

GOLDEN-CHEEKED WARBLER (*SETOPHAGA CHRYSOPARIA*) HABITAT

A HISTORICAL PERSPECTIVE

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FORGOTTEN HERITAGE

The endangered Golden-cheeked Warbler (*Setophaga chrysoparia*) breeds exclusively in mature Ashe juniper-oak woodlands of the Texas Hill Country, and has evolved to depend on the Ashe juniper tree for nesting material, nesting substrate, and foraging. However, the prevailing perception is that the Hill Country was originally dominated by grasslands that are now being invaded by Ashe junipers (often referred to as "cedars"). Some even believe Ashe junipers are not native and were introduced by the Spaniards. These belief systems have contributed to the widespread clearing of junipers and juniper-oak woodlands and exacerbate habitat loss and fragmentation, which are the primary threats to the Golden-cheeked Warbler. Historical records provide clues regarding the historical distribution and extent of woodlands and forests that were likely inhabited by Golden-cheeked Warblers. The purpose of this project was to compile historic data to document vegetation communities that existed prior to European settlement, how they have changed since that time, and whether this information is consistent with the range and habitat requirements of the Golden-cheeked Warbler.

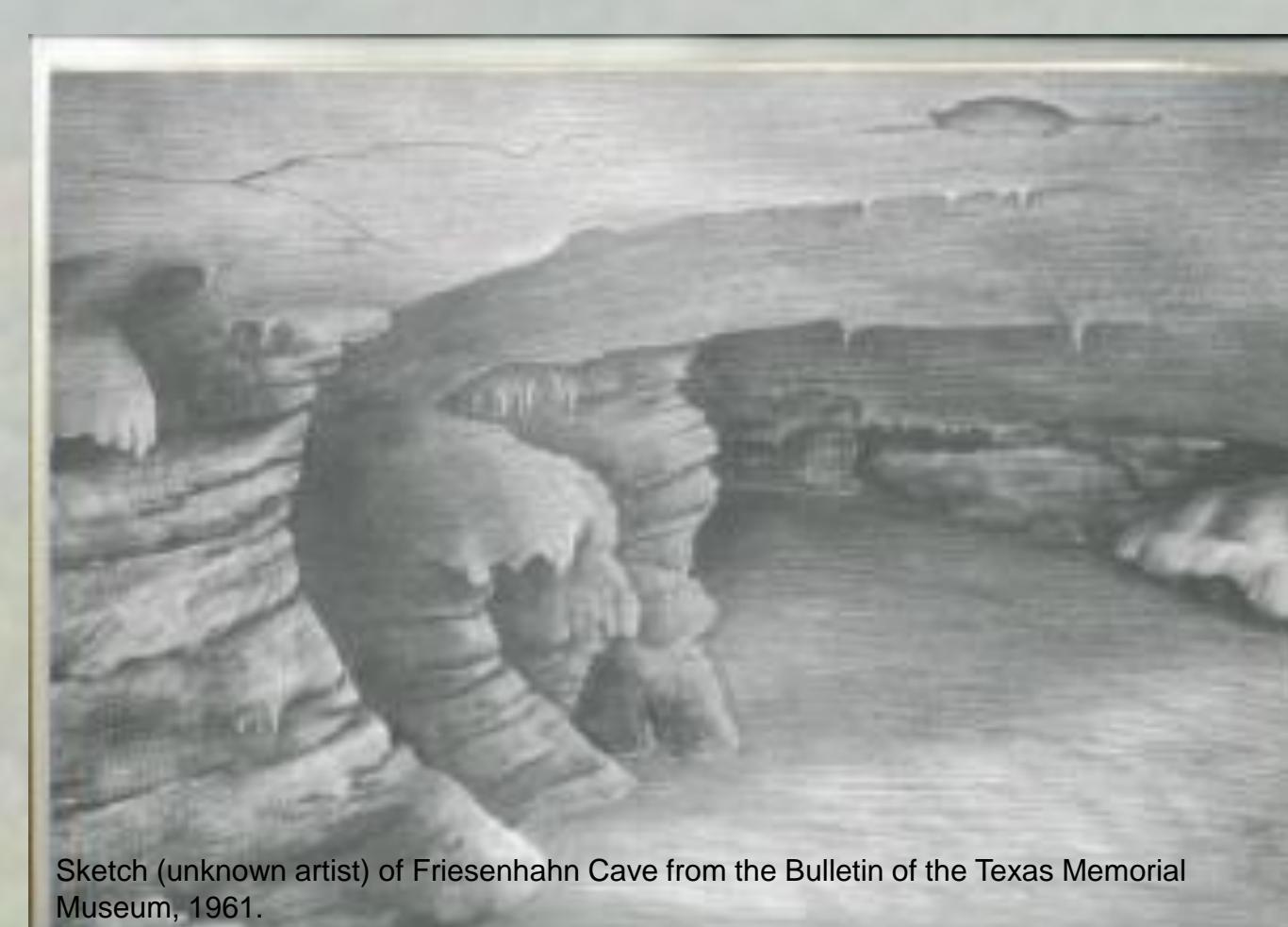
SEARCHING FOR CLUES

Historical ecology is much like piecing together a complicated puzzle. For this project, the main pieces of information come from eyewitness accounts that were recorded soon after the experience, including letters, diaries, reports, and scientific publications. Memoirs tend to be less accurate, as are secondhand accounts, so are excluded. The eyewitness accounts, compiled from more than 20 years of research, were written by a wide variety of observers and span the time period from the early 1700s through the early 1900s. For each account, descriptions of the vegetation were highlighted and recorded verbatim into a single reference document. The approximate location of each account has been entered into a GIS database to provide spatial context with respect to major ecological regions