

CHARACTERISTICS OF CAPOTE FALLS, PRESIDIO COUNTY

by

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CONTENTS

ACKNOWLEDGMENTS	ii
LIST OF ILLUSTRATIONS	iv
I. INTRODUCTION	1
II. CHARACTERISTICS	8
History	8
Geology	28
Soils	30
Bioecology	30
Archeology	32
Accessibility	32
Competing and Complementing Facilities	34
Water Supply for Capote Falls	36
Utilities	39
Land Ownership	39
III. RECOMMENDATIONS AND THE CONCEPTUAL PLAN	42
The Conceptual Plan	45
LIST OF REFERENCES	49
APPENDIX	52

LIST OF ILLUSTRATIONS

Figure	Page
1. Location map	3
2. Looking northward, view of Capote Peak and Capote Creek above the falls	6
3. Capote Falls	7
4. Trail exploration on the West Texas frontier	12
5. Mining locations	19
6. Area ranch headquarters	25
7. Ecological association - Capote Canyon	33
8. Recreation sites, Trans-Pecos Region	37
9. Land ownership map	40
10. Capote Falls, Wilderness State Park, conceptual plan	48

CHAPTER I

INTRODUCTION

Capote Falls, the highest waterfall in Texas, is located on the western slope of the Sierra Vieja Mountains north of Presidio, Texas. Because of its physical characteristics, remoteness, and beauty provided by riparian vegetation along Capote Creek, the falls is unique as a natural scenic area in the State of Texas.

In June of 1966, Dr. Barton H. Warnock reported Capote Falls to the Texas Natural Area Survey Committee to be included in The Natural Areas of Texas (Preliminary Listing) (25:265). In October of the same year, the Federal Bureau of Outdoor Recreation organized an official study team to investigate Capote Falls and its environs to evaluate the area as a possible natural area of national significance. While the reports returned to the Denver Office of the Bureau as a result of this investigation indicated that the area was not of national significance, almost all of the reports indicated the area has significance as a state natural area. Also, these reports indicated that the rapid erosion of the watershed area was threatening the water source and the falls (28).

The purpose of this study has been to inventory and evaluate the characteristics of Capote Falls in Presidio

County and to recommend methods for preserving this natural scenic area for present and future generations of Texas.

The Trans-Pecos Region of Texas has been referred to as the state's vanishing frontier. The Trans-Pecos is an area of West Texas bounded on the north by the Texas-New Mexico line, on the west and south by the Rio Grande River, and on the east by the Pecos River (see Figure 1). To many people, West Texas means high plateaus and plains yet this concept is inaccurate as the Trans-Pecos area actually encompasses approximately ninety mountains and some of the most rugged terrain to be found in North America. The highest point in Texas, Guadalupe Peak, is located in this area. While the mountains of Texas are smaller than several of the mountain ranges throughout the United States, they stand tall and predominantly rugged in appearance in contrast to the flats and deserts of the Trans-Pecos which surround them (11:1).

Presidio County in the lower portion of the Trans-Pecos Region, is the fourth largest county in Texas (3,877 square miles) with a 1970 population of 5,746. Recognized for its harsh landscapes, this county has elevations ranging from 2,400 feet in the desert to its highest point, Chinati Peak, with an elevation of 7,730 feet. While Presidio County is rich in minerals such as oil and gas, the predominant industry of the region is cattle ranching.

