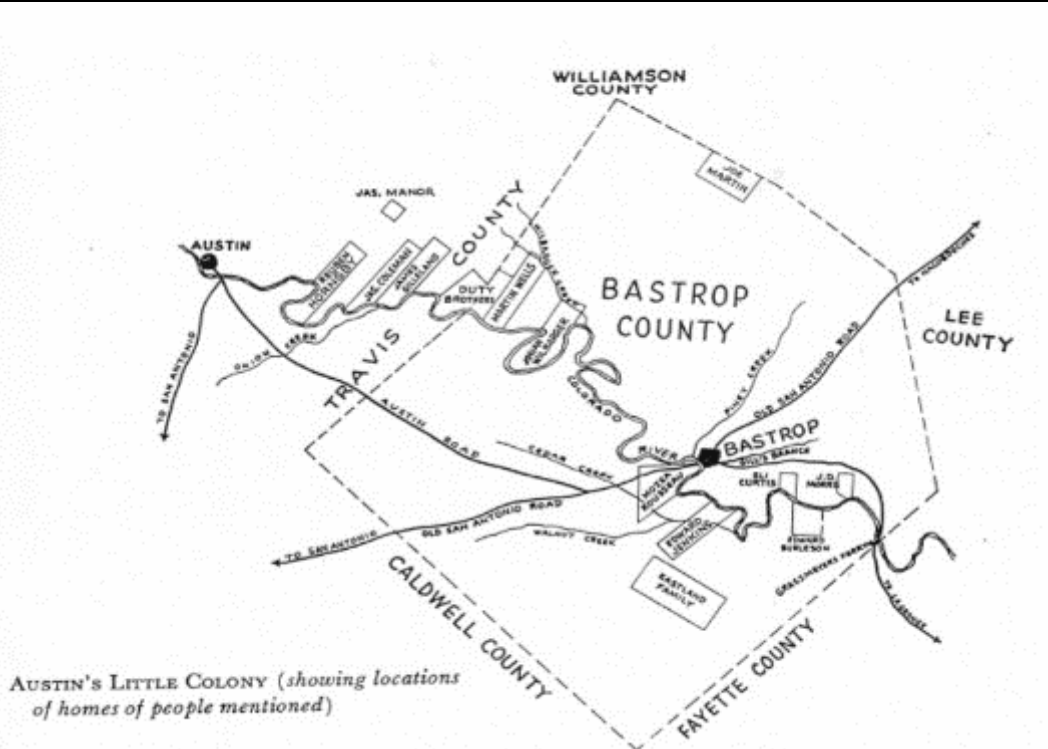
Austin, interested in developing the upper reaches of his original colony, obtained permission in 1827 to locate a "Little Colony" of 100 families on the site. He had seen the future town site on his first journey to Texas, and had noted it favorably in his journal.



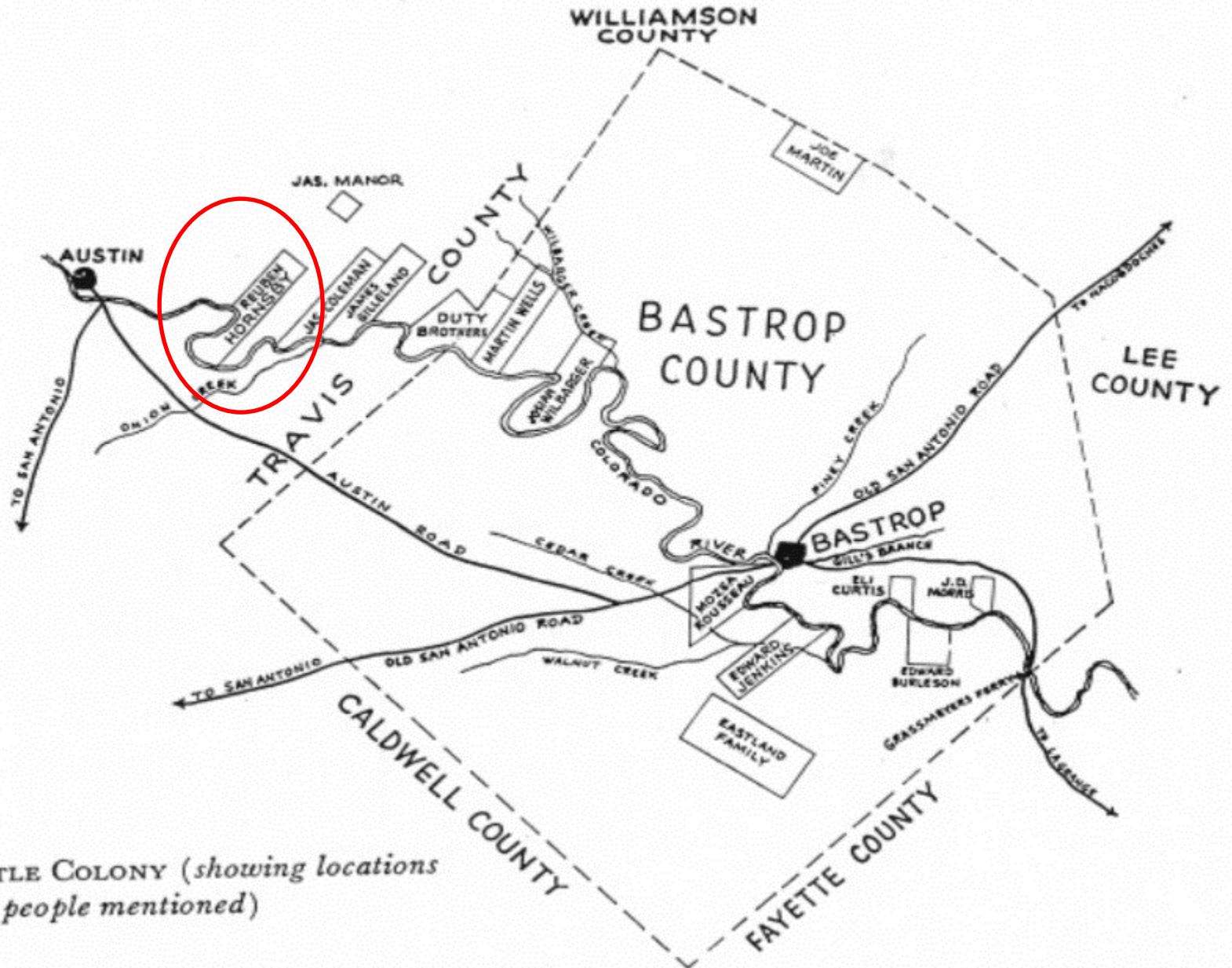
Stephen F. Austin describing the Colorado River near Bastrop 1821

“Tuesday, August 7 [1821]. Came to the Colorado River – poor, gravelly ridges and near the river heavy pine timber, *grapes in immense quantities on low vines, red, large, and well flavored, good for Red wine.* The Colorado River is sometimes less than the Brazos, banks very high – generally clear of overflow – bottom and banks gravelly, water very clear and well tasted, current brisk, the river very much resembles Cumberland River, except that there are no rocks and it is somewhat larger.

The bottomland where the road crosses is about five miles, mostly prairie, clear of overflow, land rich, timber Pecan, Ash, Oak, Cedar, abundance of fish.”

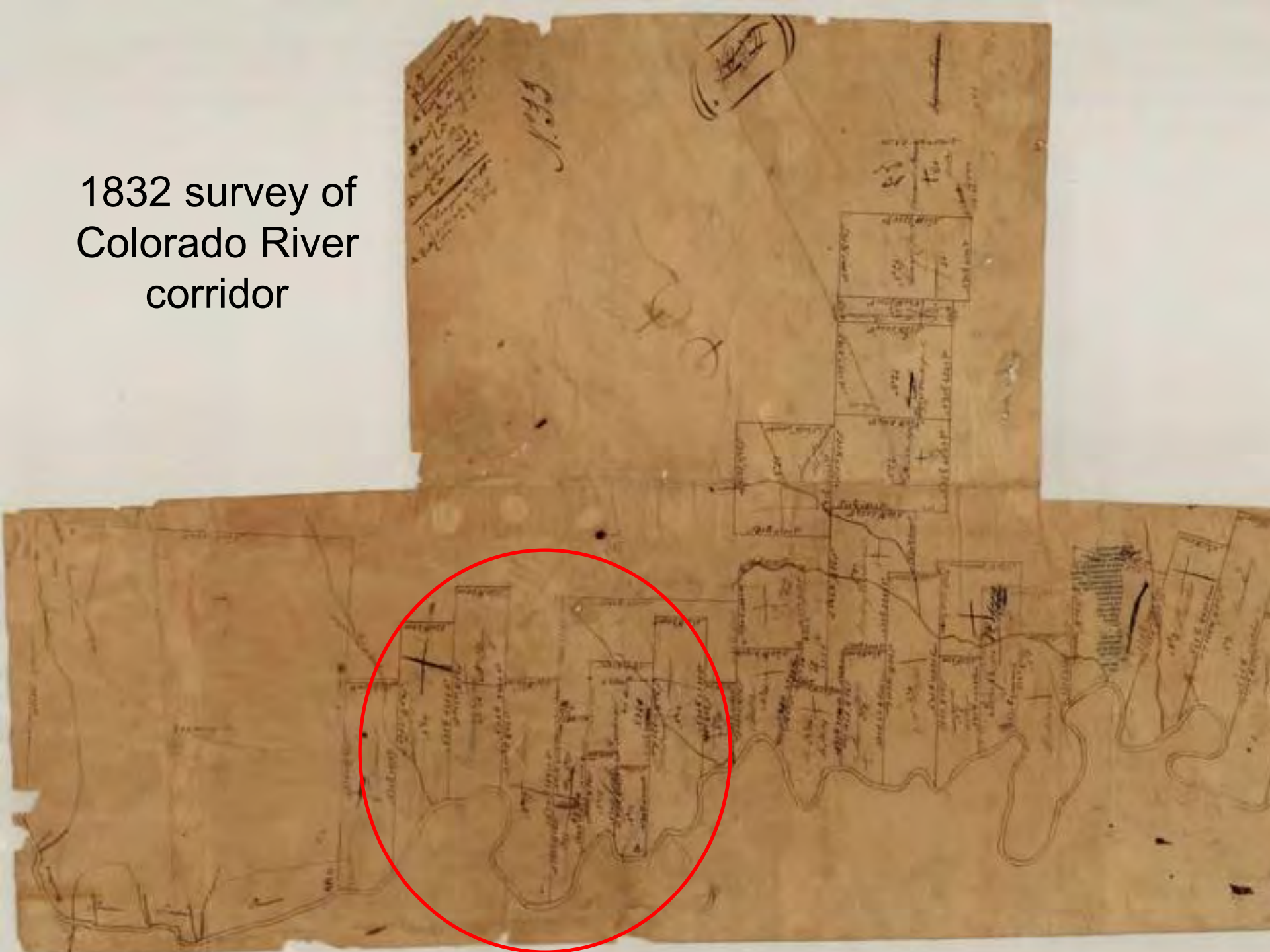


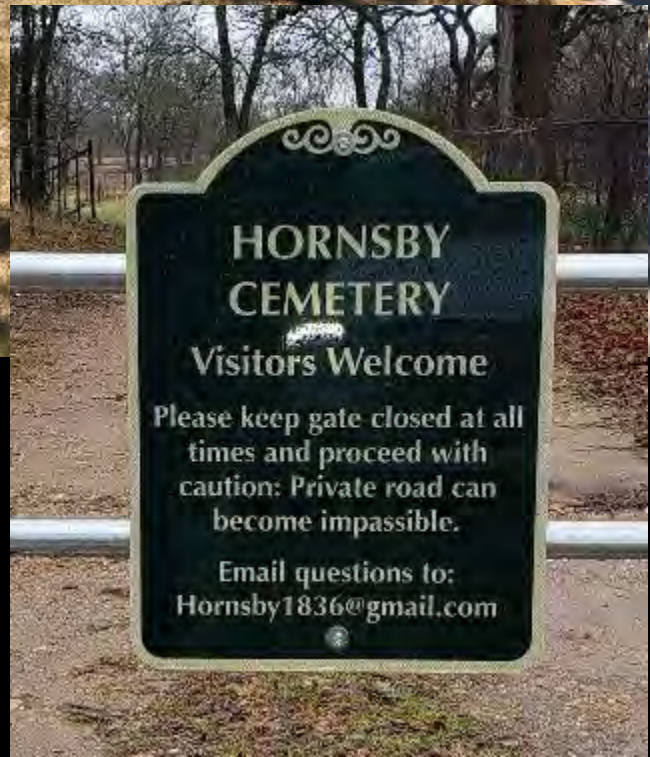
Hornsby Bend Settlement History – Rueben and Sarah Hornsby 1832



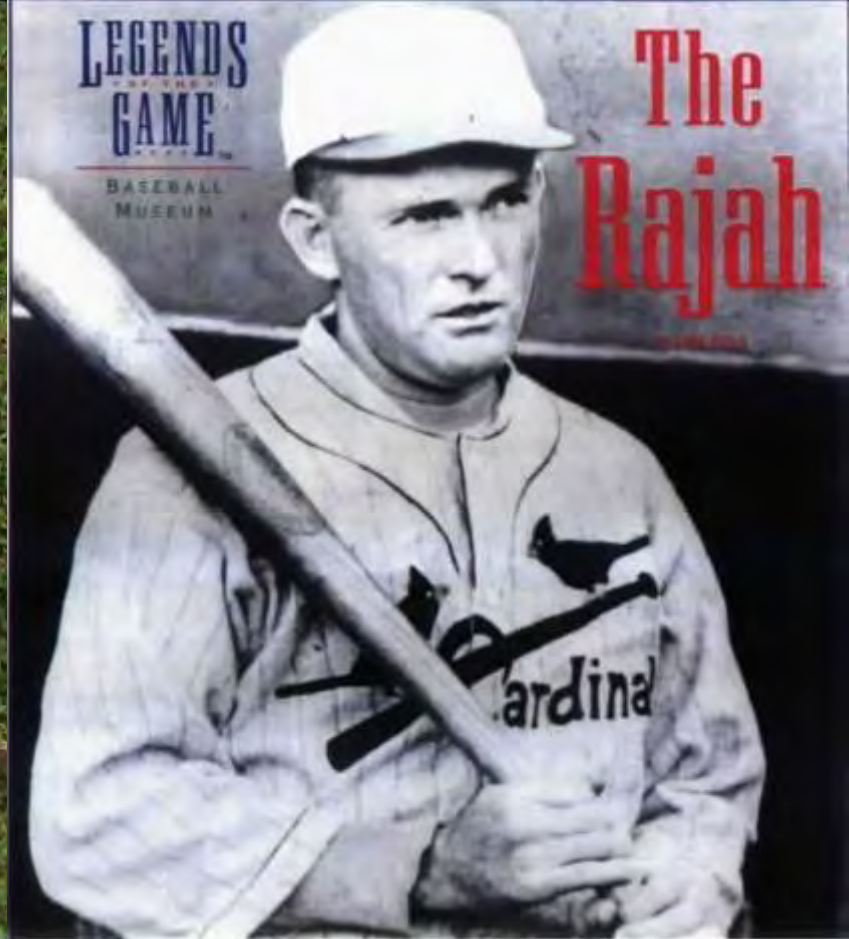
AUSTIN'S LITTLE COLONY (showing locations of homes of people mentioned)

1832 survey of
Colorado River
corridor









Rogers Hornsby (1896-1963) is regarded as one of the best hitters of all time.

- His career batting average of .358 is second only to Ty Cobb .366
- He batted .400 or more three times during his career.
- He is the only player to hit 40 home runs and bat .400 in the same year (1922)
- Record for highest season batting average .424 (1924)
- Tags out Babe Ruth to win 1926 World Series for St. Louis

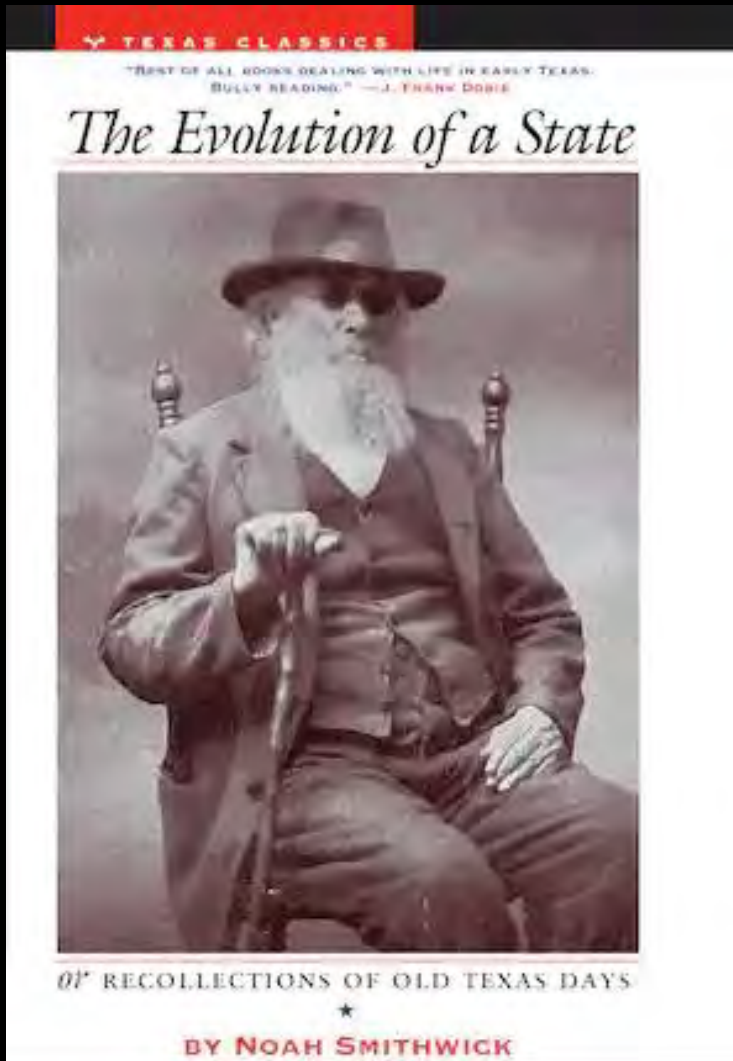
Colorado River History

Noah Smithwick 1808-1899

Founding of Austin

“Though there had not been a tree felled anywhere in the vicinity of the city of Austin prior to the location of the capital there, as soon as the seat of government was established in the new log cabins provided for its reception, people began to gather about it; by far the larger portion outside of official circles being lawyers and gamblers.

The wholesale issue of bogus land certificates, together with numerous other irregularities in the land business of the colonial period were a prolific source of litigation, offering a fertile field for legal talent; and thither, accordingly, came lawyers...”



When was the City of Austin founded?



Austin 1839

The city was established by the three-year-old Republic of Texas in 1839 to serve as its permanent capital, and named in honor of the founder of Anglo-American Texas, Stephen F. Austin.

A site-selection commission appointed by the Texas Congress in January 1839 chose a site on the western frontier, after viewing it at the instruction of President Mirabeau B. Lamar, a proponent of westward expansion who had visited the sparsely settled area in 1838.

The commission purchased 7,735 acres along the Colorado River comprising the hamlet of Waterloo and adjacent lands.