and the Balcones Escarpment, a geologic fault zone that separates the Blackland Prairie from the Hill Country ecoregions. In addition to written accounts, other sources of information continue to be compiled, including prehistoric pollen data, historic maps, photographs, building materials, field survey notes from original land grants, and tree ring data. These multiple sources of historical information are used to cross-reference and corroborate the written accounts and can then be compared to contemporary data, including the ecological requirements and distribution of endangered and rare species, to provide as complete a picture as possible of the vegetation communities that existed prior to European settlement.

PAYING IT FORWARD

Conservation of Golden-cheeked Warbler habitat requires a paradigm shift that begins with an understanding of the native ecosystems of the Texas Hill Country. Historic documents spanning the time period from the early 1700s through the early 1900s provide evidence that the Hill Country supported large areas of Ashe juniper-oak woodlands. This is consistent with the range and habitat requirements of the Golden-cheeked Warbler. These woodlands were often described as forests or "dense forests" and were treasured by early settlers for their use in building and heating materials. Subsequent land clearing, burning, and grazing that began during the mid to latter part of the 1800s changed the Hill Country landscape along with our perception of the "stately cedar trees". Due to these changes, most of today's Ashe juniper-oak woodlands are in various states of recovery, yet many still support a diverse array of rare and unique species, including the Golden-cheeked Warbler, aquatic salamanders, karst invertebrates, and rare plants. Key to restoring and managing these endangered ecosystems is "learning how to rediscover the past and bring it forward into the present – to determine what needs to be restored, why it was lost, and how best to make it live again" (Egan and Howell 2001).

Pre-1700 to 1800



Fossilized juniper pollen from Friesenhahn Cave in northern Bexar County date to the last ice age, about 14,000-20,000 years ago.