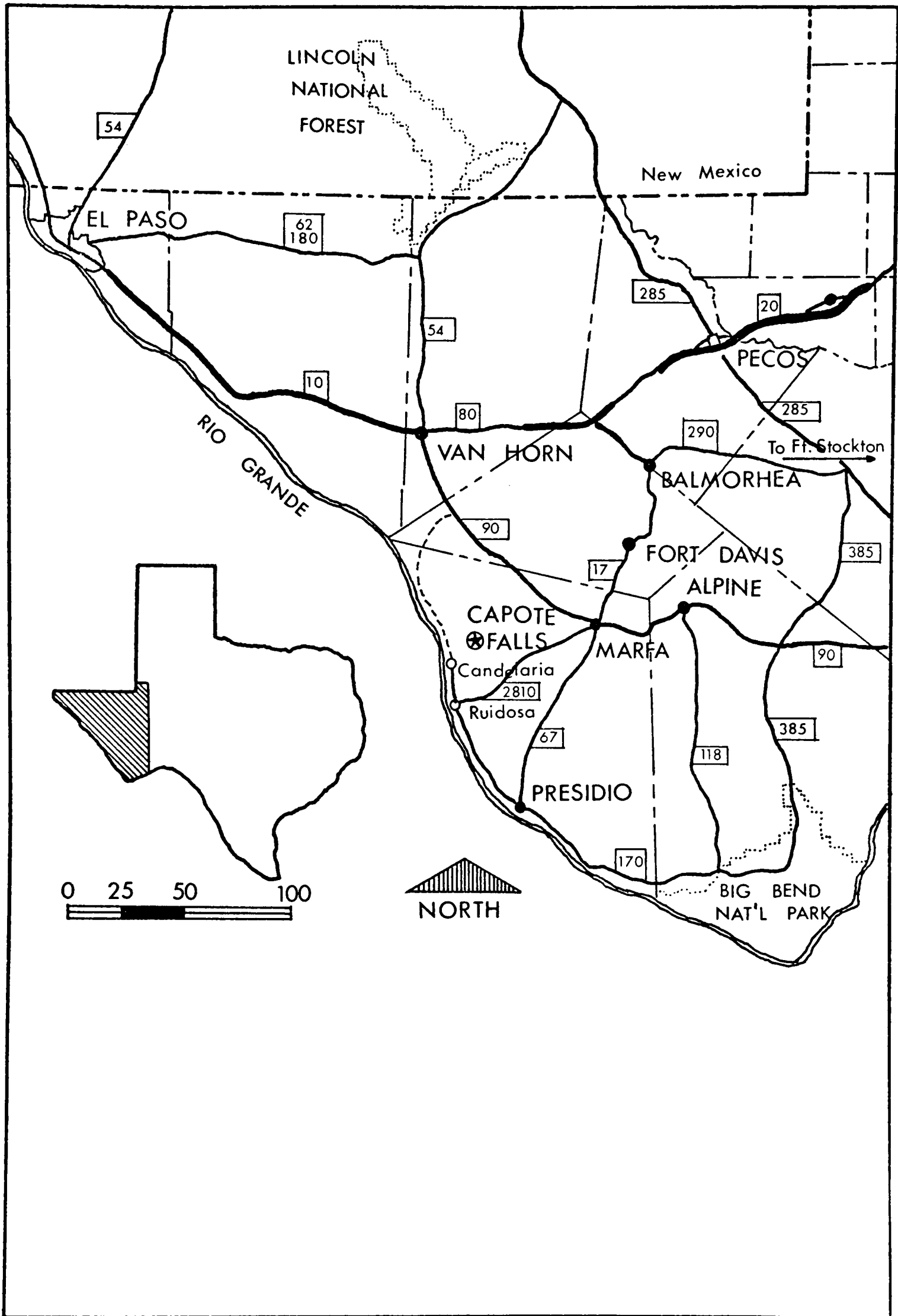


Figure 1.--Location map

The principal towns in the county are Presidio, Marfa, Adobes, Ruidosa, Shafter, and Candelaria (24:327).

Candelaria, once named Gallina, was established prior to 1902. During the 1940's the town consisted of one church, a school, two businesses and a post office. The town boasted a population of 75 at that time. Presently, only one business and the school remain (29:289).

East of the small town of Candelaria stands the Sierra Vieja Mountain Range, which extends some forty-four miles along the Rio Grande River from Candelaria north to Valentine. The face of this mountain range creates a natural barrier with only three points of access. This natural barrier has preserved the area west of the Sierra Vieja Mountains in an almost pristine state. Today, these three points of access can be traversed only by means of a four-wheel drive vehicle with the permission of private landowners (3:4-5).

The Sierra Vieja Mountain Range is the northeastern boundary of the Chihuahuan Desert. Thus, a small strip of this desert, some eight to ten miles wide, lies northeast of the Rio Grande in Texas. It has been described as a painted desert. Supreme Court Justice William O. Douglas in his book, Farewell to Texas, has recommended that this portion of the desert be purchased by either the State of

Texas or the Federal Government for preservation for future generations (7:143).

Hidden in a box canyon on the western rim of the Sierra Vieja Mountains of the Trans-Pecos Region stands the highest waterfall in Texas. The fall originates in a cienaga spring which is two miles east of the escarpment at the base of Capote Mountain, on the L. C. Brite estate. The area above the escarpment to the base of the mountain is densely covered grassland, a direct contrast to the forested canyon and the barren desert beyond. The waterfall begins spilling into the canyon some one hundred and seventy feet above the gravel pool at its base. The water falls in two stages, the first being approximately seventy feet high and the second near one hundred feet. The canyon wall, at this point, is approximately 250 feet in height. It is estimated that from 300 to 360 gallons of water per minute spill over the falls in a fine mist and small tricklets. A colorful rainbow dances at the base of the falls on bright sunny mornings where the stalagmite formation gives the appearance of a cape. From this effect, the waterfall derives its name, Capote, which means cape or cloak in Spanish. At one time, a clear pool of water could be found at the foot of the falls, but has filled with gravel over the years and only a hint of the pool remains at the present time.