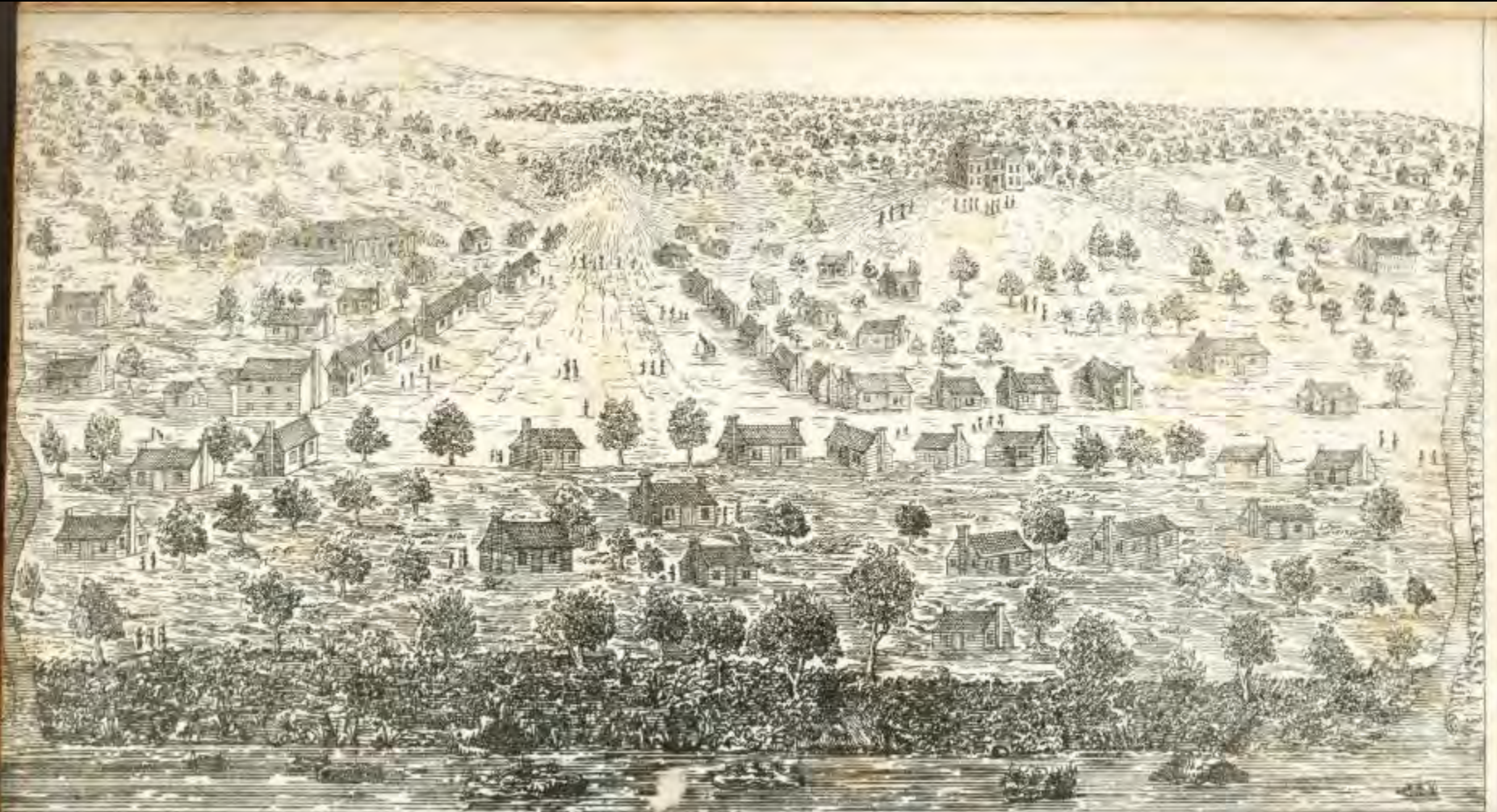
Surveyors working under the direction of Edwin Waller, who was appointed by Lamar to plan and construct Austin.

Out of the 7,735 acres they chose a 640-acre site fronting on the Colorado River and nestled between Waller Creek on the east and Shoal Creek on the west.

By 1840 Austin had 856 inhabitants, including 145 slaves as well as diplomatic representatives from France, England, and the United States.



“...as soon as the seat of government was established in the new log cabins provided for its reception, people began to gather about it; by far the larger portion outside of official circles being lawyers and gamblers.” Noah Smithwick



CITY OF AUSTIN THE NEW CAPITAL OF TEXAS IN 1844.

“The wholesale issue of bogus land certificates, together with numerous other irregularities in the land business of the colonial period were a prolific source of litigation, offering a fertile field for legal talent; and thither, accordingly, came lawyers...” Noah Smithwick

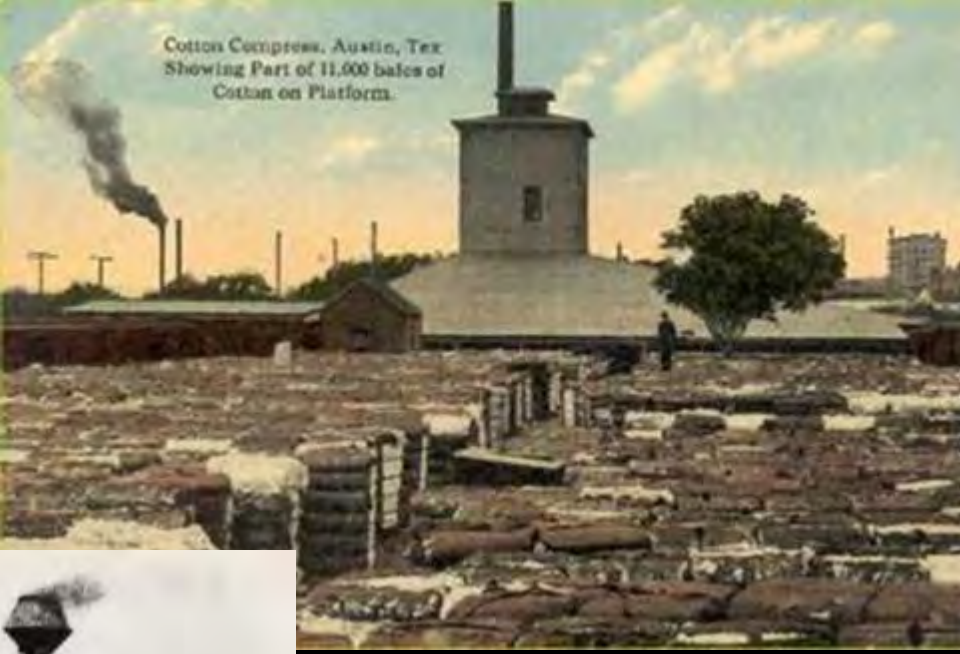


Courtesy of
Texas General
Land Office,
Austin

1861

Transformation

Cattle – Cotton – Railroads

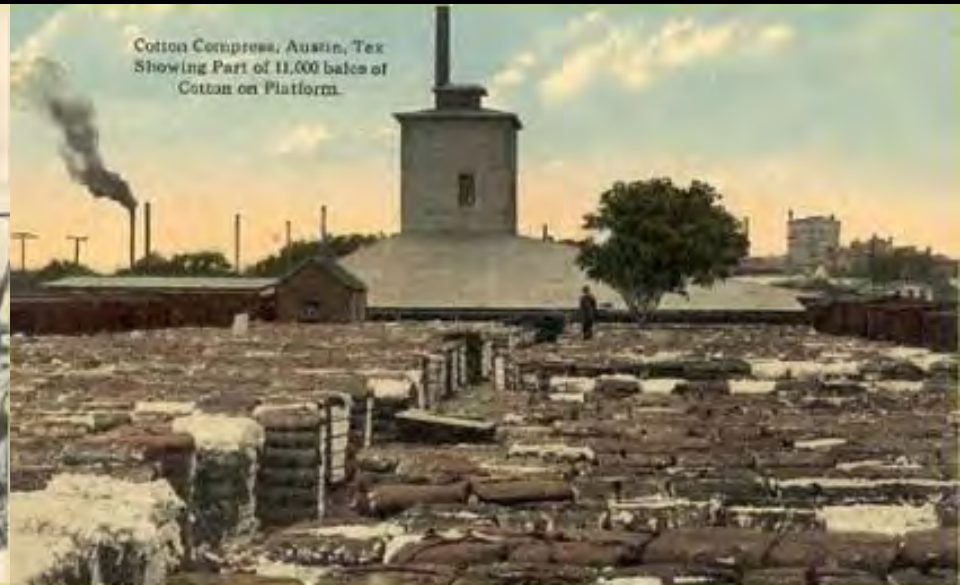


Cattle 1860s - 1890s



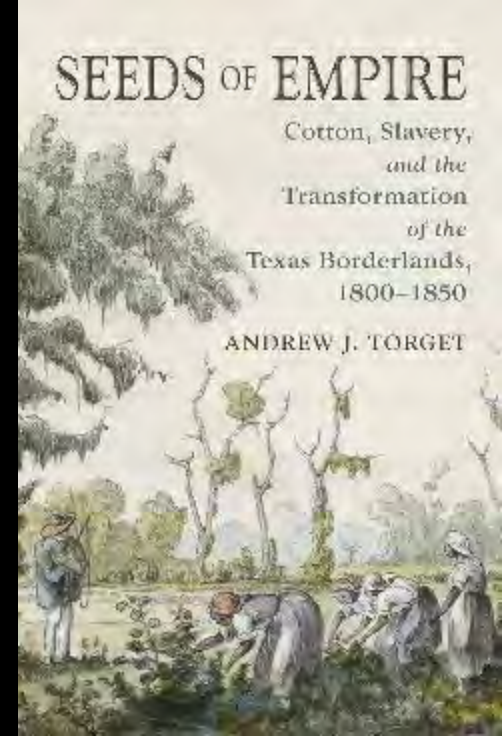
Cotton Economy and Soil Depletion

- Cotton was the principal field crop in the late 1880s and remained so until the 1940s
- The 1890 census reported 65,000 acres—nearly 30 percent of the county's improved farmland—planted in cotton; by 1900 the amount of land devoted to cotton had increased to 113,300 acres, or 56 percent of the improved farmland.
- However, *as more marginal land was used and the soil became depleted, production levels fell*; in 1930, 143,000 acres produced only 19,000 bales.
- By the late 1950s cotton accounted for only 26 percent of the total cropland harvested, and by 1980 it had fallen to only 8 percent.



Cotton and Slavery

“For the cultivation of cotton, plantations were established primarily using African slaves as labor. Battles over slavery and American colonization thus became entangled in larger fights within Mexico over federalism, battles which led to the 1836 Texas revolution. *By 1837, these struggles had produced a weak, but committed, slaveholding society in the borderlands between the United States and Mexico, when Texas emerged as the most unlikely creation: an independent republic of American slaveholders built beyond the borders of the United States. After the Civil War, the plantation system was replaced with tenant farms and sharecropping.*” Torget 2018



Reconstruction and Freedom Colonies

- Freedom Colonies are “historically significant communities” that were settled by formerly enslaved people during the Reconstruction and Jim Crow eras in Texas following Emancipation. *From 1865-1930, African Americans accumulated land and founded 557 historic black settlements.*
- Freedom Colonies provided safe spaces where Black Texans could better avoid the perils of debt bondage, sharecropping, and racialized violence from white communities by *living self-sustaining and independent lives on their own property.*
- Similar post-Civil War black “Freedmen” communities emerged across the South.



The Texas Freedom Colonies Project™ is a research, educational, and social justice initiative dedicated to preserving the spaces within and heritage of historic African American settlements. Our goal is to prevent cultural property erasure, destruction, and decay in partnership with descendant communities. We are researchers and volunteers who map disappearing places and co-create resilience strategies with endangered communities.

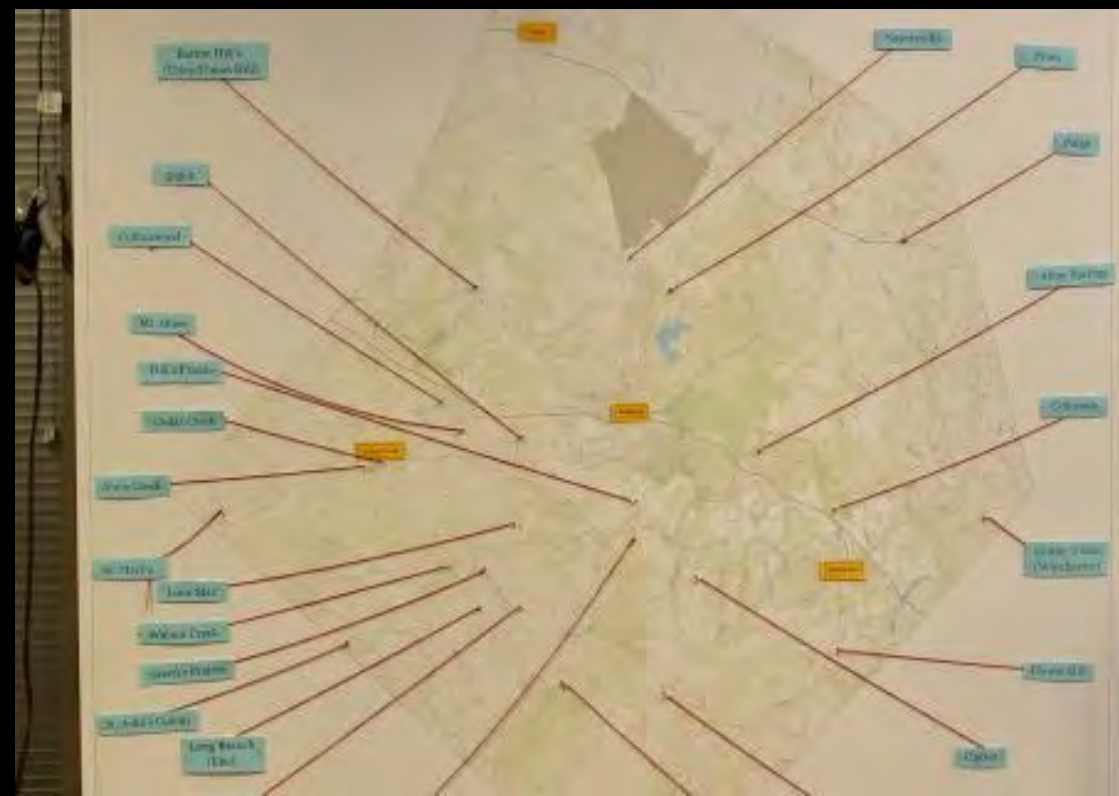


THE TEXAS FREEDOM COLONIES PROJECT ATLAS & STUDY

Mapping the Unmapped Black Settlements of Texas



BASTROP COUNTY AFRICAN AMERICAN CULTURAL CENTER



Austin - Burditt's Prairie

In 1844, Jesse F. Burditt (1788-1855) established a cotton plantation in Montopolis. The 1850 census records that the plantation was overseen by Burditt's sons and was worked by 25 slaves, ages 1 to 66.

Before his death, Jesse emancipated his slaves, creating one of the largest communities of freedmen in the Austin area prior to the Civil War.

The Burditt Prairie Cemetery dates to 1850 and with graves of many former slaves, emancipated African Americans, and their descendants.

Burditt's Prairie developed into a post Civil War Freedmen's settlement, with St. Edward's Missionary Baptist Church, the oldest Black Baptist Congregation in Travis County.





Churches and Cemeteries



WEBBERVILLE EBENEZER BAPTIST CHURCH

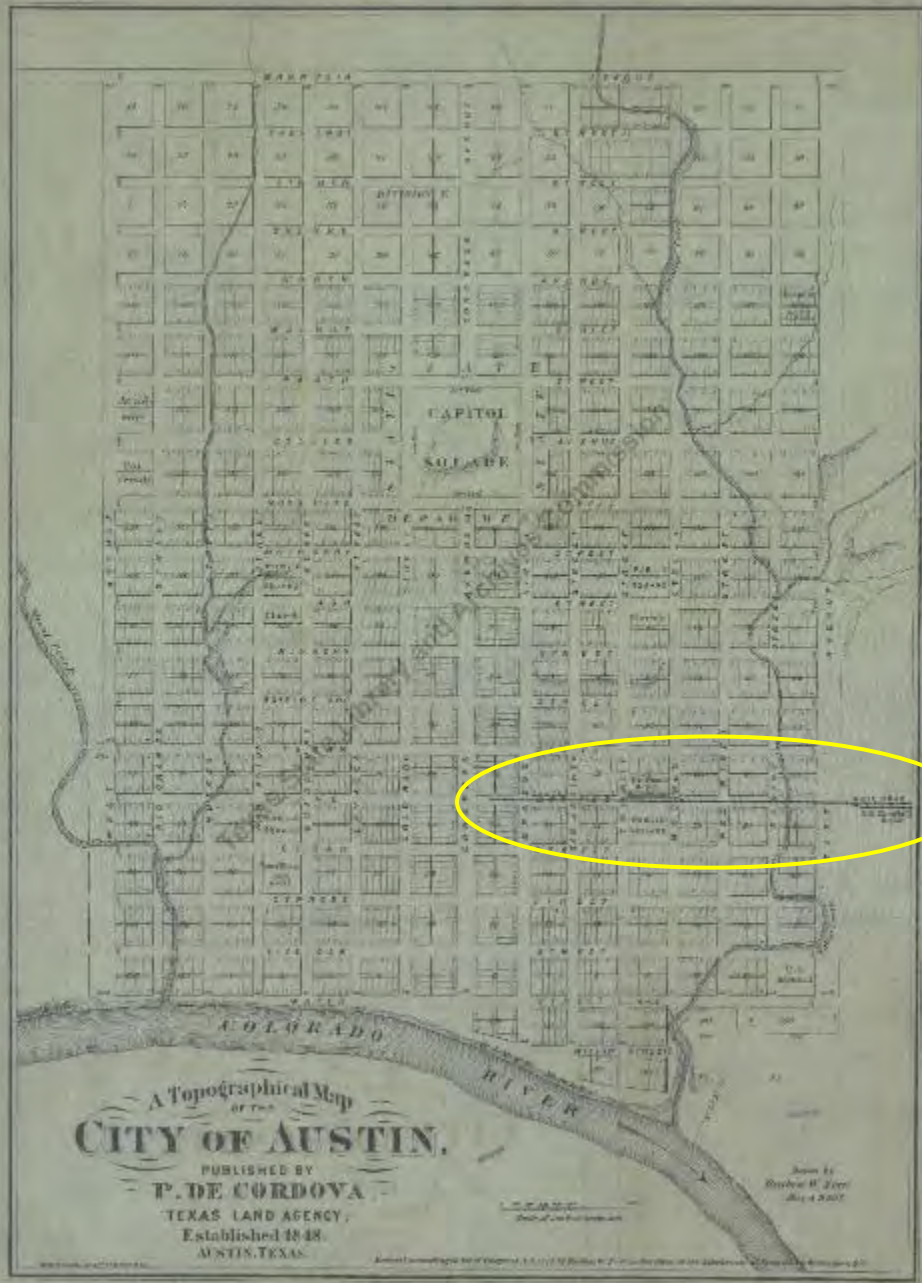
THIS CHURCH TRACES ITS ORIGIN TO THE PLIGHT OF ANGLO AMERICAN JOHN F. WEBBER, WHO ALONG WITH HIS AFRICAN AMERICAN WIFE AND CHILDREN, SETTLED IN THIS SPARSELY POPULATED AREA OF TEXAS IN 1839 TO ESCAPE THE RACISM THEY HAD EXPERIENCED IN TOWNS AND CITIES. A COMMUNITY KNOWN AS WEBBER PRAIRIE CONSISTING OF PLANTATION OWNERS AND THEIR SLAVES DEVELOPED HERE. RACIAL PREJUDICE CAUSED WEBBER TO SELL HIS LAND TO COLONEL JOHN BANKS IN 1851 AND MOVE HIS FAMILY TO MEXICO.

IN 1868 MATTHEW DUTY DONATED ONE ACRE OF LAND HERE FOR THE PURPOSE OF BUILDING A CHURCH FOR THE AREA'S RECENTLY EMANCIPATED AFRICAN AMERICANS. THAT YEAR THE WEBBERVILLE EBENEZER BAPTIST CHURCH WAS ORGANIZED AS A MISSION OF THE ST. JOHN REGULAR MISSIONARY BAPTIST ASSOCIATION. CHARTER MEMBERS INCLUDED THOMAS READS, SUNS JOHNSON, LOWENS BERRY, AND MARY GREEN. THE REV. WESLEY BARROW SERVED AS EBENEZER'S FIRST PASTOR.

IN 1956 SEVERAL MEMBERS OF THE CONGREGATION LEFT EBENEZER BAPTIST TO FORM A CHURCH IN AUSTIN WHICH BECAME KNOWN AS THE NEW LIGHT EBENEZER BAPTIST CHURCH. EBENEZER BAPTIST REMAINS ACTIVE DESPITE THE RELOCATION OF MANY OF WEBBERVILLE'S FAMILIES TO NEARBY URBAN CENTERS. FORMER MEMBERS CONTINUE TO GATHER HERE ON SPECIAL OCCASIONS AND HOLIDAYS.

(1994)





Transformation – Railroads

The Houston and Texas Central Railroad reached Austin on Christmas Day in 1871.



Passengers have Choice of the Three Favorite Routes to St. Louis
and Chicago and the East, via the

HOUSTON & TEXAS CENTRAL RAILWAY.

Short Line to all Points between KANSAS CITY and SAN FRANCISCO!