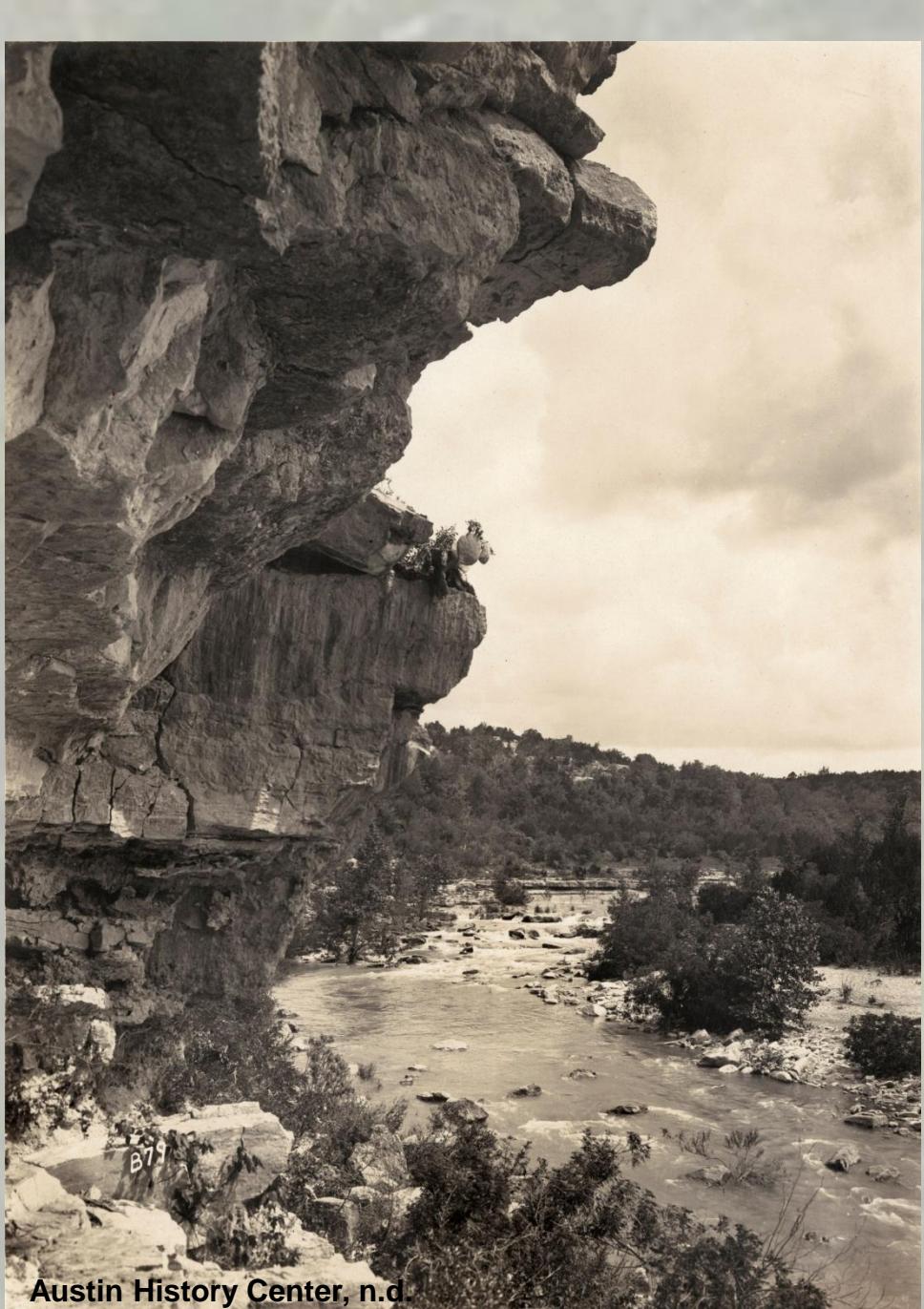
Hall, S. and S. Valastro. 1995. Grassland vegetation in the southern Great Plains during the last glacial maximum. *Quaternary Research* 44:237-245.

"[We] travelled upstream with a desire to ford [the Guadalupe River] or reach its source. We travelled about three leagues of very rugged land owing to the heavy woods and many rocks; and at the end of the three leagues two soldiers left for upstream to reconnoiter the land. They said that it could not be traveled because it is more wooded and contains more rocks....The woods consist of oaks and junipers..."