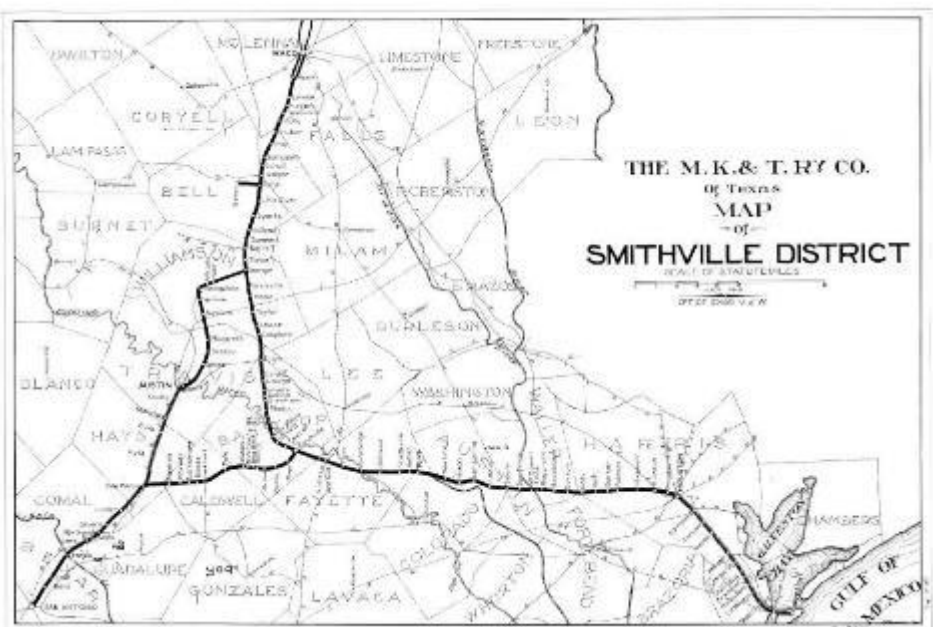
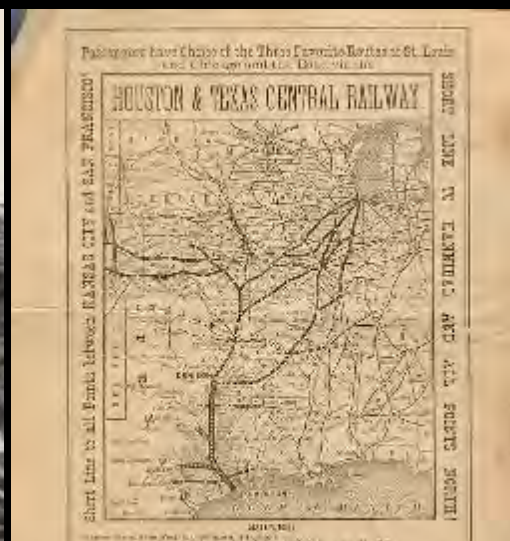
SHORT LINE TO HANNIBAL AND ALL POINTS NORTH!



ROUTES:

- Kansas City and the West, via Denison and Ft. Scott.
- Quincy, Chicago and the Northwest, via Denison and Hannibal.
- St. Louis and the North and East, via Denison and Vinita.
- St. Louis and the North and East, via Denison and Sedalia.
- St. Louis and the North and East, via Sherman and Little Rock.
- All Points in Southeast and East, via Sherman, Little Rock & Memphis.
- All Points in the Southeast and East, via Houston and the Gulf to New Orleans.

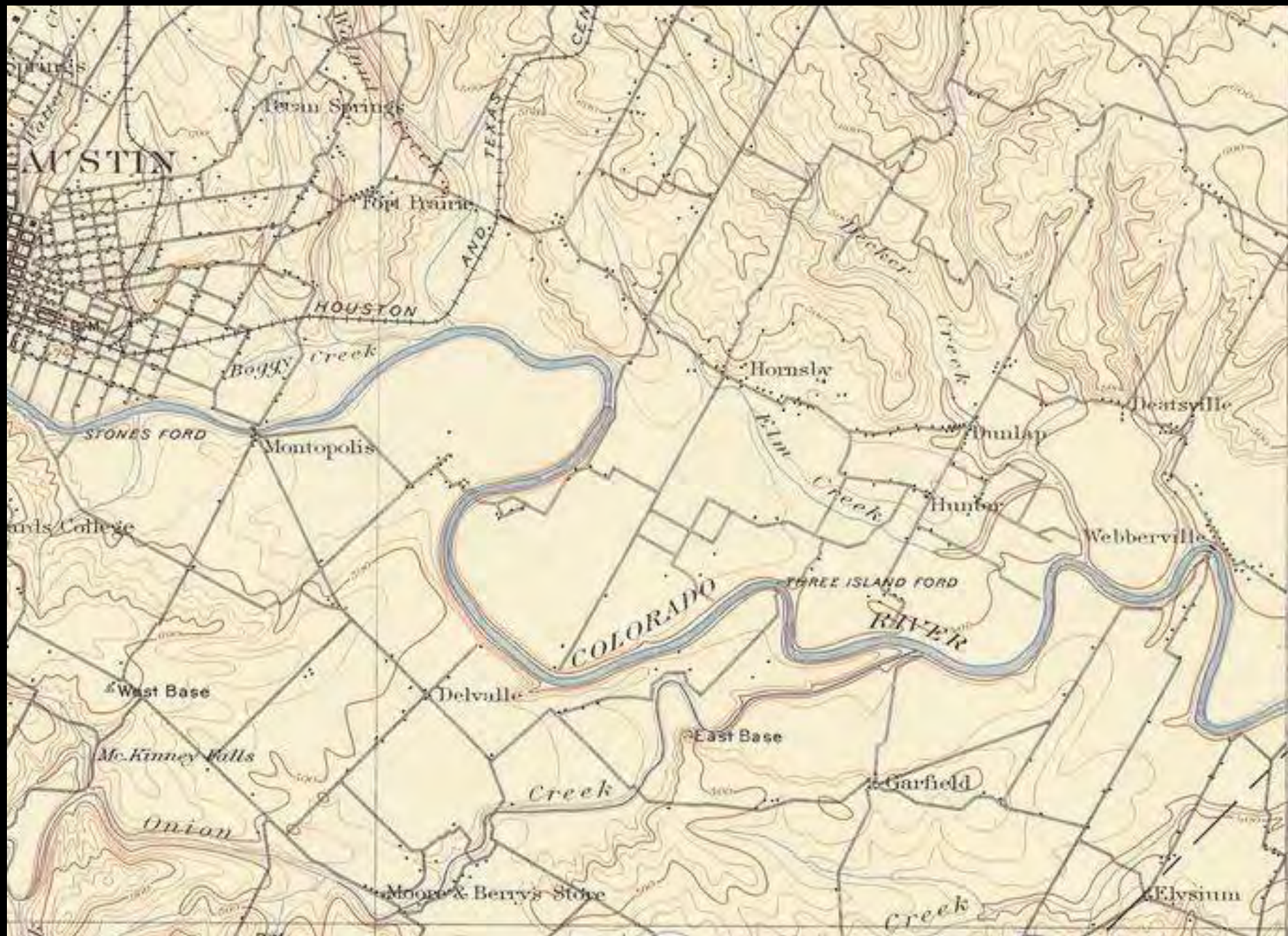
The Global Market - In 1873, the HTC linked up at the Red River with the Missouri, Kansas & Texas Railroad (MKT) which later was taken into the Southern Pacific system.



"Bird's Eye View of Austin" 1890

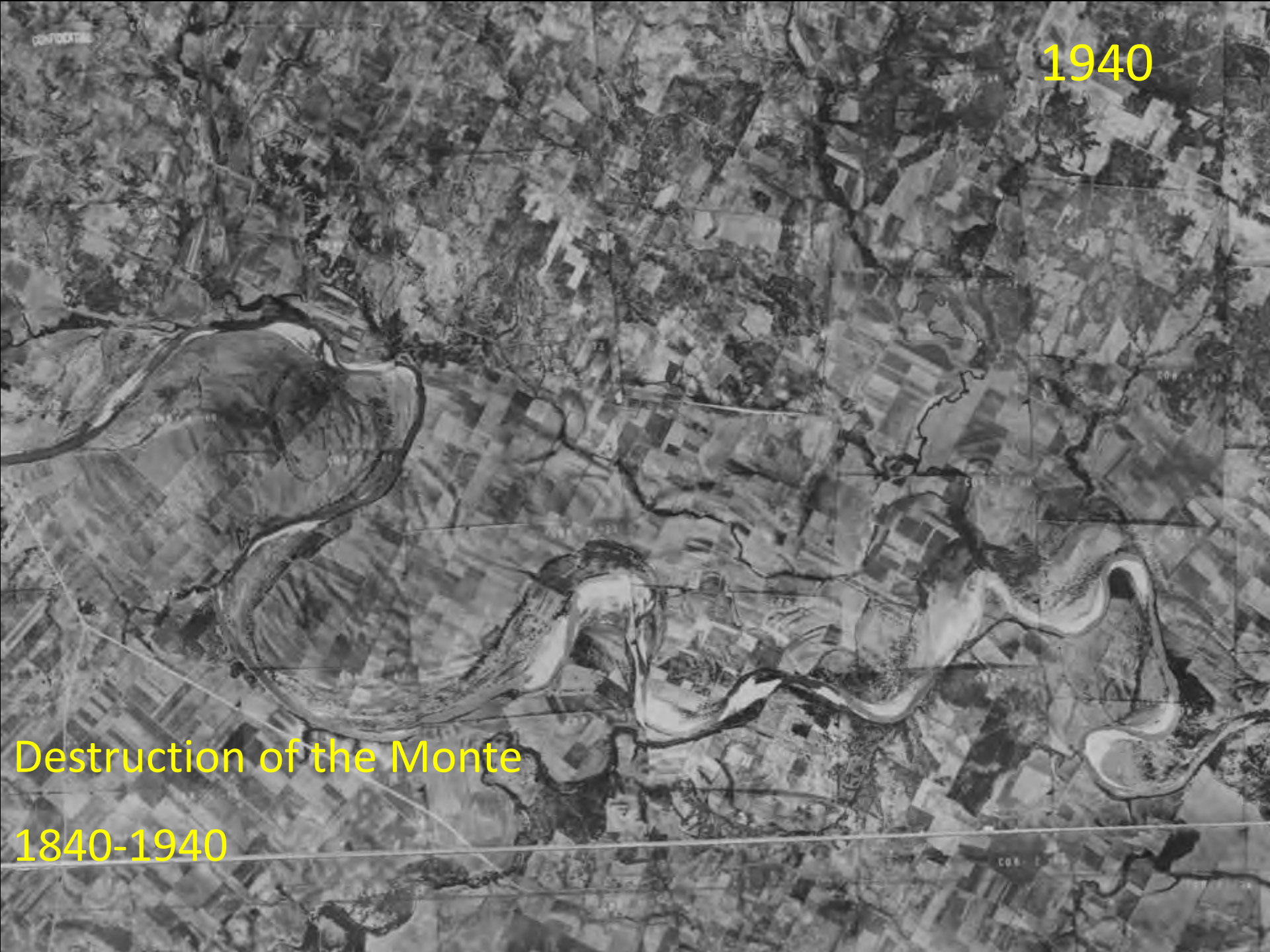


River Corridor Transformation - 1901



CONFIDENTIAL

1940



Destruction of the Monte

1840-1940

CONFIDENTIAL

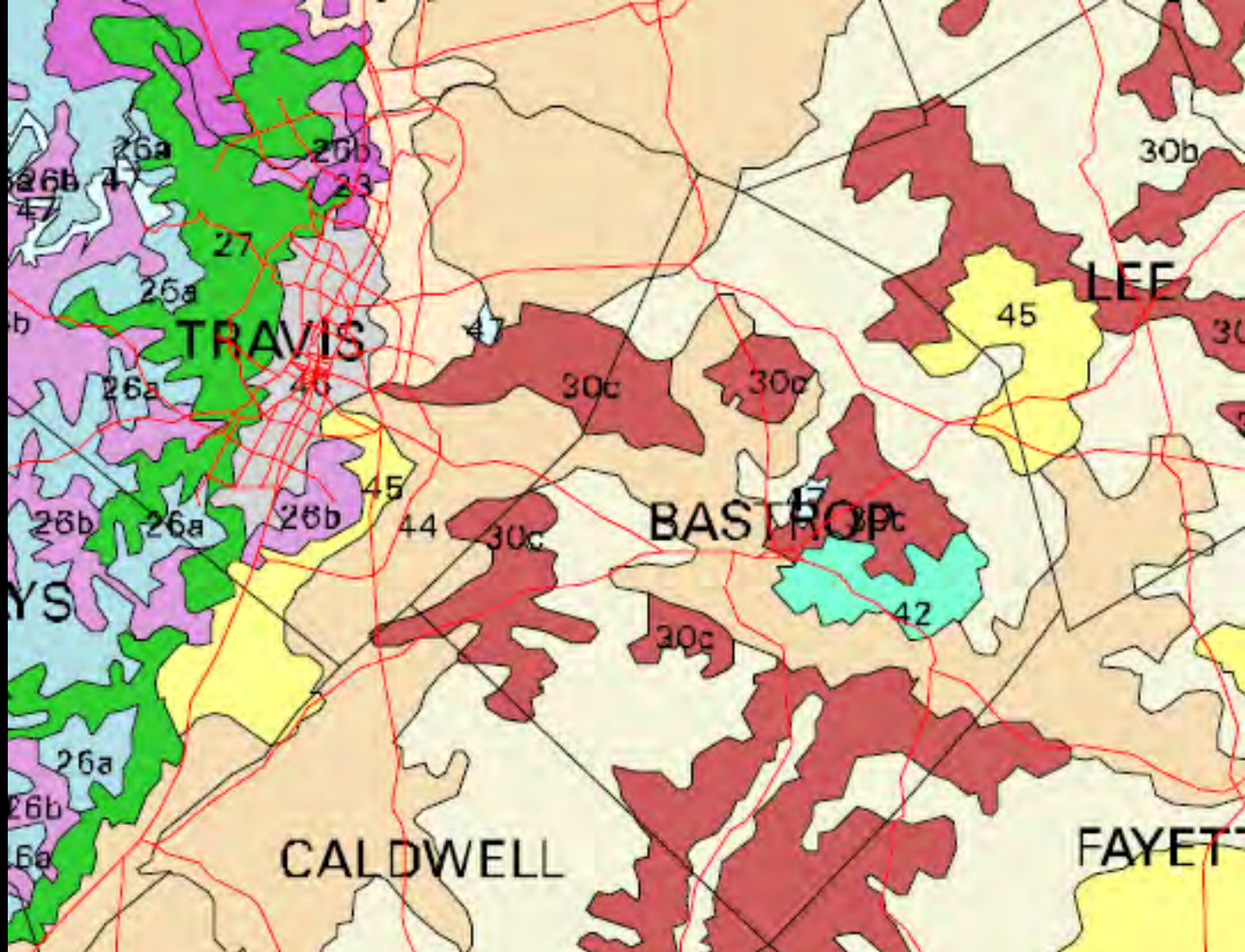
Native Flora

Vegetation map

1990s

TPWD

Monte -> Crops



28 *Havard Shin Oak Brush*
(*Quercus havardii*)

29 *Gray Oak - Pinyon Pine - Alligator Juniper Parks/Woods*
(*Quercus grisea - Pinus cembroides - Juniperus deppeana*)

30a *Post Oak Parks/Woods*
(*Quercus stellata*)

30b *Post Oak Woods, Forest, and Grassland Mosaic*

30c *Post Oak Woods/Forest*

42 *Pine - Hardwood Forest*

43 *Marsh/Barrier Island*

44 *Crops*

45 *Other Native and/or Introduced Grasses*

46 *Urban*

Texas Cultural Geography, Ecology and the Colorado River

Roy Bedichek

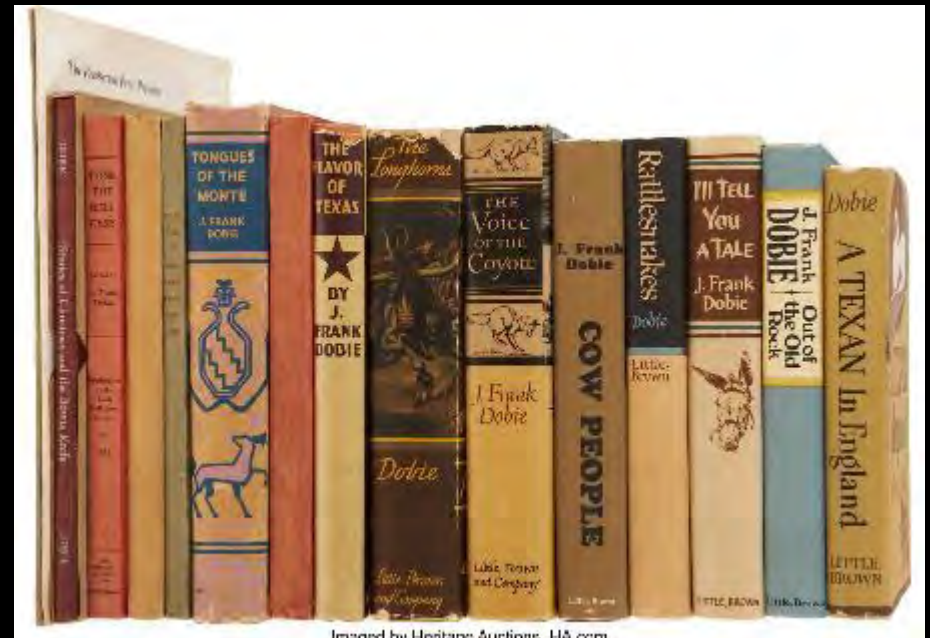
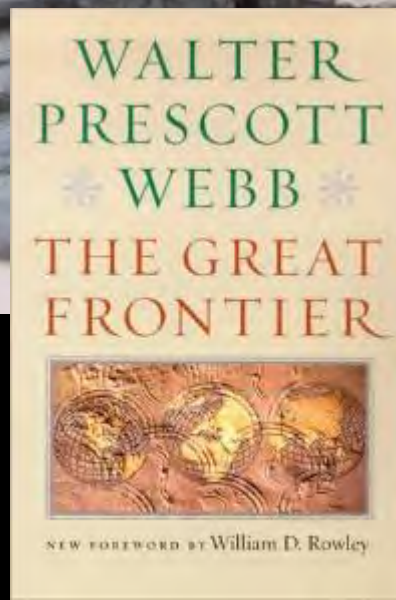
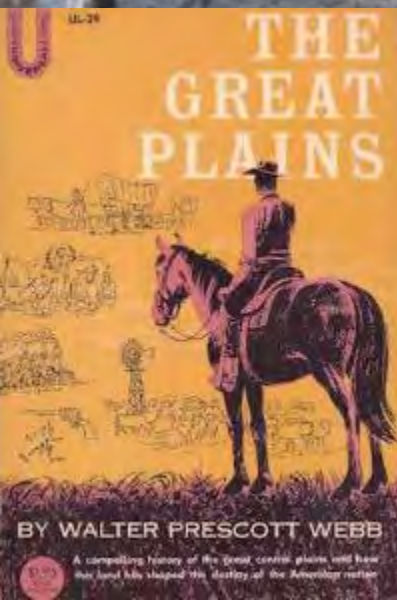




He shared a love of Texas with two UT faculty members, **J. Frank Dobie** of the English Department, and **Walter Prescott Webb** of the History Department.

"Dobie writing of its folklore, Webb of its frontier history, and Bedichek of its birds, its animals and native plants, and of the way of life of its people"

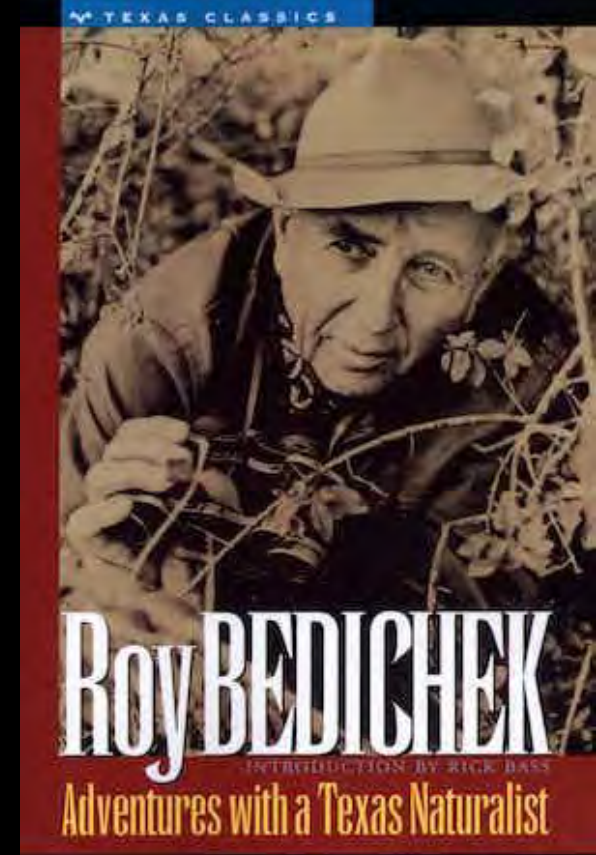
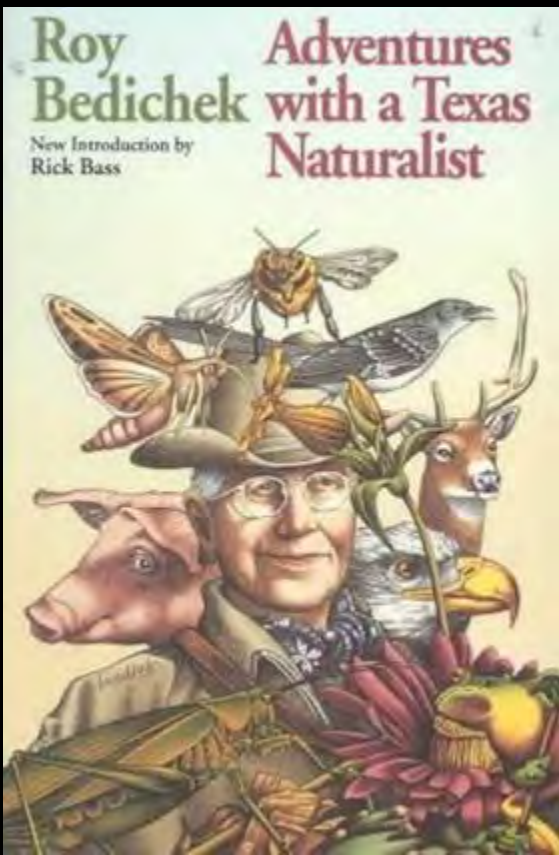
Webb and Dobie arranged for him to spend a year before his retirement writing his first book at Webb's Friday Mountain ranch, about sixteen miles southwest of Austin.