Fray Francisco Célez, 1719

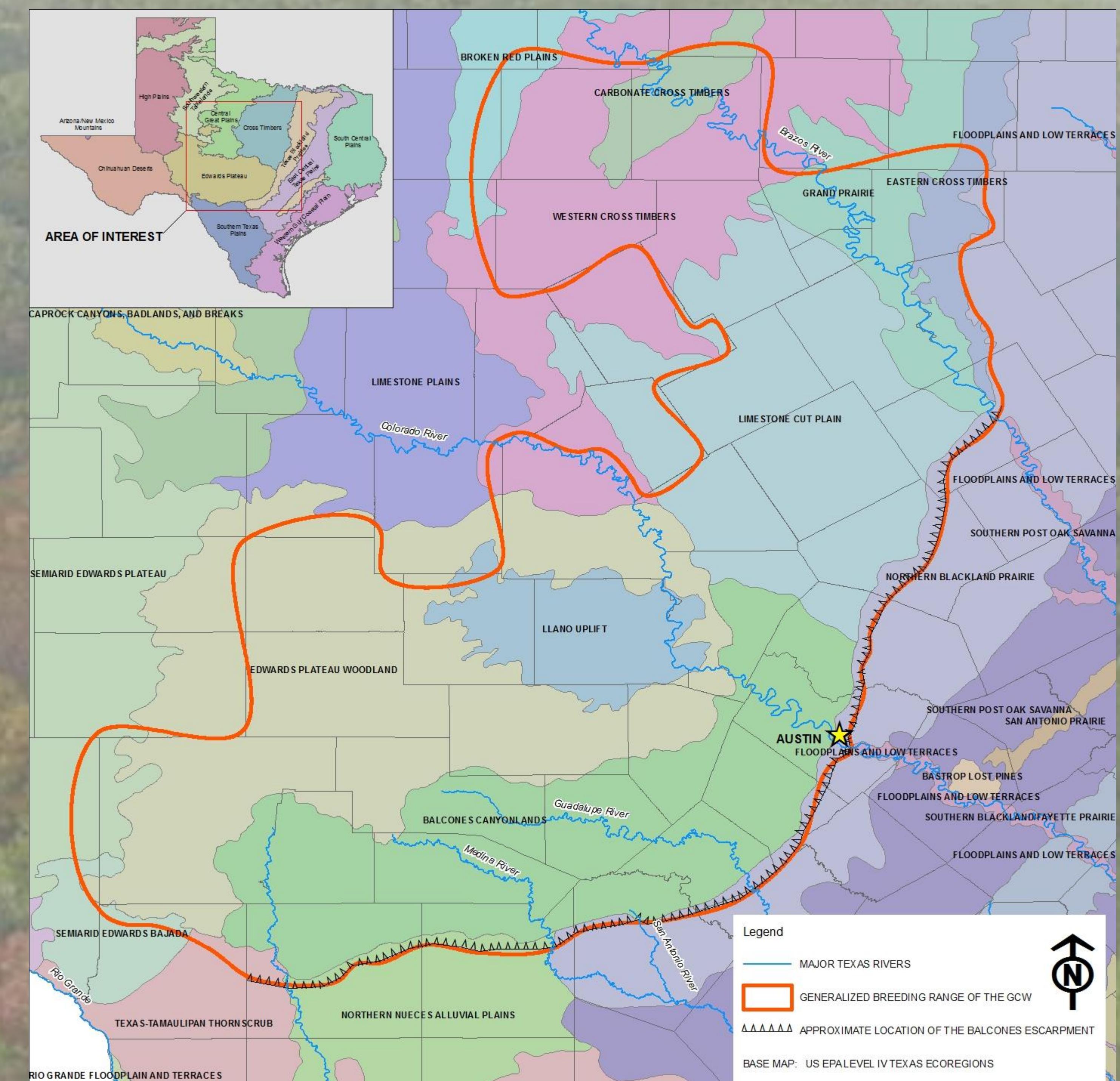
"...going past the Balcones [Escarpment], we arrived at the river they call Alarcón [Guadalupe River]. This [travel] was an effort because of the many hills, and some thickets that contain valuable cedar and oak timber...Crossing many swollen creeks and thickets of cedar and oak timber...we arrived at the Arroyo de los Pedernales."