The Best Texas Nature/Ecology Book

Published 1947

(when Bedichek was 69)



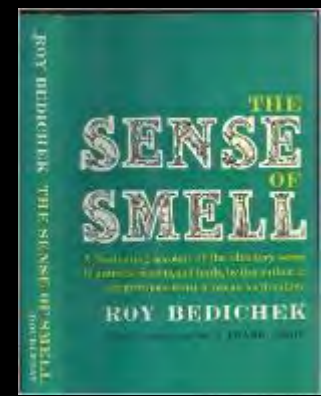
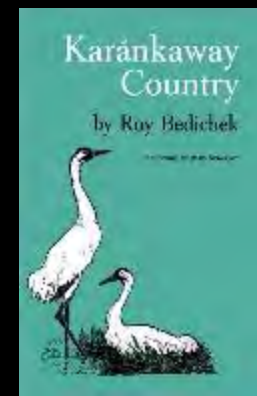
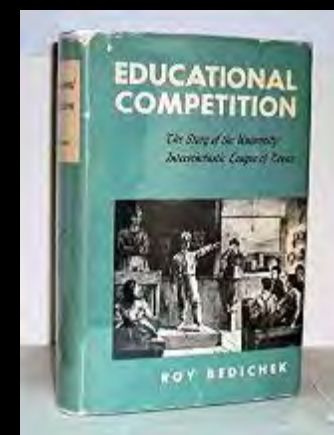
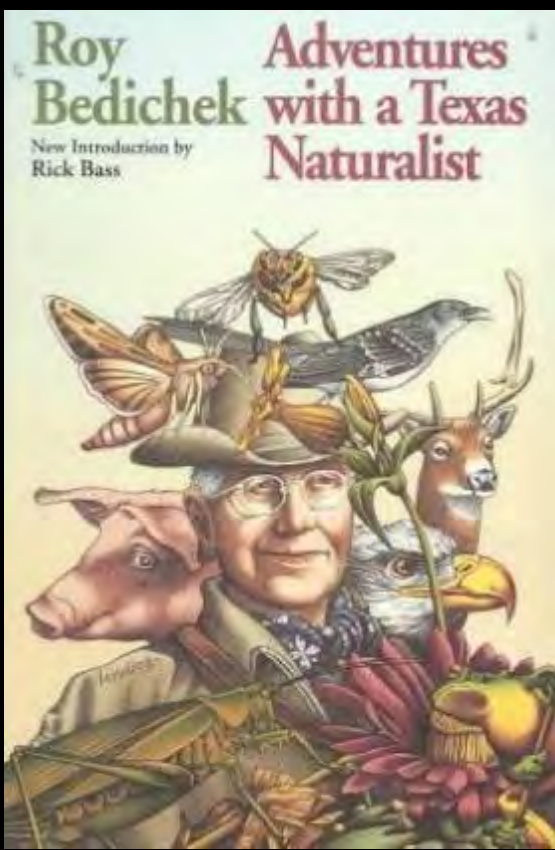
Texas Nature and Roy Bedichek (1878-1959)

Adventures with a Texas Naturalist (1947)

Karankaway Country (1950)

Educational Competition: The Story of the University Interscholastic League of Texas (1956)

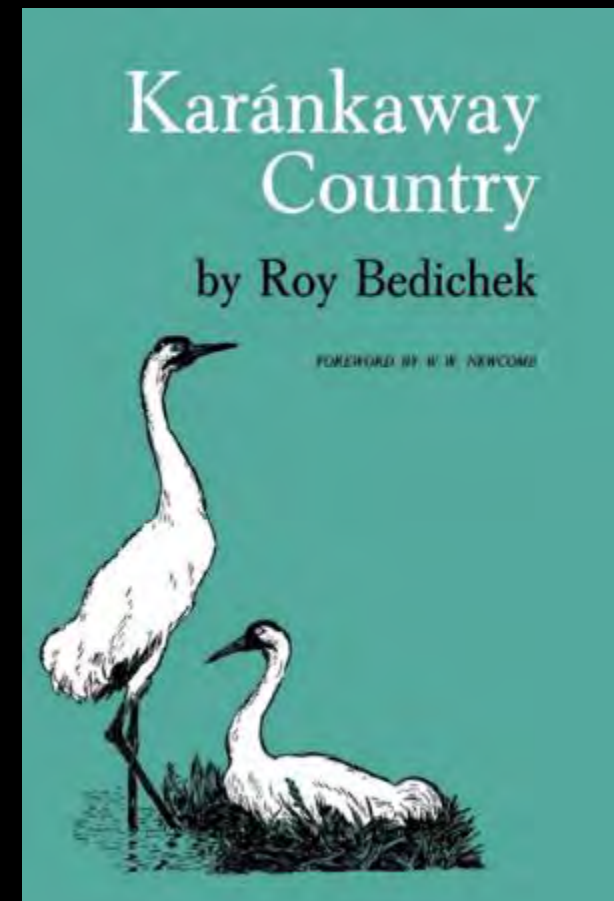
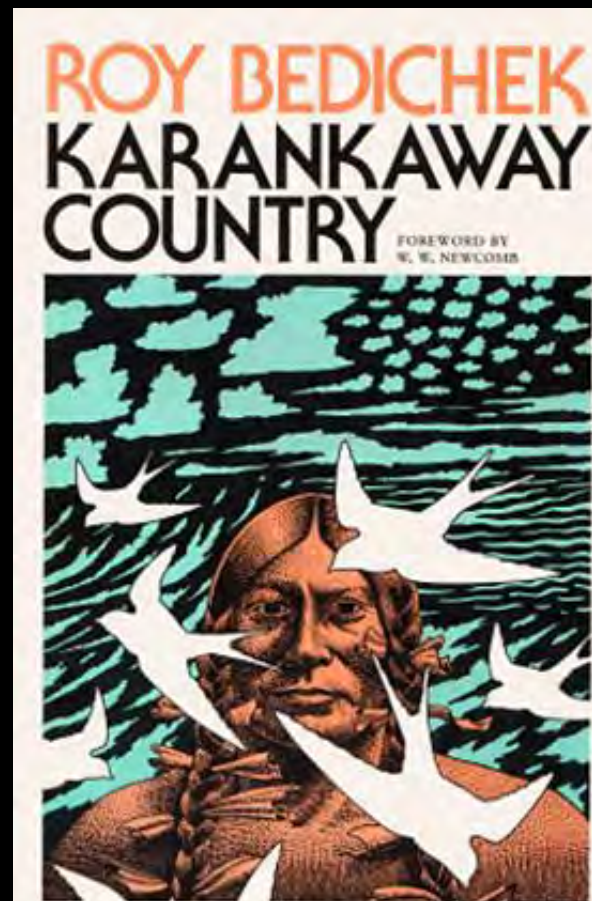
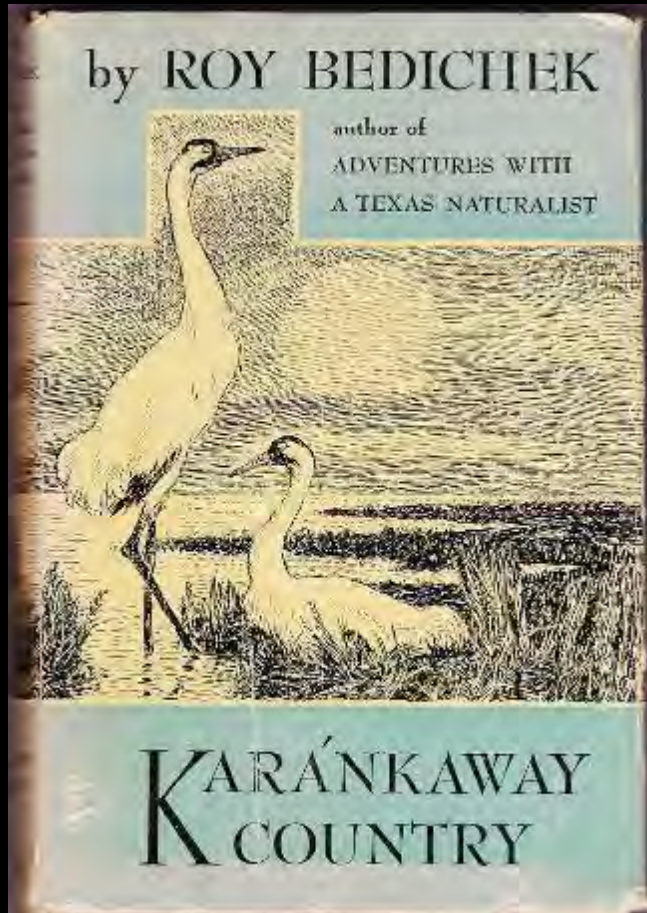
The Sense of Smell (posthumous 1960)



The Best Texas Rivers Book

“Texas has a river unity which invites unified treatment of Texas rivers”

The Texas Institute of Letters Collins Award for the best Texas book of 1950



The Prophet of Texas Nature/Ecology – 1883-1903

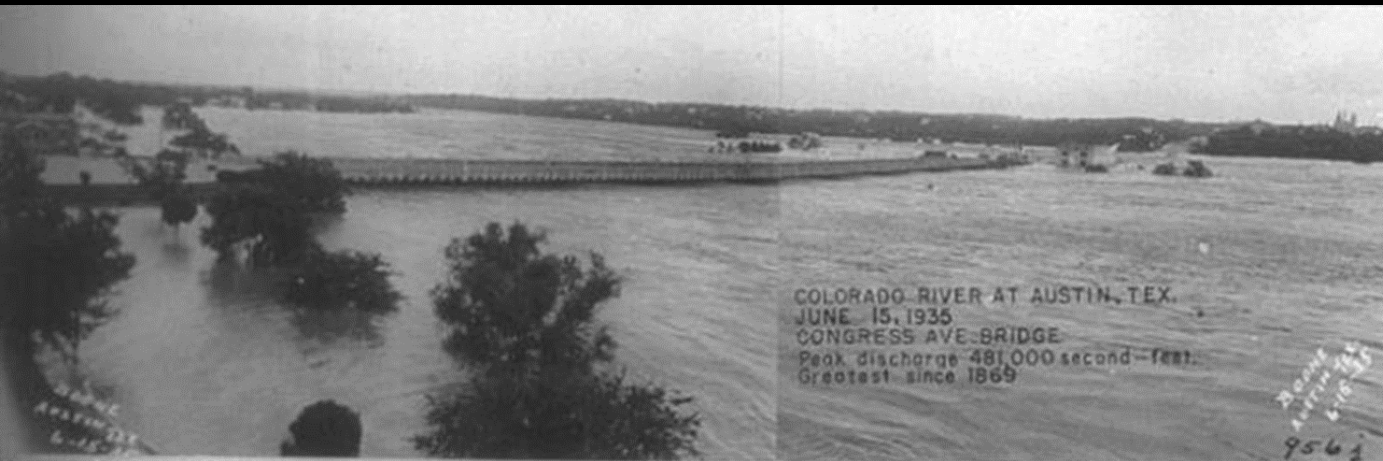
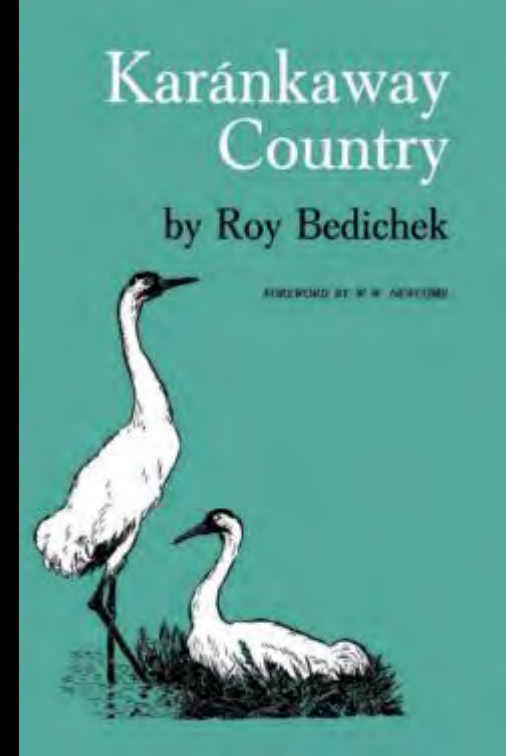
“I have seen in my boyhood days the crown and upper slopes of gentle hills, on which the black soil is mixed with fragmented limestone, produce ninety bushels of oats to the acre. Now many of these slopes are all bleached out, pale as death, and really dead in so far as ability to support vegetable life is concerned. Many old-timers have seen bale-to-the-acre land in 1883 abandoned as worthless in 1903.”



Karánkaway Country 1950

An Environmental Polemic about Texas Rivers

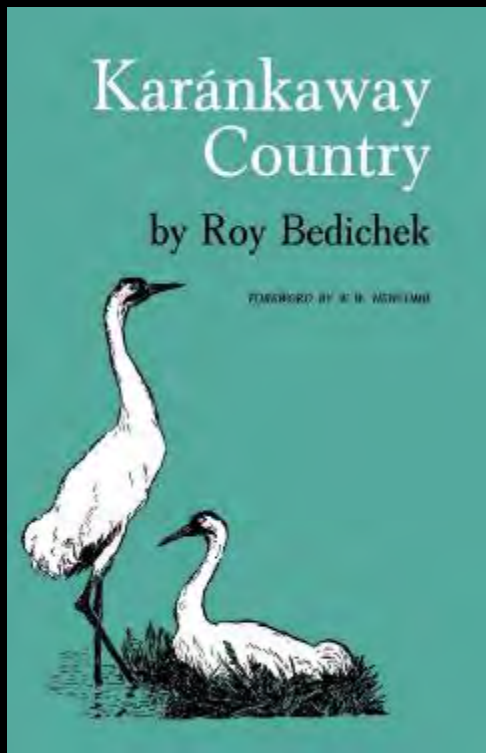
- “A river is not a colt to be ‘broken,’ trained, stalled, and depended upon thereafter to do the will of his master.”
- “The river is a living organism, or at least it presents characteristics so similar to those of a living organism that to speak of it as such is more than mere metaphor.”
- “A river system is one of Nature’s units, and it must be dealt with as such if it is to be dealt with successfully for serving human needs.”



The Colorado and The Brazos

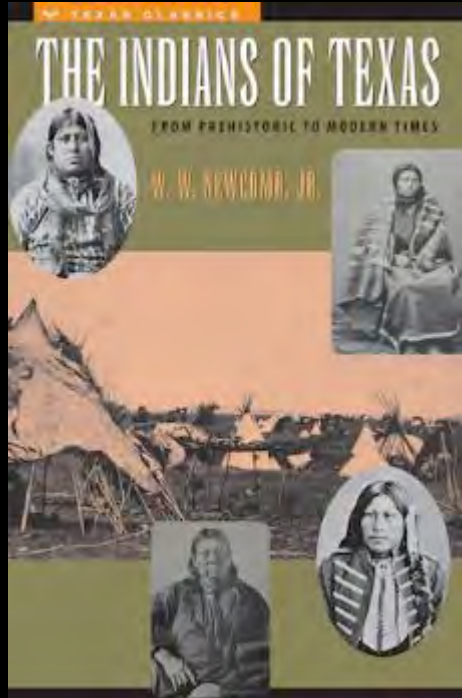
“The two longest rivers in Texas empty in the Karánkaway Country only fifty miles apart. Their drainage basins spread out to a width of 250 miles to take in the very heart of the state, and *finally come again within shouting distance of each other at their sources*, six hundred miles as the crow flies from the Gulf.

Each delivers an immense burden of silt; and extensive impounding and hydroelectric developments have been completed along their courses, with others in progress, and much more on paper. These are my reasons for selecting this Karánkaway Country for observation...”



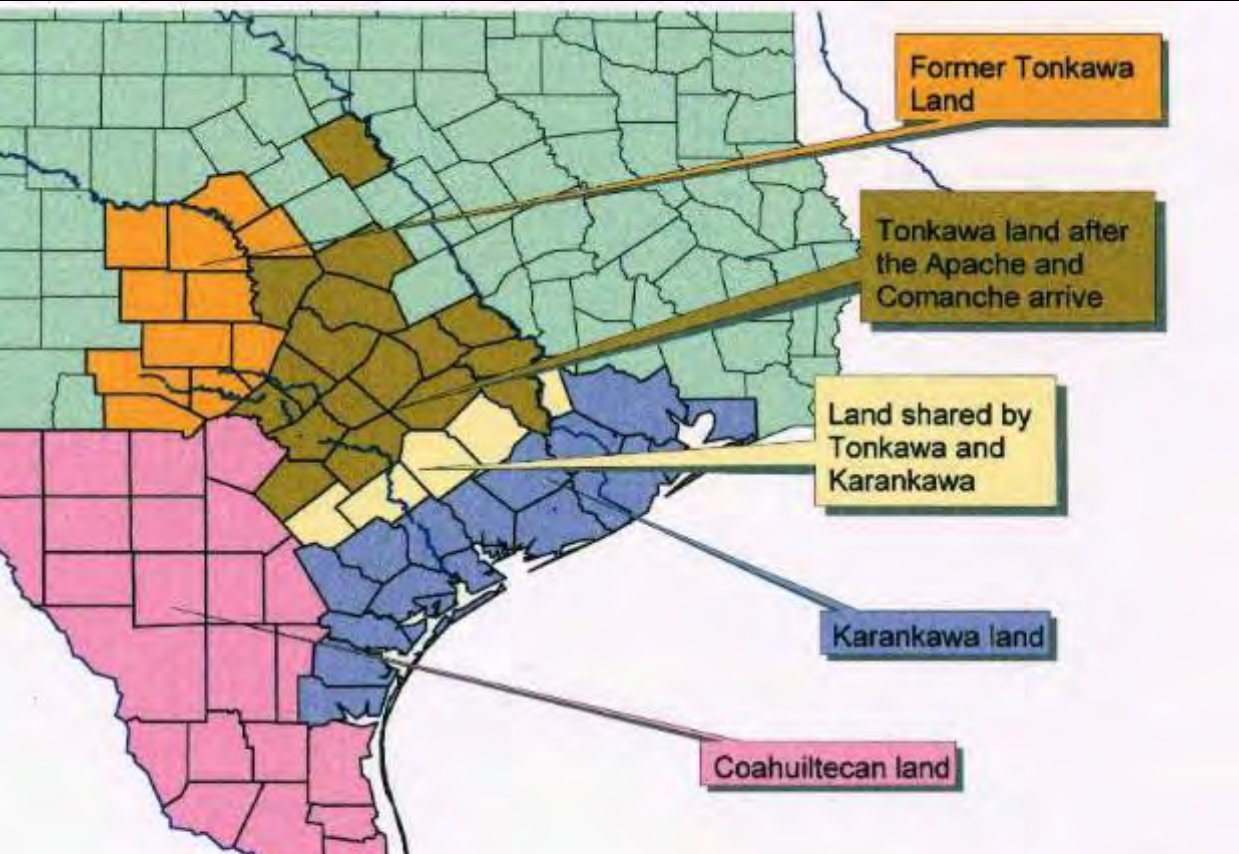
Karankawas

“The meaning of the name *Karankawa* is not certain. It is believed to mean "dog-lovers" or "dog-helpers." That rendering seems credible, since the Karankawas had dogs, which were a fox or coyote-like species. Indian houses were dome-shaped, pole-frame structures covered with hides or mats. Dugout canoes were made for transportation on the rivers, bays and lagoons behind the barrier islands, but were unsuited for travel in the open sea. Hunting, and even some fishing, was with carried out with the bow and arrow.” (Newcomb 1983)