Bernardo de Miranda, 1756



"The Guadalupe [River] has its source in three large springs...; it is rather wide, and in its vicinity there is a great variety of very beautiful trees. These are so shady that the sunlight cannot penetrate the foliage, in which several species of song birds warble."

Peña, 1722



1800 to 1850



"...On the left hand of the valley rose a mountain to the height of five hundred feet covered with tall cedar trees. Never in my life have I seen so beautiful a landscape...On our right ran the clear waters of our own dear Colorado, before us lay the beautiful valley, and on our left towered the high mountain of rock, covered with trees forever green and beautiful."

W. B. Dewees, 1830

"Further to the west appeared the skirting timber thickening the further it receded and rising gradually so that mile after mile of the dark boding forest rose to our view so that ones imagination or view would be extending to the intricacies of the forest in search for the curling smoke of the wigwam."

W. J. Benedict, 1839



"On the left bank of Comal Creek there is well forested bottom land which extends to the cedar, oak, and elm covered cliffs which here already have considerable height. Beyond this there is a high ridge with summits here and there similar to our Black Forest."

Prince Carl of Solms-Braunfels, 1845



"Our path led us again past the springs of the Comal, but suddenly ascended the steep, wooded slope of the hill. The cedar trees...which covered the slopes exclusively, formed an impenetrable thicket through which a path had to be cut. The cedars here are not the stunted shrub-like plants found in the Northern States of the Union, but are stately trees with straight trunks, seldom more than twenty to twenty-five feet in height and one and one-half feet thick. They have a uniformly spreading crown. This cedar forest is a treasure to the colonists of New Braunfels, since the wood was preferred above all others on account of its durability when used in building houses and fences."

Ferdinand Roemer, 1849

"The hills which extend all the way from Austin to New Braunfels, are covered with heavy timber...Live oak, holly, many kinds of cactus, arbor vitae, and the millions of cedar that cover the Comal hills like a mantle..."