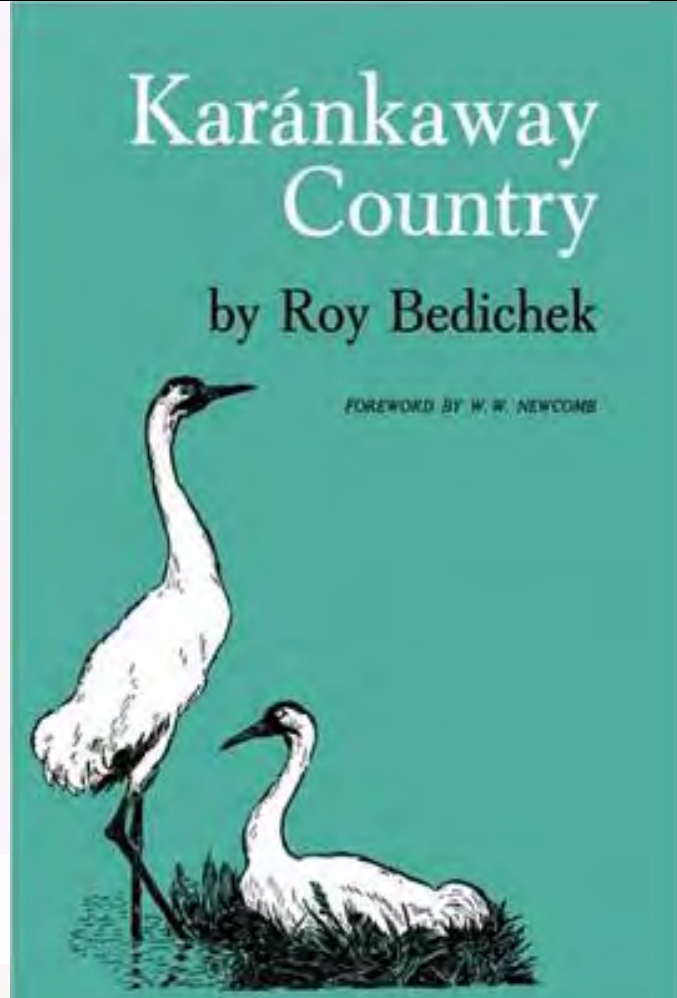


Bedichek the Polemical Anthropologist

“The Karánkaways are gone. Only bitter memories of them remain. In the minds of our people they are eternally damned, largely because they refused a culture we offered ...We won the material war, exterminating the enemy. We also won the war of words, that is the propaganda war, establishing them as fiends in human form and ourselves in posture of nobly extending a succoring hand *which they obstinately refused.*”



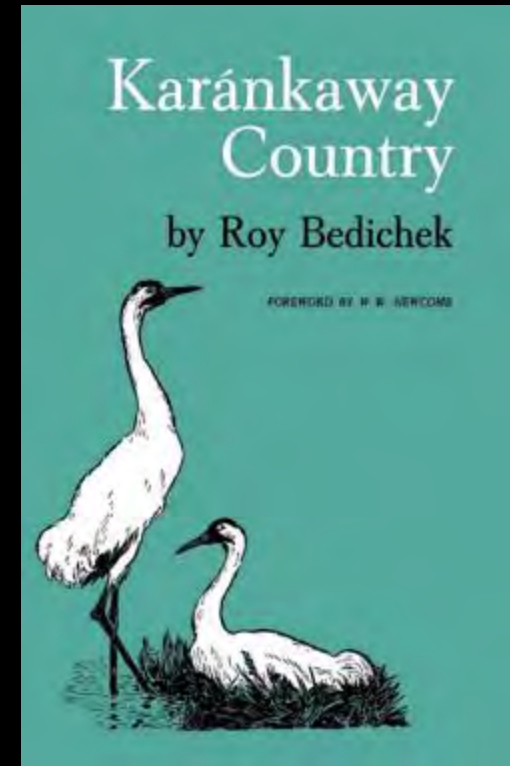
The Karánkawa Country



The Watershed as a Reservoir (the Sponge) – the Little Waters

“Under natural conditions, *the whole expansive watershed was a giant sponge* which was pressed by gravity ever so gently, ever so steadily, to drain its life-giving contents...Formerly, timbered bottoms, brushy hillsides, and wide grasslands, thickly sodded, soaked up rain water like a sponge.

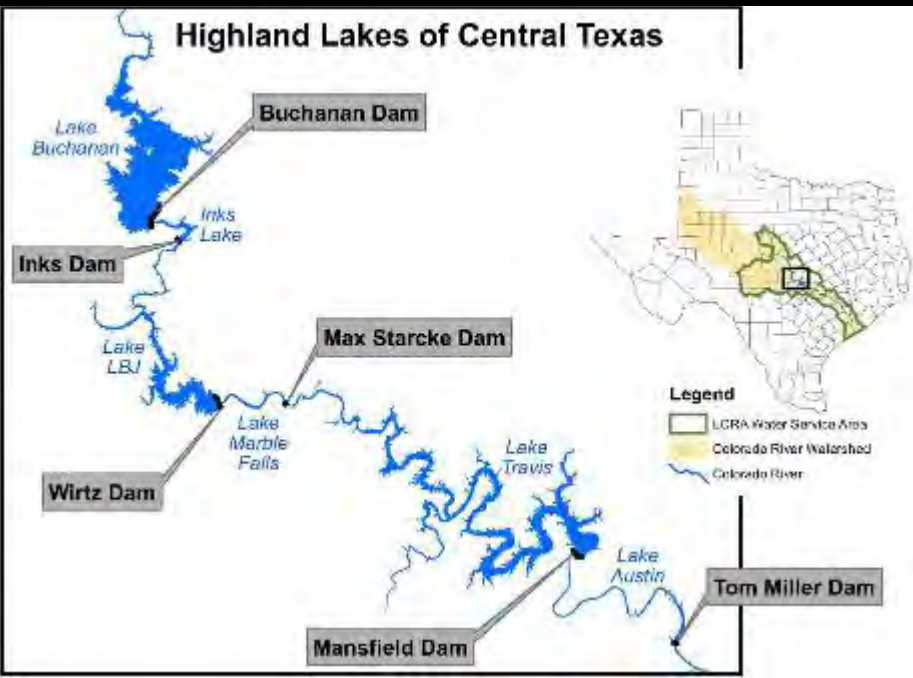
It seeped into the subsoil and eventually filled sandy underground strata from which it found its way by devious paths into bubbling springs at lower levels, trickling off to join other trickles to form (on still lower levels) streamlets whose confluence made streams – all moving unhurried in a widespread network toward the river channel..”



Polemical - The Big Waters People - Dams 1930-1950

“It is a mistake to assume that the big dams catching water from eroded and still eroding watersheds store more than was stored in the days when natural forces detained rainfall in the highlands and let it gradually leak away. Compared with the original uses to which rainfall on Texas watersheds was put, big dams *merely salvage rather than conserve.*

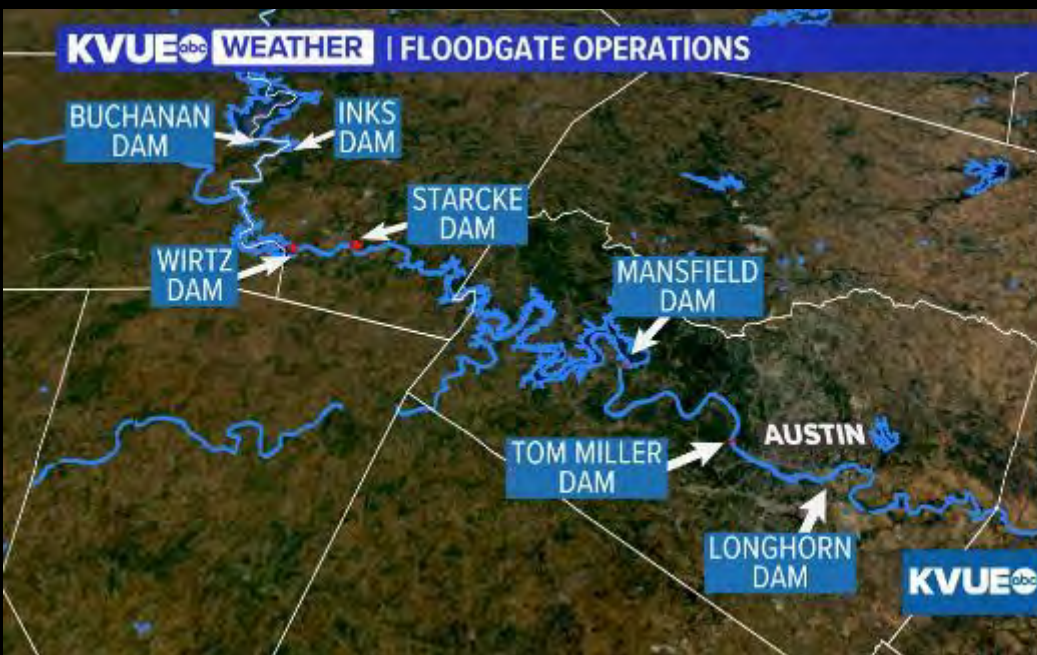
We have relocated the reservoir and changed its character, each for the worse.”



The Little Waters People

“The Little Waters people simply propose to reinstate Nature’s plan in so far as it can now be re-established...Floods came then as now – ten, fifteen inches of rainfall in a day over limited space – but the soil, well covered, took no pounding, and waterways were lined with vegetation which cushioned the assaults and tamed the rage of plunging waters.”

“The attack upon river systems embodied in some of the ‘conservation’ plans represents the typical attitude of the white man toward his natural environment, hostile and arrogant rather than gentle and cooperative...”



The Hydrological Argument – River Systems as Nature’s Units

“A river system is one of Nature’s units, and it must be dealt with as such if it is to be dealt with successfully for serving human needs.”

“Nature was not interested in turning turbines or floating barges, but in producing just as much vigorous, varied, and abundant life as possible, dispersed along the way from plains to sea. Some think this is a dream. Not so: the overwhelming proof lies in the land richness and life richness which we found here.”

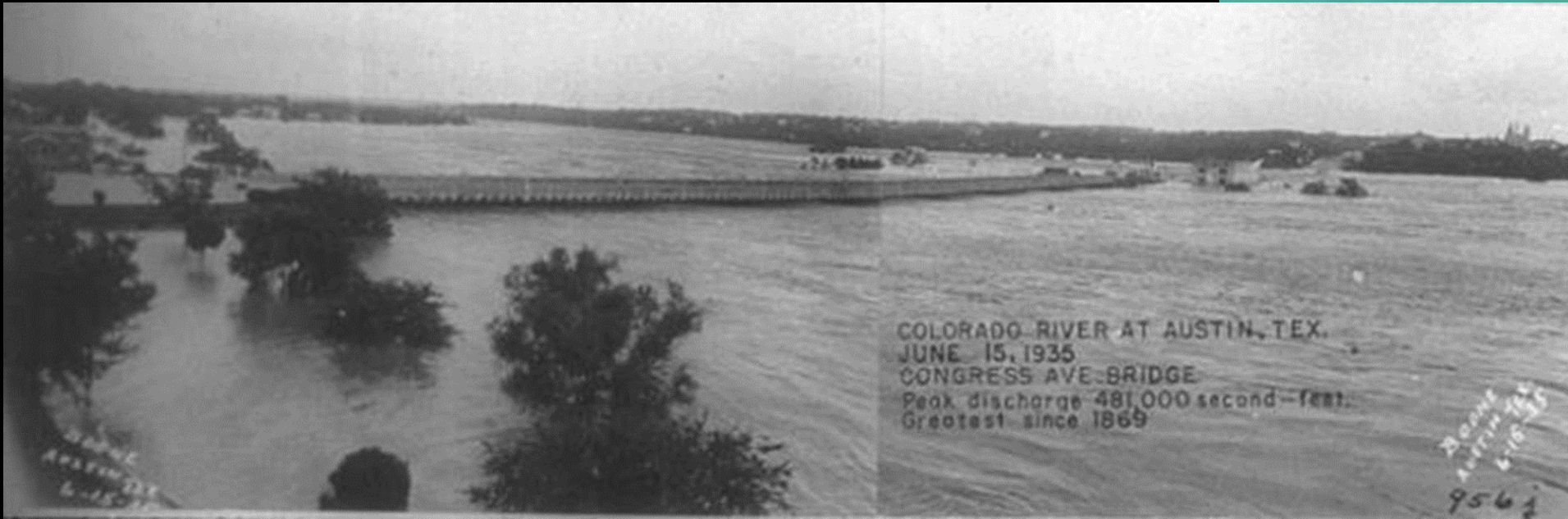
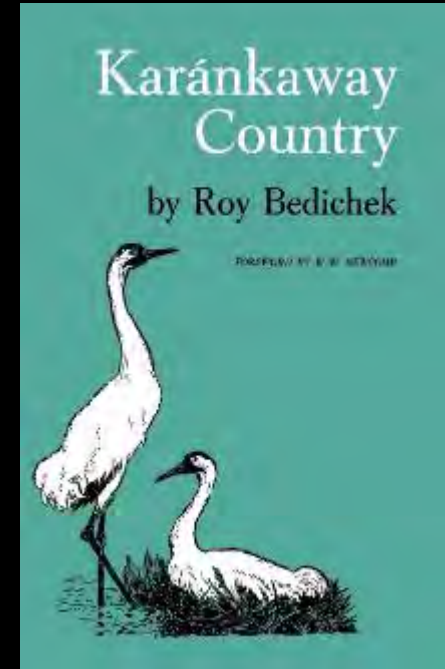


Controlling Texas Rivers Bedichek's Warning from 1950

“A river is not a colt to be ‘broken,’
trained, stalled, and depended upon
thereafter to do the will of his master.

It is eccentric, unaccountable, either has
no law of behavior or often keeps it
secret from human investigators.

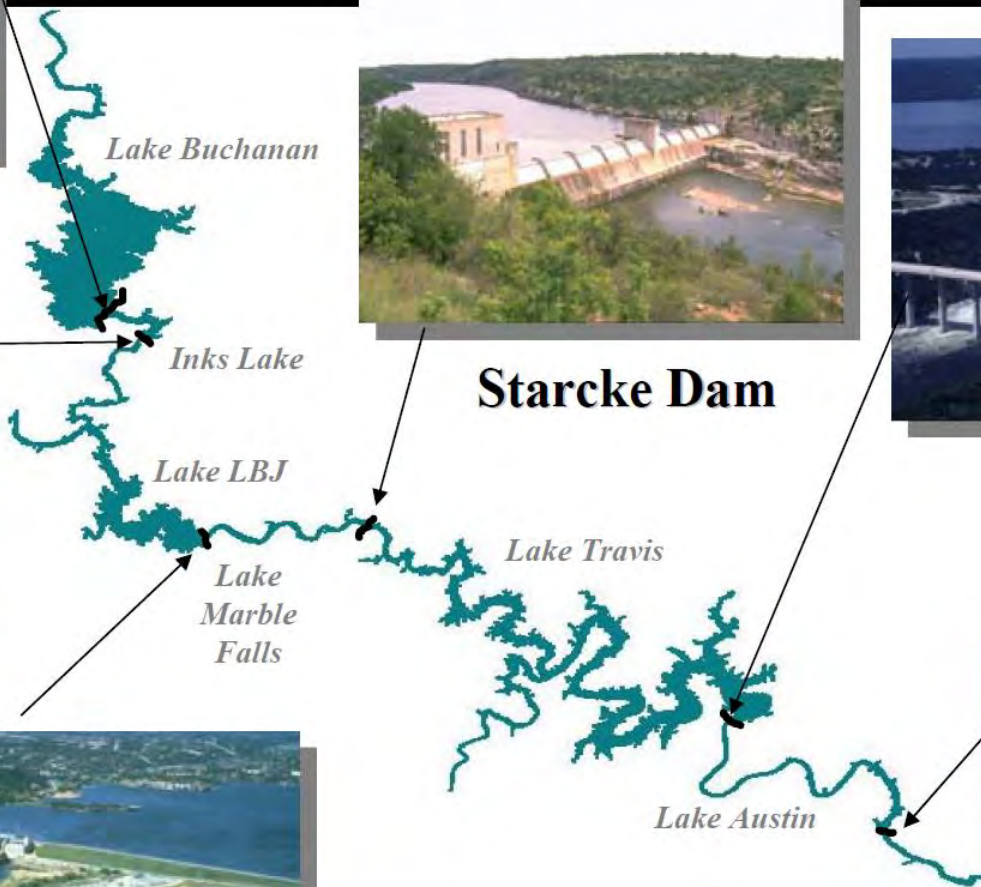
Centuries, even, do not delimit its
extremes.”



Highland Lake Dams



Buchanan Dam



Starcke Dam



Mansfield Dam



Inks Dam



Wirtz Dam



Tom Miller Dam

Chain of Highland Lakes and Dams 1935-1960

Buchanan Dam – 1935 – 1938

Inks Dam – 1936 – 1938

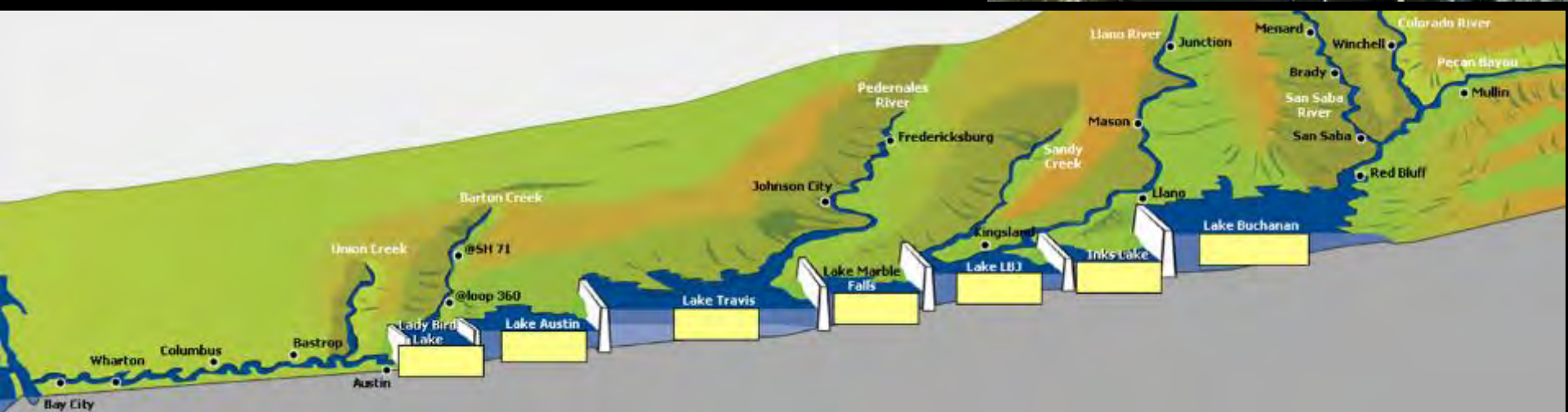
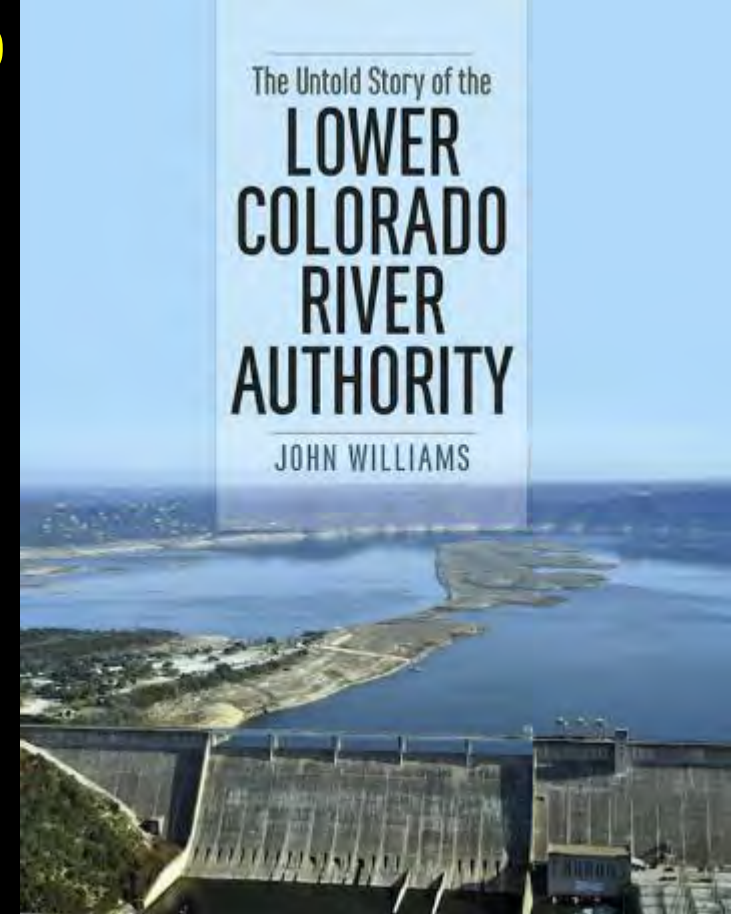
Wirtz Dam – 1949 – 1950

Starcke Dam – 1949 – 1951

Mansfield Dam – 1937 – 1941

Tom Miller Dam – 1938 – 1940

Longhorn Dam – 1960 (City of Austin)



Water Supply - Historic Droughts

1917 The whole current of the river plowed a narrow furrow through the silt above the dam, and the channel was so narrow that it was easy to hop across it at one jump.

University of Texas Bulletin

No. 2439: October 15, 1924

SILTING OF THE LAKE AT AUSTIN, TEXAS

By

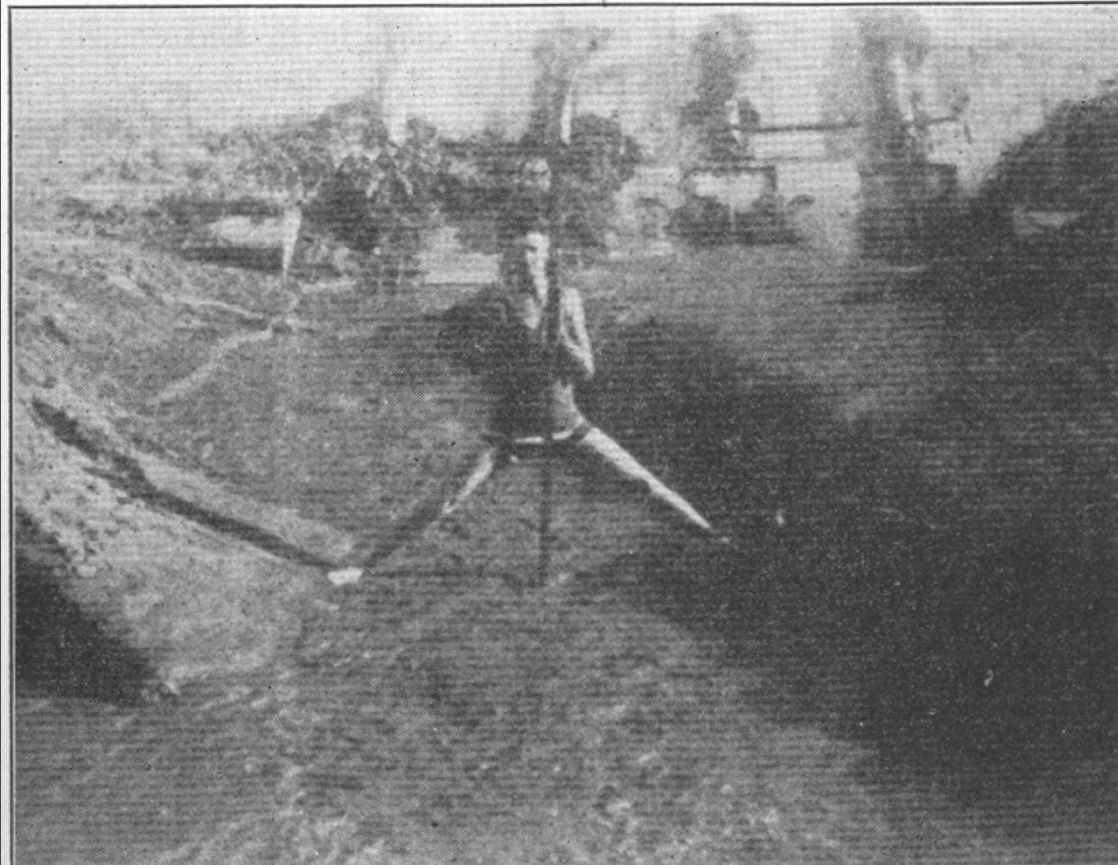
T. U. TAYLOR

Professor of Civil Engineering

At this time, the whole discharge of the Colorado River was only 9cfs immediately above the dam.

Native grasses are so severely damaged that invasive species permanently take over many areas. The federal government sends 1400 boxcars to evacuate starving Texas cattle.

illustrates the width of the stream where the man in the bathing suit is astride the whole channel of the river, as it flowed along the narrow furrow that it had cut in the silt. The stream at this point was about four feet wide.



Historic Droughts

1925 - High temperatures and low rainfall set records for the worst one-year drought that stand for the next 86 years.

1930-1935 - Dust Bowl drought leads to staggering economic losses and displaces thousands from the land. Amarillo experiences an average of nine dust storms per month every spring.

1950-57 - Catastrophic drought lasts for years and galvanizes Texas into scientific water planning, with 1950s conditions enshrined as the “drought of record” (meaning, the worst-case scenario).

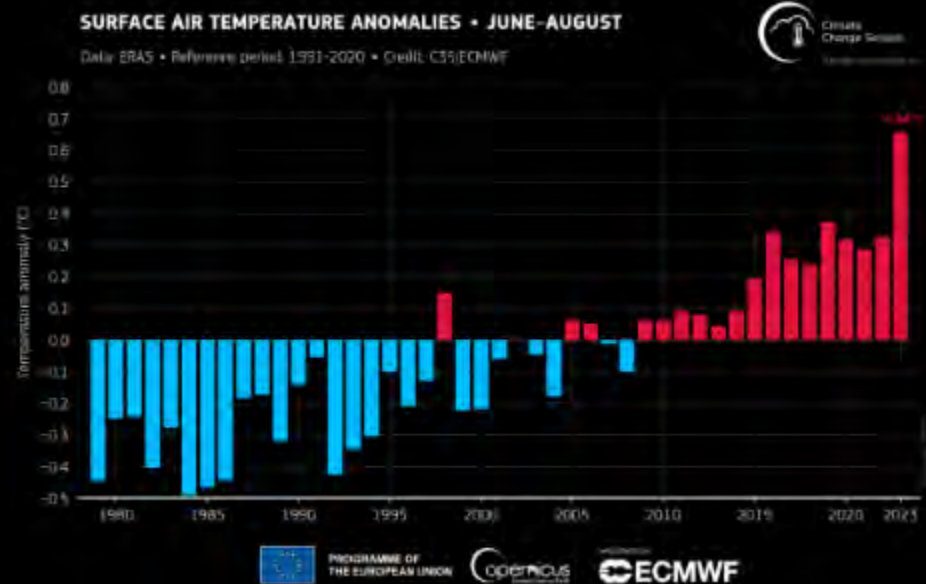
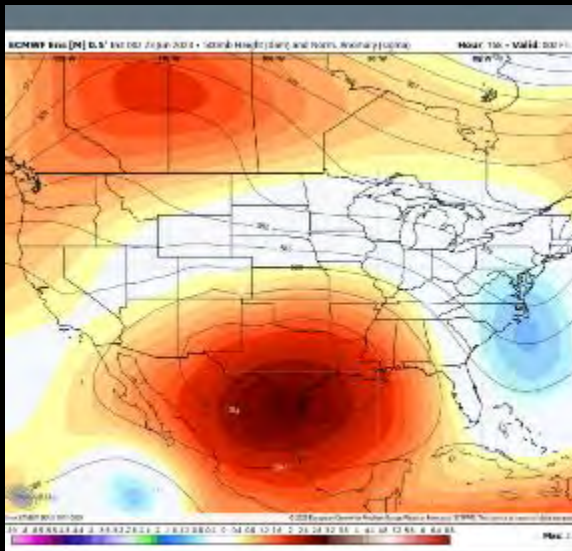
1971 - Severe drought destroys wheat and cotton crop and kills 100,000 cattle. In areas of north Texas, only a single inch of rainfall is received for the entire year. The Red River goes dry.

2011 - Hottest, driest one-year period ever recorded in Texas...until...



2023 Texas just recorded its second hottest summer on record

- The World Meteorological Organization - June-August 2023 was *the hottest three-month period in recorded history across the Earth*.
- The summer of 2023 - an average temperature of 85.3 degrees between June and the end of August, just behind the blistering hot and extremely dry summer of 2011 when the average temperature hit 86.8 degrees.
- 79 of the state's 254 counties had their hottest summer on record, while *the July average water temperature in the Gulf of Mexico was the hottest ever recorded*. Then, August clocked in as the second hottest month in Texas since 1895 when the state began keeping records.



Climate Change - Austin Summers

- Though Mabry records extend back to 1897, all of Austin's 10-hottest summers on record have come since 1998.
- For 2023, there were *80 days where the high at Camp Mabry made it to 100° or more*. The second most highs in three figures, topped by the 90 that baked this area in 2011.
- Austin Camp Mabry recorded *temperatures of 105 or more for 11 days in a row* from July 10 to July 20, breaking the record set in 1923.
- As the climate warms, *Austin's summer temperatures have warmed by 2.4°F in the last century*. We now average 30 100° days each summer — triple the average 100° day count between 1969 and 1999.

IN-DEPTH HOTTEST SUMMER ON RECORD
JUN. 1 - AUG. 31 / AUSTIN-BERGSTROM INTL. AIRPORT

1)	87.1°	2023
2)	86.7°	1954
3)	86.6°	2011

Average: 83.9°



FIRST WARNING WEATHER HOTTEST SUMMER ON RECORD
JUN. 1 - AUG. 31 / AUSTIN - CAMP MABRY

1)	89.5°	2011
2)	89.4°	2023
3)	88.8°	2022

Average: 85.0°



FIRST WARNING WEATHER SEPTEMBER 2023
AUSTIN-CAMP MABRY

SUN	MON	TUE	WED	THU	FRI	SAT
					1 100°	2 101°
3 102°	4 102°	5 104°	6 103°	7 105°	8 107°	9 104°
10 99°	11 98°	12 94°	13 89°	14 94°	15 89°	16 85°
17 94°	18 96°	19 98°	20 99°	21 97°	22 99°	23 101°
24 103°	25 96°	26 96°	27 96°	28 95°	29 95°	30 95°

Droughts end with Floods - Historic Floods On the Colorado

February 1843 - In the earliest flood for which there is a written account, the Colorado River reached *36 feet at Austin*.

July 1869 – The worst flood on record, the Colorado crests at *51 feet at Austin* with record crests of 60.3 feet at Bastrop, 56.7 feet at La Grange, 51.6 feet at Columbus, 51.9 feet at Wharton and 56.1 feet at Bay City. Bastrop and La Grange are inundated.

- Reports describe rainfall for 64 hours, the river below Austin more than 10 miles wide and floating buffalo carcasses in the river (indicating that some of the floodwaters originated in the High Plains). Damage is estimated at \$3 million.



April 1900 - Flood destroyed the Austin Dam



June 1913 - Flooding over parts of Uvalde County. Montell received 20.6 inches of rain in 24 hours. *Flood merged the mouths of the Colorado and Brazos rivers, forming a lake 65 miles wide.*

1915 - Floodwaters from storms in April and September severely damage the second Austin Dam, completed in 1912.

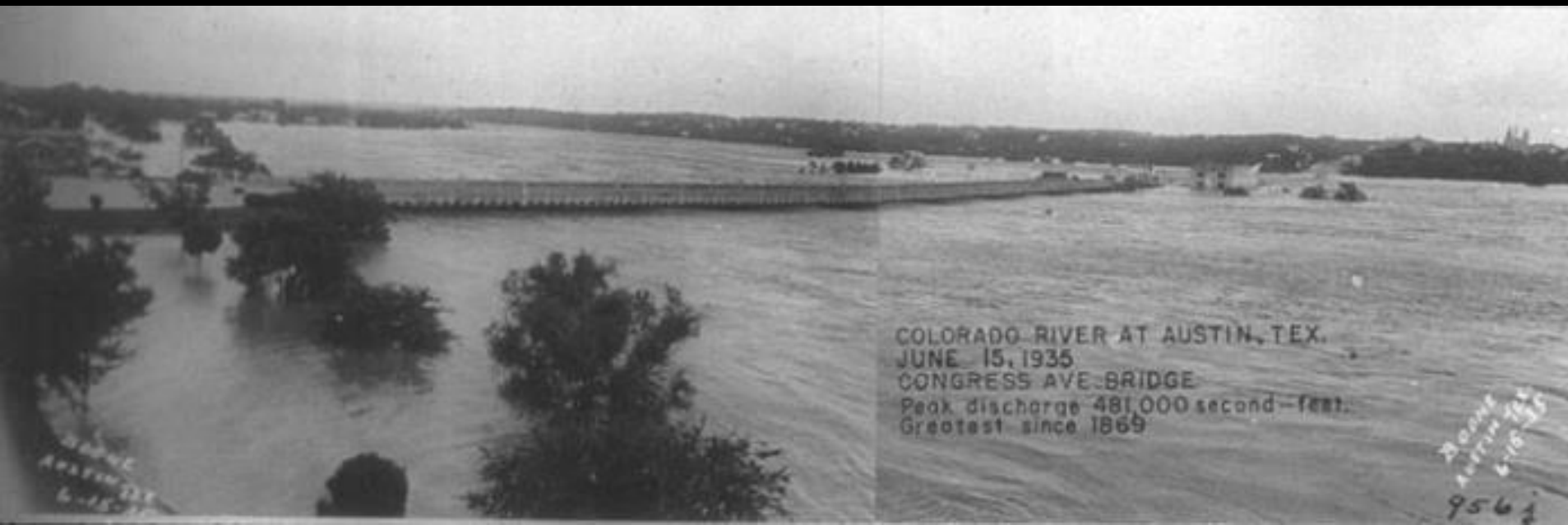


June 1935 - Floodwaters from heavy Hill Country rains cause the Colorado River in Austin to crest at 50 feet, one foot below the 1869 record. The river overwhelms the Congress Avenue Bridge, cutting Austin in half.

The Llano River rises to its highest recorded stage of 41½ feet, streamflow 388,000



008484-A Austin History Center, Austin Public Library



September 1936 - The 1936 flood was created by two major storms in summer and early fall totaling 51 inches over the watershed of the Concho River. Floodwaters from heavy rains throughout the basin pour through the Colorado River at Austin for a 20-day period, cresting at 31.4 feet. Earlier, floodwaters from a 30-inch rain on the Concho River had washed away nearly 300 buildings in San Angelo.



LOOKING NORTH WEST FROM So. CONGRESS
SEPT 28, 1936

July 1938 - Twenty inches of rain over 12 counties pour more than 3 million acre-feet of floodwaters into newly completed Lake Buchanan.

Rains of up to 25 inches over a 10-day period at the storm's center near Brady, upstream of the newly completed Buchanan Dam.

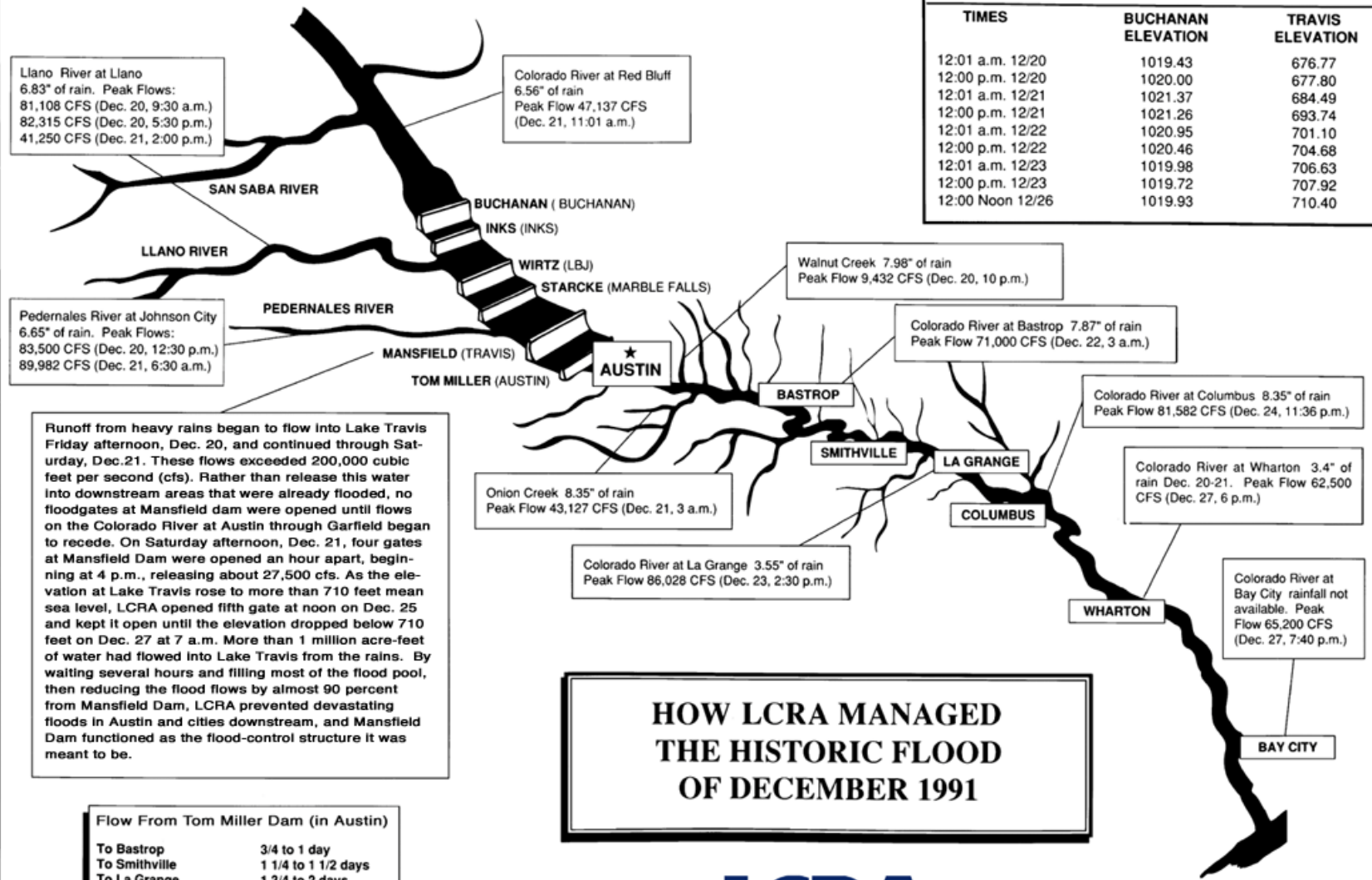
LCRA opened 22 of Buchanan's 37 floodgates (still a record) to pass through the floodwaters.



The "Christmas Flood" of 1991 pushed Lake Travis to its all-time high elevation of 710.4 feet, about 4 feet below the Mansfield Dam spillway. 8-9" rain, 5 Floodgates opened.

Levels at Lakes Buchanan and Travis

TIMES	BUCHANAN ELEVATION	TRAVIS ELEVATION
12:01 a.m. 12/20	1019.43	676.77
12:00 p.m. 12/20	1020.00	677.80
12:01 a.m. 12/21	1021.37	684.49
12:00 p.m. 12/21	1021.26	693.74
12:01 a.m. 12/22	1020.95	701.10
12:00 p.m. 12/22	1020.46	704.68
12:01 a.m. 12/23	1019.98	706.63
12:00 p.m. 12/23	1019.72	707.92
12:00 Noon 12/26	1019.93	710.40



Runoff from heavy rains began to flow into Lake Travis Friday afternoon, Dec. 20, and continued through Saturday, Dec.21. These flows exceeded 200,000 cubic feet per second (cfs). Rather than release this water into downstream areas that were already flooded, no floodgates at Mansfield dam were opened until flows on the Colorado River at Austin through Garfield began to recede. On Saturday afternoon, Dec. 21, four gates at Mansfield Dam were opened an hour apart, beginning at 4 p.m., releasing about 27,500 cfs. As the elevation at Lake Travis rose to more than 710 feet mean sea level, LCRA opened fifth gate at noon on Dec. 25 and kept it open until the elevation dropped below 710 feet on Dec. 27 at 7 a.m. More than 1 million acre-feet of water had flowed into Lake Travis from the rains. By waiting several hours and filling most of the flood pool, then reducing the flood flows by almost 90 percent from Mansfield Dam, LCRA prevented devastating floods in Austin and cities downstream, and Mansfield Dam functioned as the flood-control structure it was meant to be.