Viktor Bracht, 1849

1850 to 1900



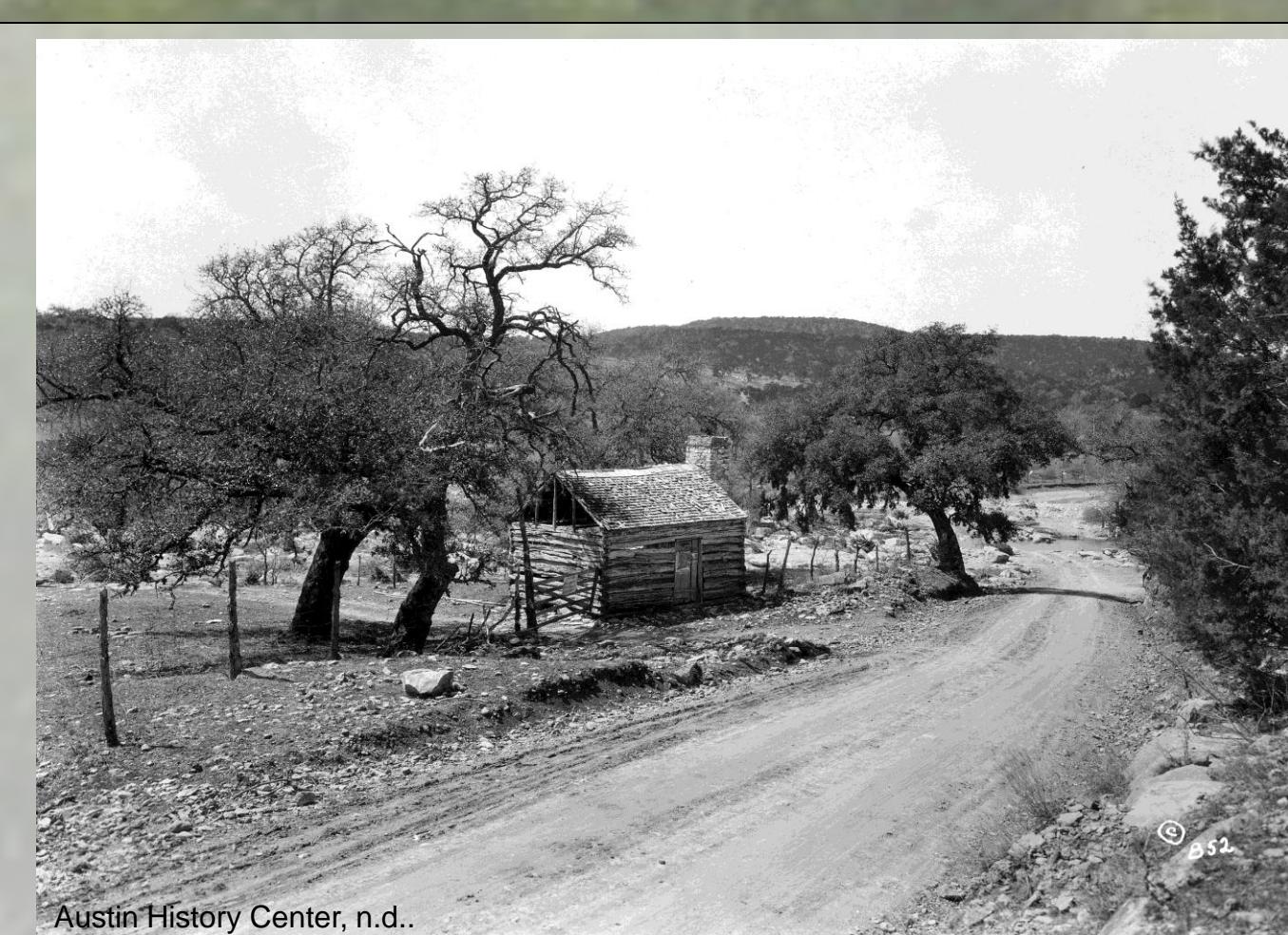
"Wild lands [in Travis County] may be purchased at very low rates. The cost of improvements is a serious item; but when a cedar fence is once put round a plantation it will need but little repair for many years. With vast prairies, we have also cedar lands at intervals seldom exceeding five miles, and these can be purchased at a small price. The planter finds a cedar lot of indispensable value, from the abundant material for improvements with which it furnishes him."