HOW LCRA MANAGED THE HISTORIC FLOOD OF DECEMBER 1991

Flow From Tom Miller Dam (in Austin)

To Bastrop	3/4 to 1 day
To Smithville	1 1/4 to 1 1/2 days
To La Grange	1 3/4 to 2 days
To Columbus	2 1/4 to 2 3/4 days
To Wharton	4 1/4 to 5 days
To Bay City	5 1/4 to 6 1/4 days

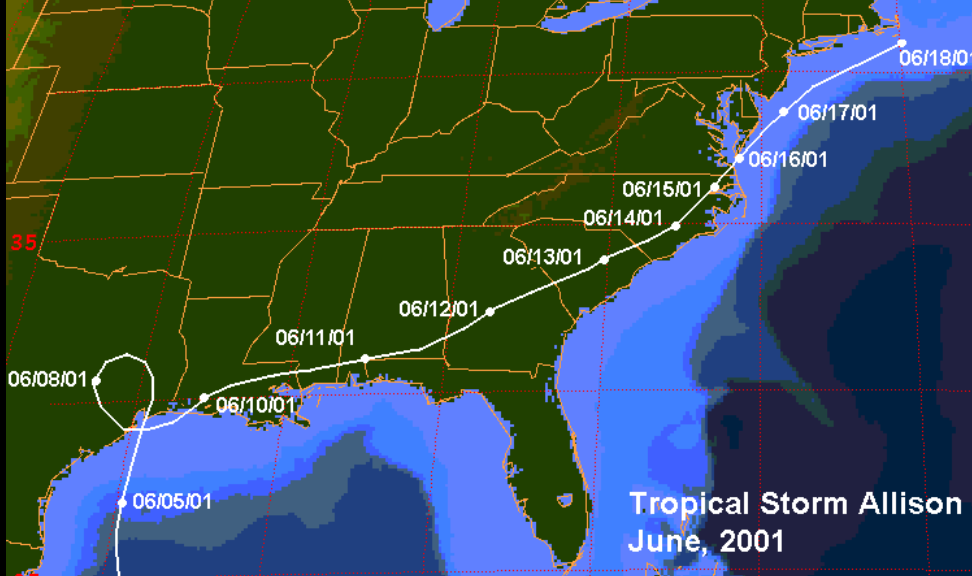


Lower Colorado River Authority
P.O. Box 220
Austin, Texas 78767-0220

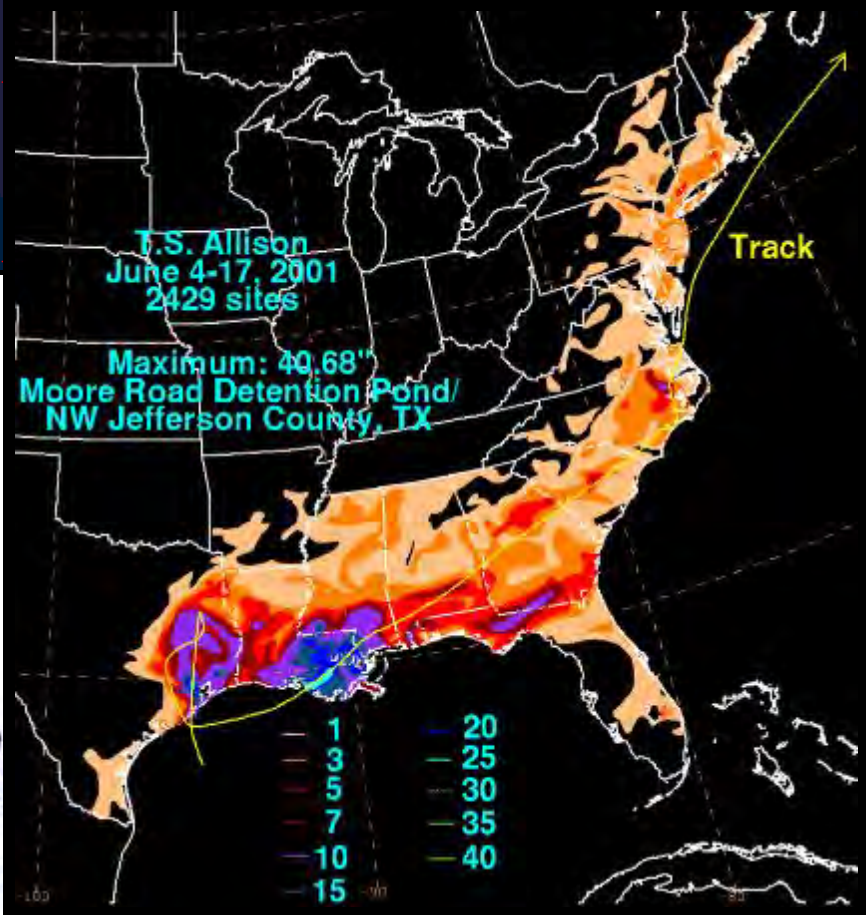
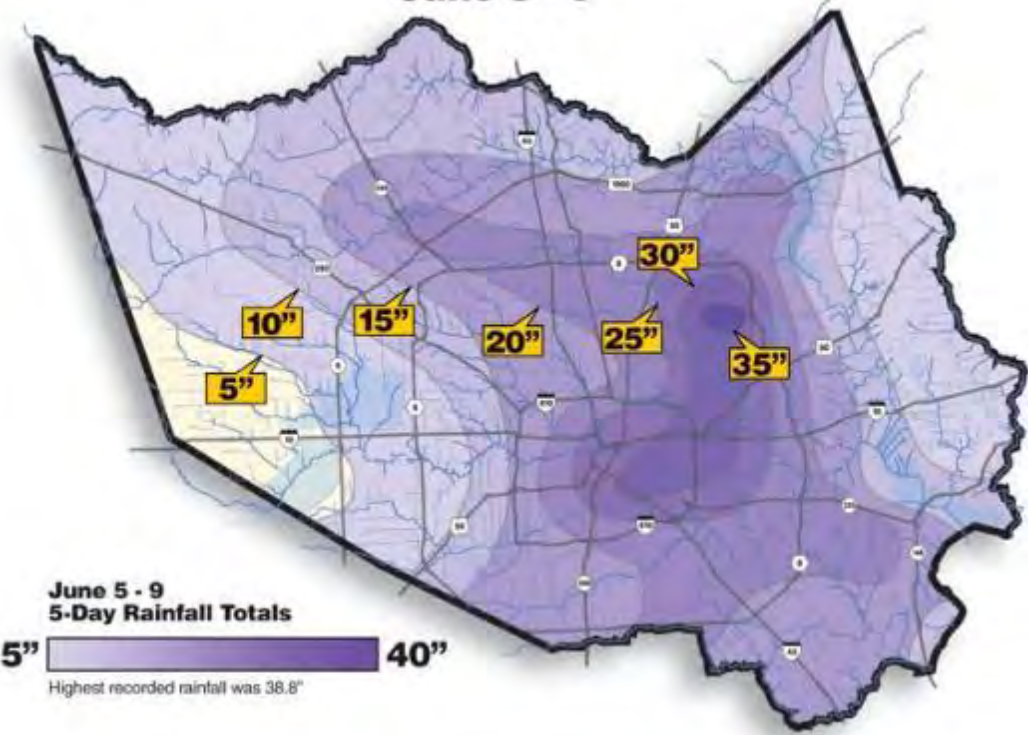
Rainfall amounts from Dec. 20, 1991, 12:01 a.m. until Dec. 24, 1991, Noon. Information on this document is taken from records as of Dec. 31, 1991.

For recorded information on lake levels:
Call 1-800-776-5272, ask for lake levels: in Austin, 473-3333

Tropical Storm Allison June 2001 40.68"



5-Day Rainfall Totals June 5 - 9



“Future Floods on the Colorado River”



A 2008 LCRA study estimated that a Hill Country storm like Allison would have forced LCRA to open all 24 of Mansfield Dam’s floodgates – something that has never happened. (The most that have been opened at one time was six, during a 1957 flood.)

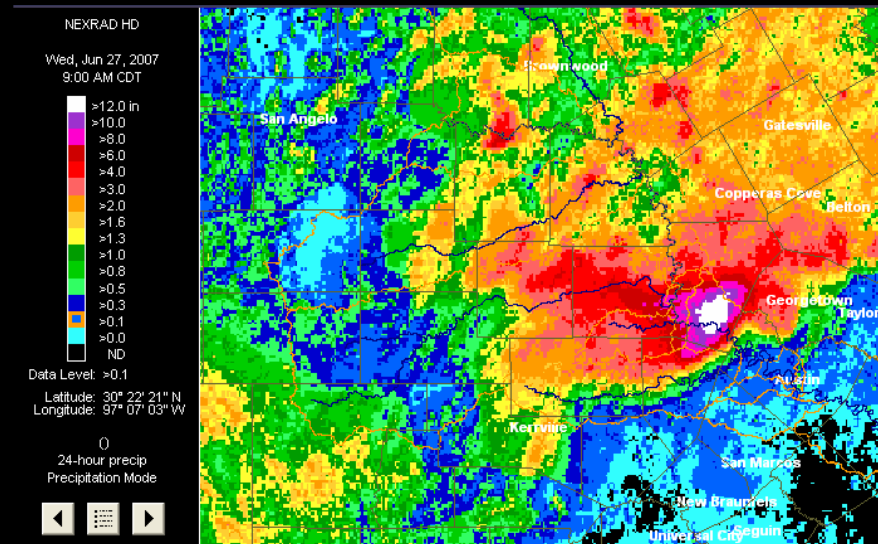
LCRA Chief Meteorologist Bob Rose -

“If that heavy a rain had fallen over a much wider area of our watershed, it could have resulted in a catastrophic flood approaching those of the 1930s.

One day, such a flood will occur, and its impact will be even more devastating to a basin that is much more heavily populated and urbanized than it was seven decades ago.”

Marble Falls Rain Bomb 2007

The highest total of rain measured during the event was 19.06 inches at the Marble Falls 6 ENE Hydromet station. *Approximately 18 inches of rain fell in a six hour period.*



HARVEY RAINFALL AUGUST 25-30, 2017

Nederland, TX 60.58"

Groves, TX 60.54"

Fannett, TX 49.25"

Beaumont, TX 49.06"

Port Arthur, TX 47.99"



HARVEY'S HISTORY

AUGUST 2017



Observed Rainfall & Peak Gusts



Austin / San Antonio
WEATHER FORECAST OFFICE

Tropical Storm Harvey

Peak Wind Gusts

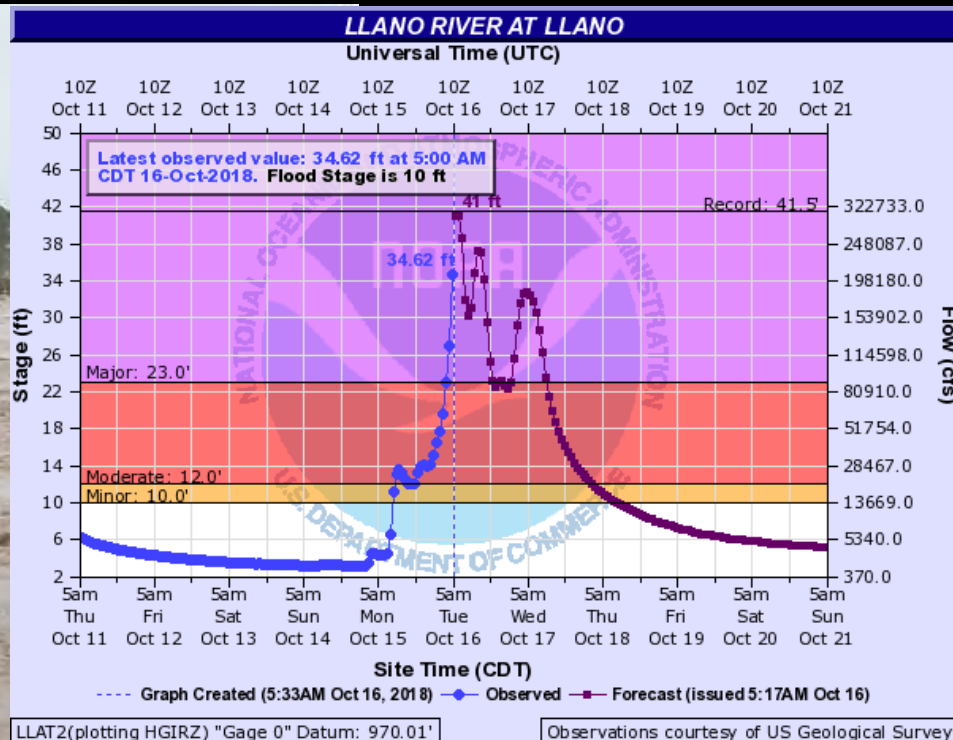
New Braunfels – 58 mph
Randolph AFB – 58 mph
San Marcos – 55 mph
Austin Bergstrom – 54 mph
San Antonio Intl – 53 mph
Austin Executive - 52
Gonzales – 52 mph
Hondo – 47 mph
Pleasanton – 43 mph
La Grange – 40 mph

Rainfall

9 E Smithville – 29.09"	8 SW Westhoff – 12.92"
2 NE Muldoon – 26.63"	Seguin – 11.95"
1 W La Grange – 25.88"	Buda – 11.68"
Carmine – 25.17"	8 E Coupland – 10.29"
Smithville – 23.58"	Elgin – 10.16"
9 SW Gonzales – 21.37"	Austin Bergstrom – 10.07"
Rosanky – 20.55"	Kyle – 9.29"
Giddings – 15.76"	Seguin – 9.03"
Hallettsville – 19.31"	Austin Mabry – 7.94"
La Grange – 18.79"	New Braunfels – 7.03"
7 SE Dale – 16.90"	3 E La Vernia – 7.02"
1 WSW Bastrop – 16.40"	St. Hedwig – 5.67"
6 NE Lockhart – 15.80"	Randolph AFB – 4.23"
Gonzales Airport – 13.44"	San Antonio Intl – 1.94"

October 2018

- Oct 9 - Heavy rain hit the Hill Country. Mason County received over +10" of rain and Lake Travis reported a 3-foot rise. Flooding occurred in the town of Junction, claiming the lives of 3 people.
- Oct 15-16 - With the ground already saturated, a second stalled front led to disaster, triggering 3"-6" of rain across portions of the Hill Country in the morning with 3-day totals adding up to 7"-12".



The Llano River rises to its second highest recorded stage of 41½ feet, with a streamflow of 325,000cfs – second only to the 1935 flood streamflow of 388,000cfs.

Wirtz Dam - Kingsland



4 flood gates open at Mansfield Dam



Longhorn Dam 50,000cfs

Lake Travis rose 25 feet in 24 hours and water flowed into it at a rate of 375,000cfs.

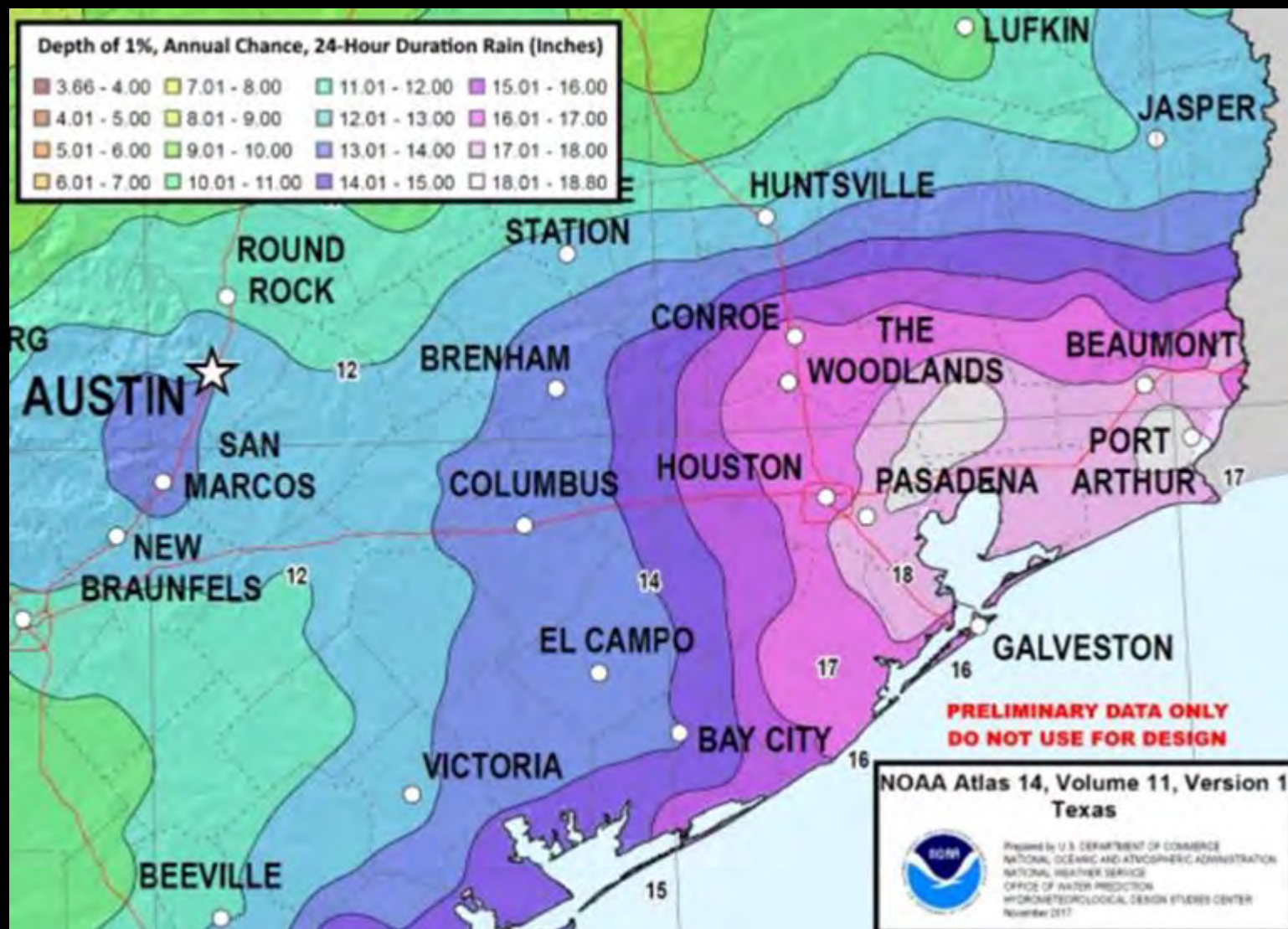
The flooding raised the turbidity of City of Austin's water supply to untenable levels, forcing the city to issue a seven-day boil water notice.

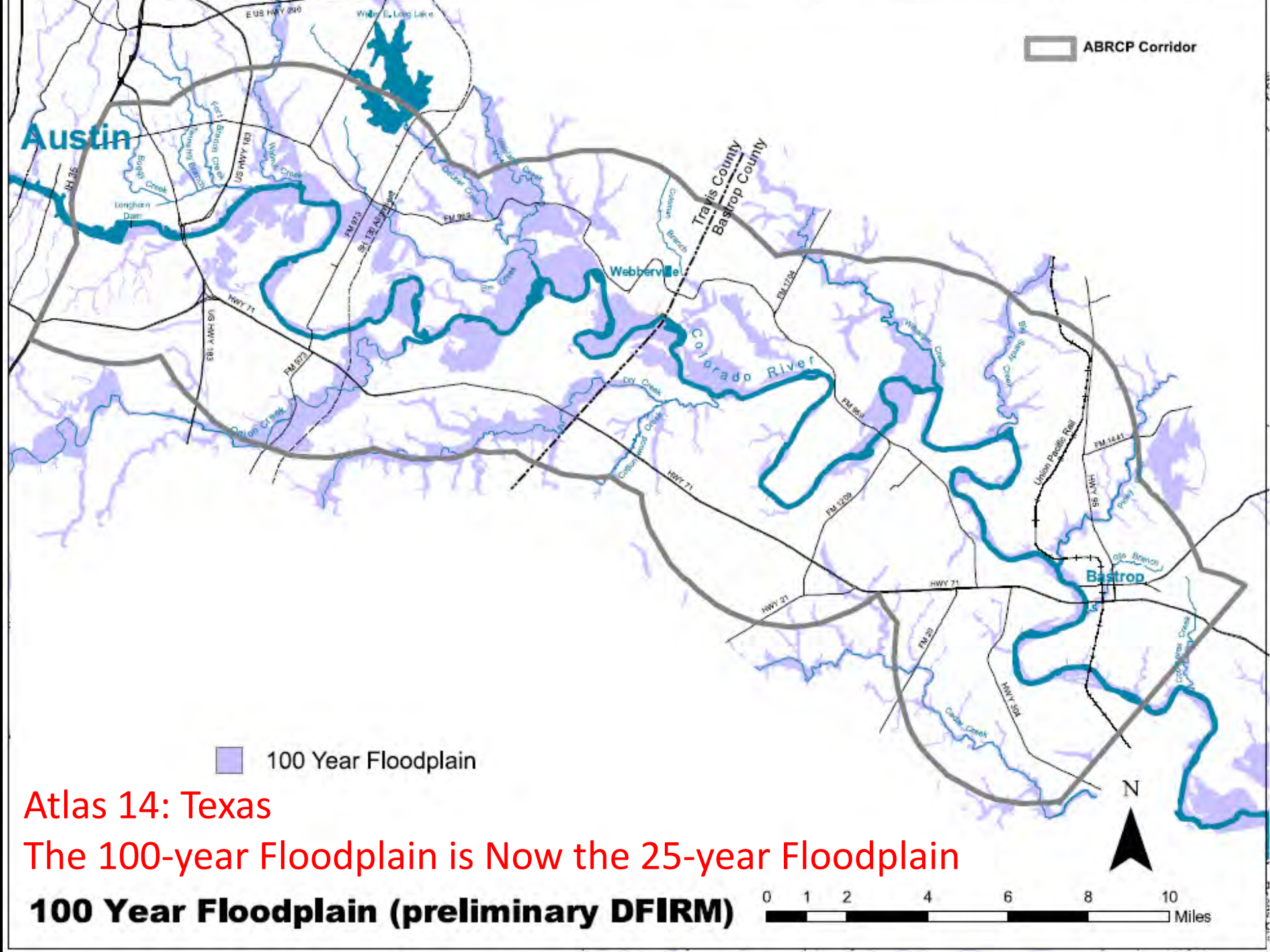
*LCRA prepared to open 8 flood gates.
But the rain ended.*

Atlas 14: Texas – The 100-year Storm is Now the 25-year Storm

In Austin, the 100-year storm was 10 inches in 24 hours.

The new 100-year storm rainfall amount for 24 hours is **13 inches**.





ABRCP Corridor

100 Year Floodplain

Austin

Webberville

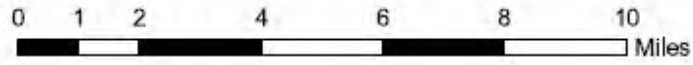
Bastrop

Colorado River

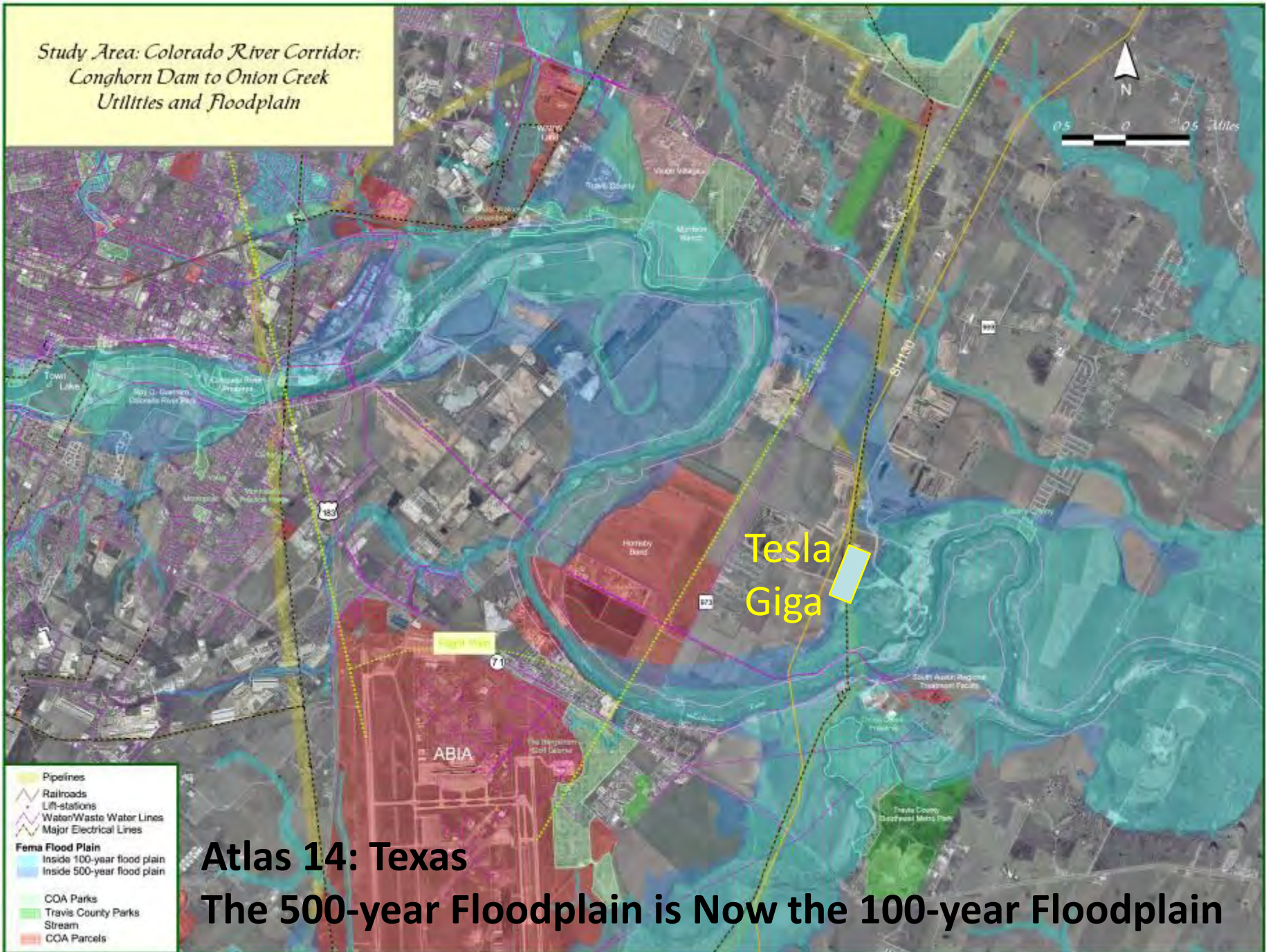
Atlas 14: Texas

The 100-year Floodplain is Now the 25-year Floodplain

100 Year Floodplain (preliminary DFIRM)



*Study Area: Colorado River Corridor:
Longhorn Dam to Onion Creek
Utilities and Floodplain*



- Pipelines
- Railroads
- Lift-stations
- Water/Waste Water Lines
- Major Electrical Lines
- Fema Flood Plain**
 - Inside 100-year flood plain
 - Inside 500-year flood plain
- COA Parks
- Travis County Parks
- Stream
- COA Parcels

Tesla
Giga

Atlas 14: Texas

The 500-year Floodplain is Now the 100-year Floodplain

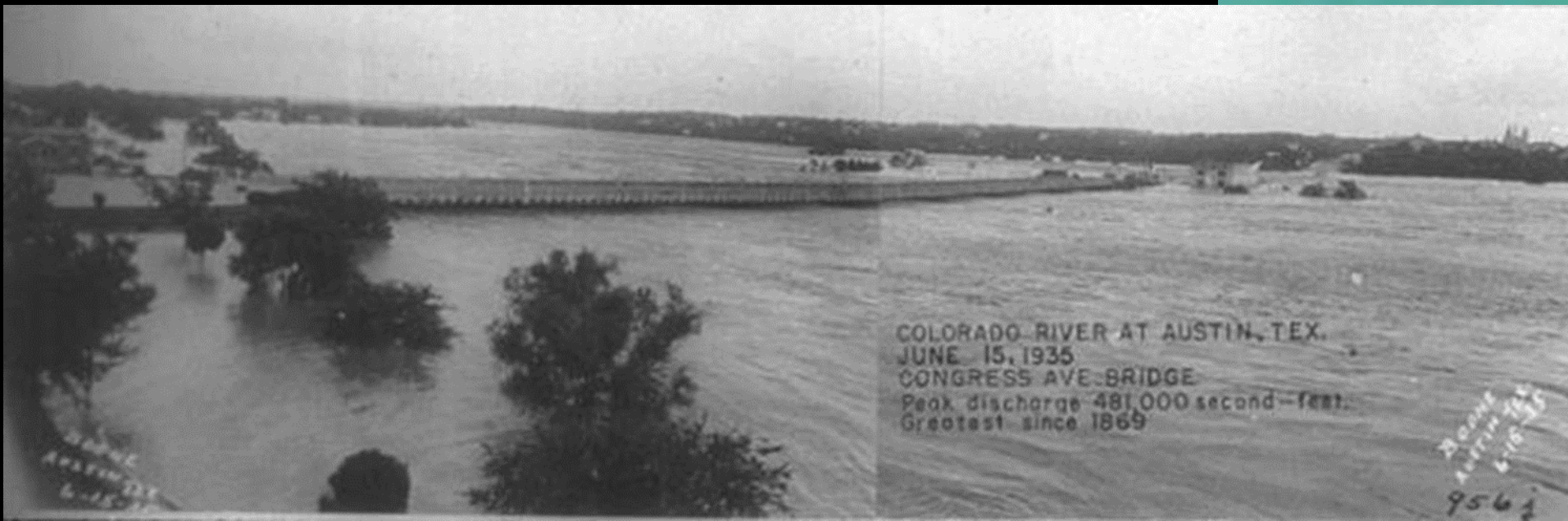
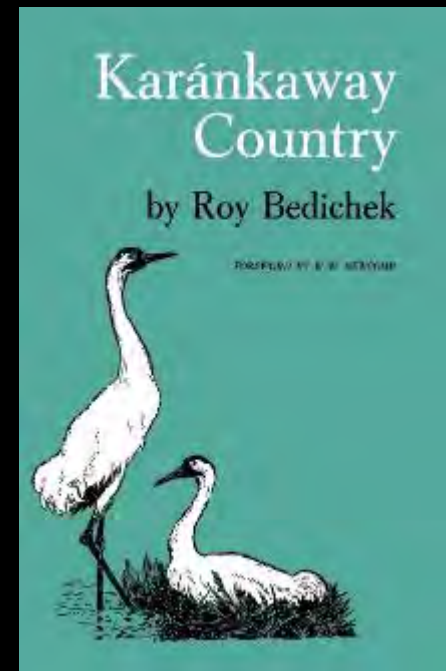
Controlling Texas Rivers - Bedichek's Warning from 1950



“A river is not a colt to be ‘broken,’ trained, stalled, and depended upon thereafter to do the will of his master.

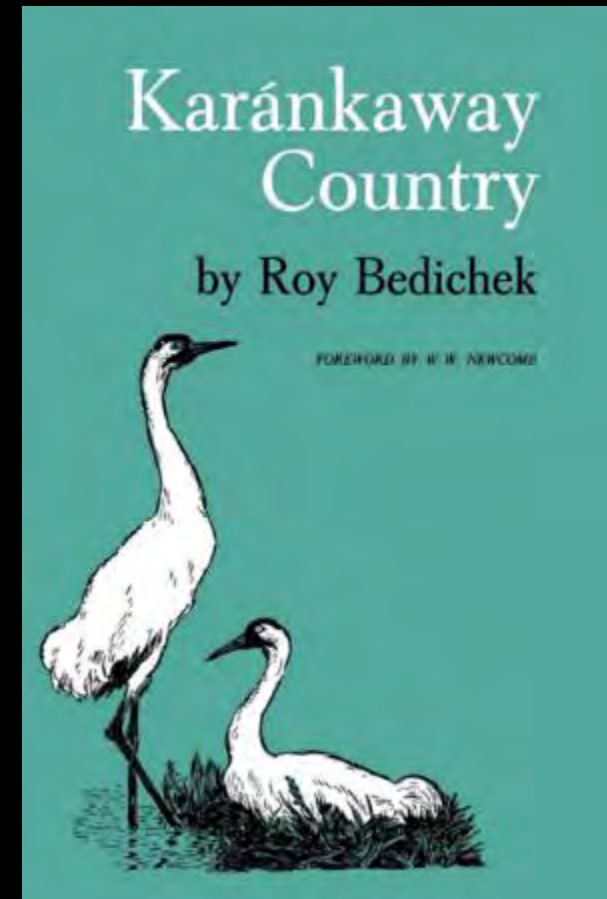
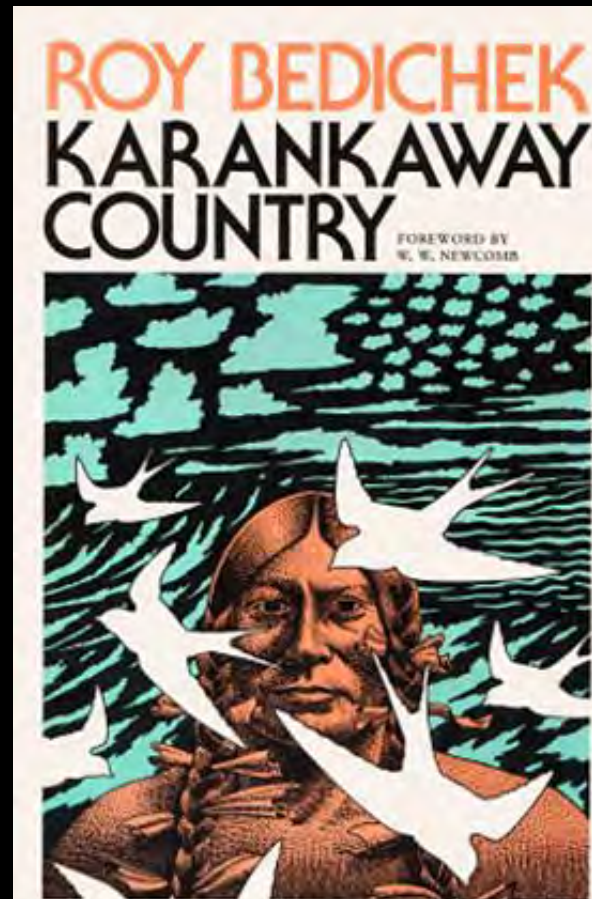
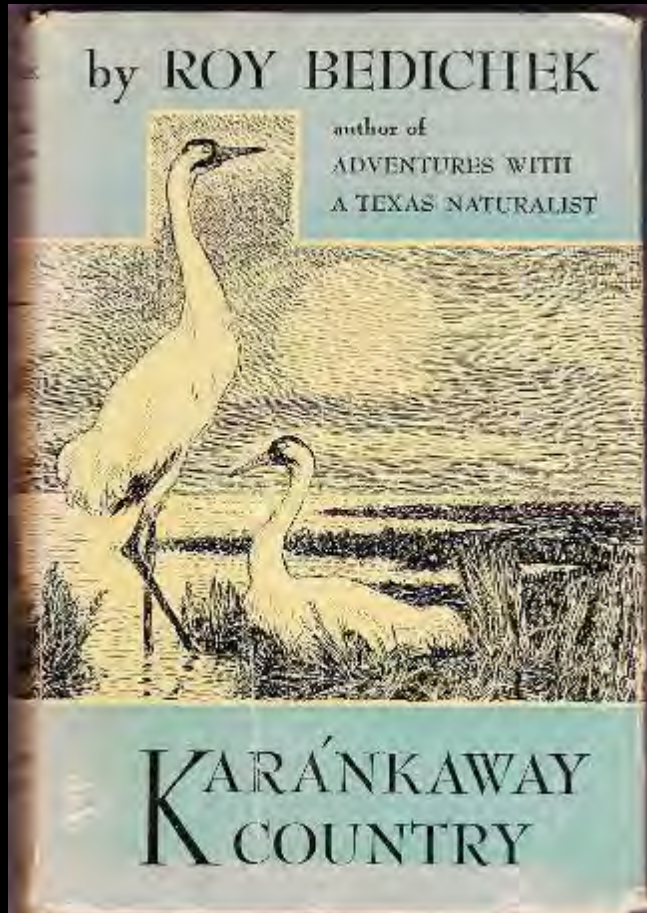
It is eccentric, unaccountable, either has no law of behavior or often keeps it secret from human investigators.

Centuries, even, do not delimit its extremes.”



The Best Texas Rivers Book

“In spite of its cinema reputation, Texas is not tough, that is, ecologically. It is really a tender land, and cannot stand the buffetings that certain other areas of the world have endured and still support a human population in health and vigor.”



Rediscovering the Colorado



Copyrighted Material

River of Contrasts



THE TEXAS COLORADO

MARGIE CRISP

Copyrighted Material

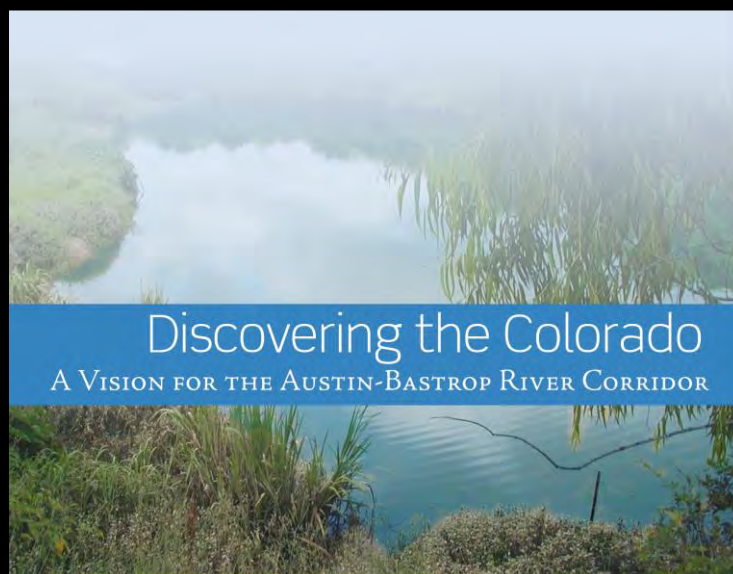
The Austin-Bastrop River Corridor Partnership

An open conversation about the future of the river corridor

An informal partnership of nonprofit organizations, governmental agencies, businesses, schools, landowners, and other local citizens concerned with the future of the Colorado River corridor from Austin through Bastrop County.

Mission: To support sustainable development and a healthy riparian ecosystem along the Austin to Bastrop River Corridor.

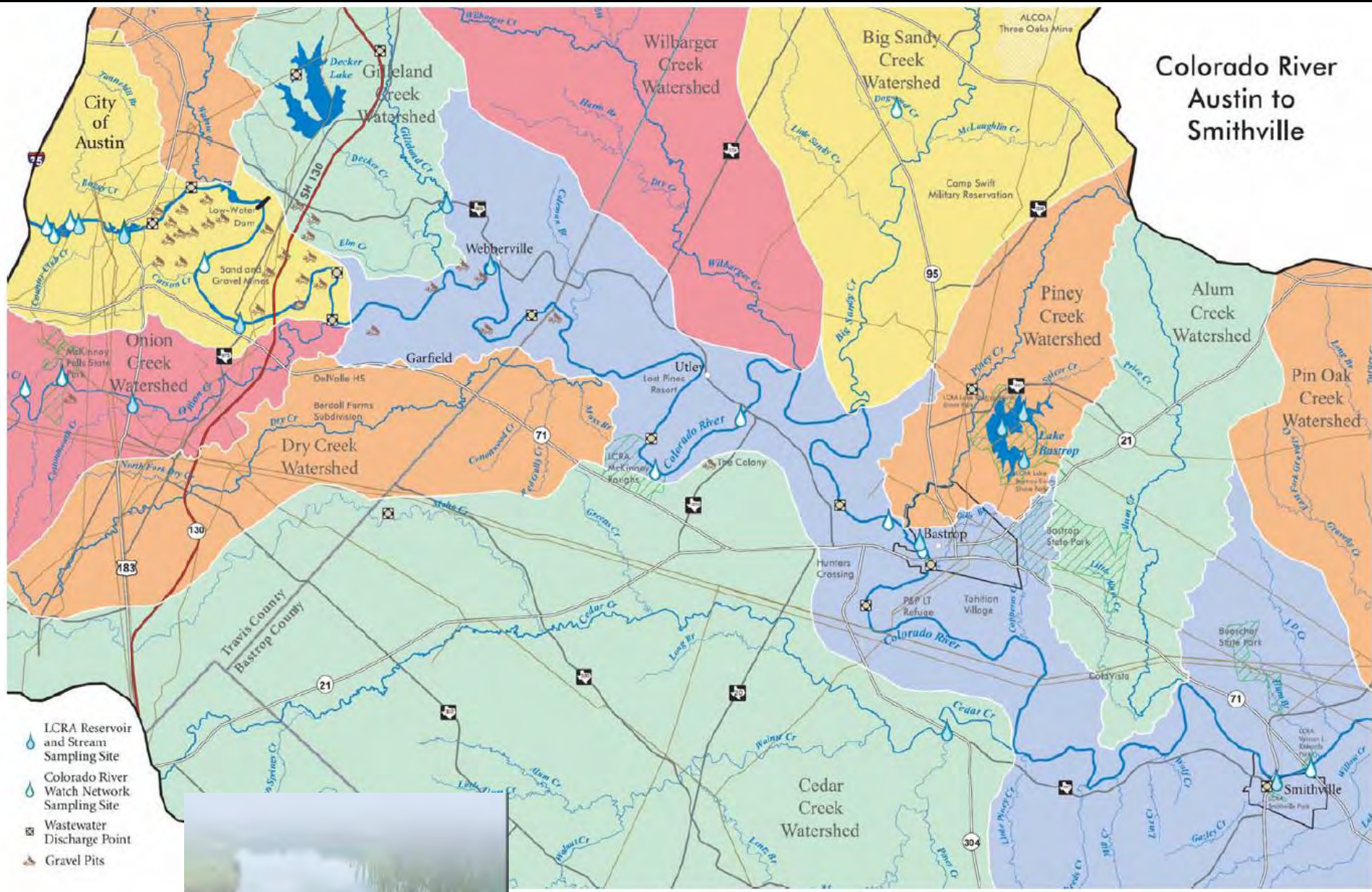
2003 to 2023 Meetings, Collaborative Planning and Projects



Return of the Bottomland Forest



Colorado River Austin to Smithville



- LCRA Reservoir and Stream Sampling Site
- Colorado River Watch Network Sampling Site
- Wastewater Discharge Point
- Gravel Pits



Discovering the Colorado
A VISION FOR THE AUSTIN-BASTROP RIVER CORRIDORS

90 miles of the Colorado River

Austin-Bastrop River Corridor Partnership Bimonthly Meeting

- Open to anyone interested in the Colorado River – a stakeholder partnership about the past, present and future of the river corridor between Austin and Smithville.
- Every other month on the first Wednesday 10am-Noon at a different location between Austin and Smithville
- Next meeting Wednesday December 6 - 10am – Noon at the CER!



Austin Bastrop River Corridor Partnership Monthly River Monitoring Trips 1st Saturday of the month - Begun February 2006