J. De Cordova, 1858



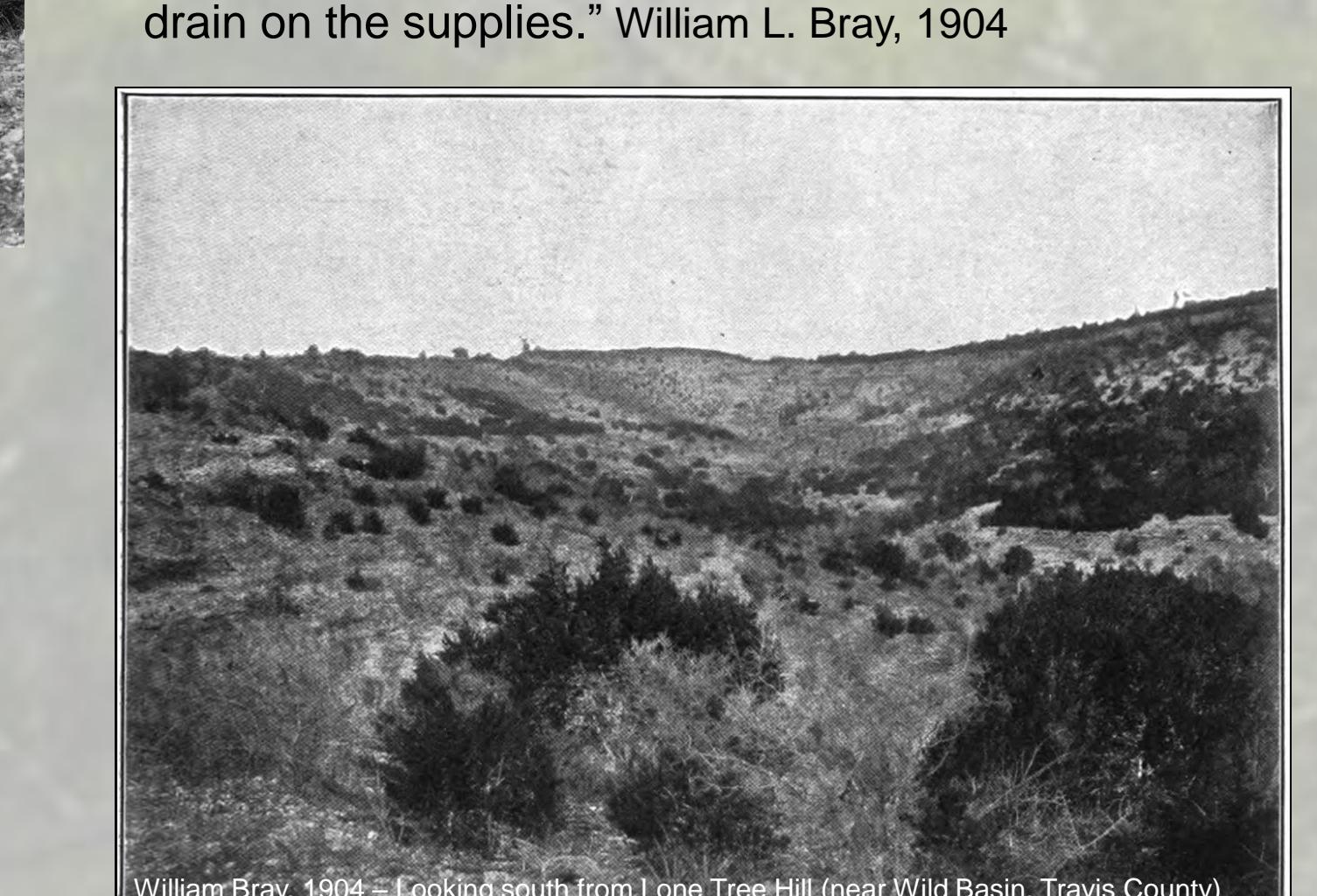
"The cedar tie business has contributed largely to the growth and prosperity of the 'Hill City' [Austin] in the last two years, more especially the last twelve months. A gentleman connected with the Central Railroad says that two hundred thousand cedar ties have been shipped from this city during the last two years, and when it is remembered that these ties bring from sixty to ninety cents each, the reader will readily comprehend the vastness of the revenue from this source..."

Austin Daily Democratic Statesman, September 10, 1874



"I am getting a little afraid the sheep will take the mountains in four or five years more.... Sheep is mighty hard on the range. You can tell a sheep range before you get in two or three miles of the house, for they keep the grass eaten off plum in the ground..."

E. Burrowes, 1860



William Bray, 1904 - Looking south from Lone Tree Hill (near Wild Basin, Travis County)



William Bray, 1904
The writer knows of no region in which any species of cedar is so uniformly abundant and dominant as is the mountain cedar in the limestone country of Texas.
William L. Bray, 1904



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"[Golden-cheeked Warblers] are nowhere abundant, and only to be met with in the thickest cedar brakes, and as these are fast being cut and burnt out, the bird will no doubt become still more rare."
H.P. Attwater, 1892



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