Figure 2.--Looking northward, view of Capote Peak and Capote Creek above the falls.



Figure 3.--Capote Falls

CHAPTER II

CHARACTERISTICS

History

The Spanish influence prevails in Presidio County, and is revealed in the local nomenclature: Pinto Canyon (Painted Canyon), Capote (cape), Ruidosa (wind), Candelaria (candles), Sierra Vieja (Old Mountain), Presidio (fort), Paisano (countryman) and Cienaga (marsh). An investigation of the geographic location as well as the history of the area explains this strong influence. The border of Mexico is contiguous in Presidio County with that of the United States for approximately one hundred eighty miles along the Rio Grande. Until the Treaty of Guadalupe Hidalgo in 1848, first Spain and then Mexico claimed possession of the area. The Spanish influence is still manifested in the population of the county as eight percent of the population is Mexican-American, although most of these are recent immigrants (15: 90, 91).

Two early Spanish explorers, Cabeza de Vaca in 1536, and Antonio de Espejo in 1582, found only peaceful Indians in the Big Bend Country. De Vaca's description of this trip is not scientific, but he did write of seeing Indians cultivating small patches of corn, beans, and pumpkins apparently near what is now Presidio, Texas. Espejo found

Indians living in permanent dwellings, subsisting on fish, game, grains, and melons which they cultivated (18:5).

The Jumano Indians inhabited the area around Presidio and Candelaria during the 1500's, covering a vast territory similar to that of the Southern Comanches during the 1700's. The Jumano lived in permanent pueblos on the Rio Conchos and Rio Grande and were divided into five distinct pueblos containing a total of approximately 10,000 inhabitants (14: 89-114).

In answer to a pleading request for missions and priests by Jumano Chief Juan Sabeata, Juan Dominguez de Mendoza and Father Nicolas Lopez left the vicinity of present Juarez, Mexico, in 1683 en route to La Junta, near present Ojinaga, Mexico. The party consisted of thirty or more soldiers and three priests. Traveling the south bank of the Rio Grande, the party passed through the Capote area. Lopez left one priest at La Junta, charged with the task of building a mission there. The remainder of the party continued eastward to the San Saba River near Menard and Fort McKavett, where a mission was built at a place which Mendoza called San Clemente. Probably, this was the first Texas mission to be established. After a brief stay, which included three Indian attacks, Mendoza and Lopez returned to Mexico by a slightly different route. While Lopez and Mendoza hoped to obtain further support for establishing

missions, the French were rumored to have landed on the coast of Texas, and officials refused to grant their request (4:17-19).

During the seventeenth and eighteenth centuries, Spanish interest changed from the search for minerals to the establishment of missions. A system of presidios was established by the Spanish in an unsuccessful attempt to halt the spread of Apache and Comanche depredations across the Rio Grande. In 1759, Rubin de Celis established a presidio and mission on the Rio Grande which became known as Presidio del Norte on the site of present Ojinaga, Mexico. In 1767, the Presidio was abandoned and moved to a location on the Conchos River; but in 1773, it was reestablished in the original location due to the raids of both Apaches and Comanches into Mexico (11:36).

The Mescalero Apaches, named for their custom of eating roasted mescal and sotol, and the Lipan Apaches raided the Big Bend area as well as northern Mexico but unlike the Comanches who later came into the area, the Apaches raided unexpectedly throughout the year. They slipped down from their mountain strongholds in Southern Colorado rarely in open attack but rather attacking from ambush. The Apaches were equally as destructive as the Comanches (20: 103-131).

The Southern Comanches ranged into the Candelaria area during the summer months of the year, annually raiding the

Apaches and Mexicans of the area in early fall. As these raids usually occurred during the full moon in September, this moon became known as the "Mexican" or "Comanche" moon. The Comanches savagely plundered the northern Mexican states killing, capturing, and looting, then turned northward again with slaves, cattle, and horses, to follow their usual trail marked by sun-bleached bones. This trail later designated the boundary line between the states of Coahuila and Chihuahua in the early days of the Mexican Republic (18:49-50).

By the 1850's, several trails had been opened across the Trans-Pecos Region. One of these was the Missouri and Chihuahua City by way of Santa Fe through El Paso del Norte. As this route was long and arduous, many attempts were made to find a new route (see Figure 2).

Dr. Henry Connelly of Missouri and several Chihuahuan merchants blazed a trail through Presidio del Norte along Alamito Creek to Missouri and back during the years 1839 and 1840. By the time this trail was blazed, however, the rulers of the Mexican Government had changed and the tariff rates imposed by a new regime precluded future trips along this trail. In 1848 San Antonio businessmen hired former Ranger Captain John C. "Jack" Hays to lead an expedition to find a road to Chihuahua by way of El Paso. This expedition failed to reach El Paso as the accompanying troops

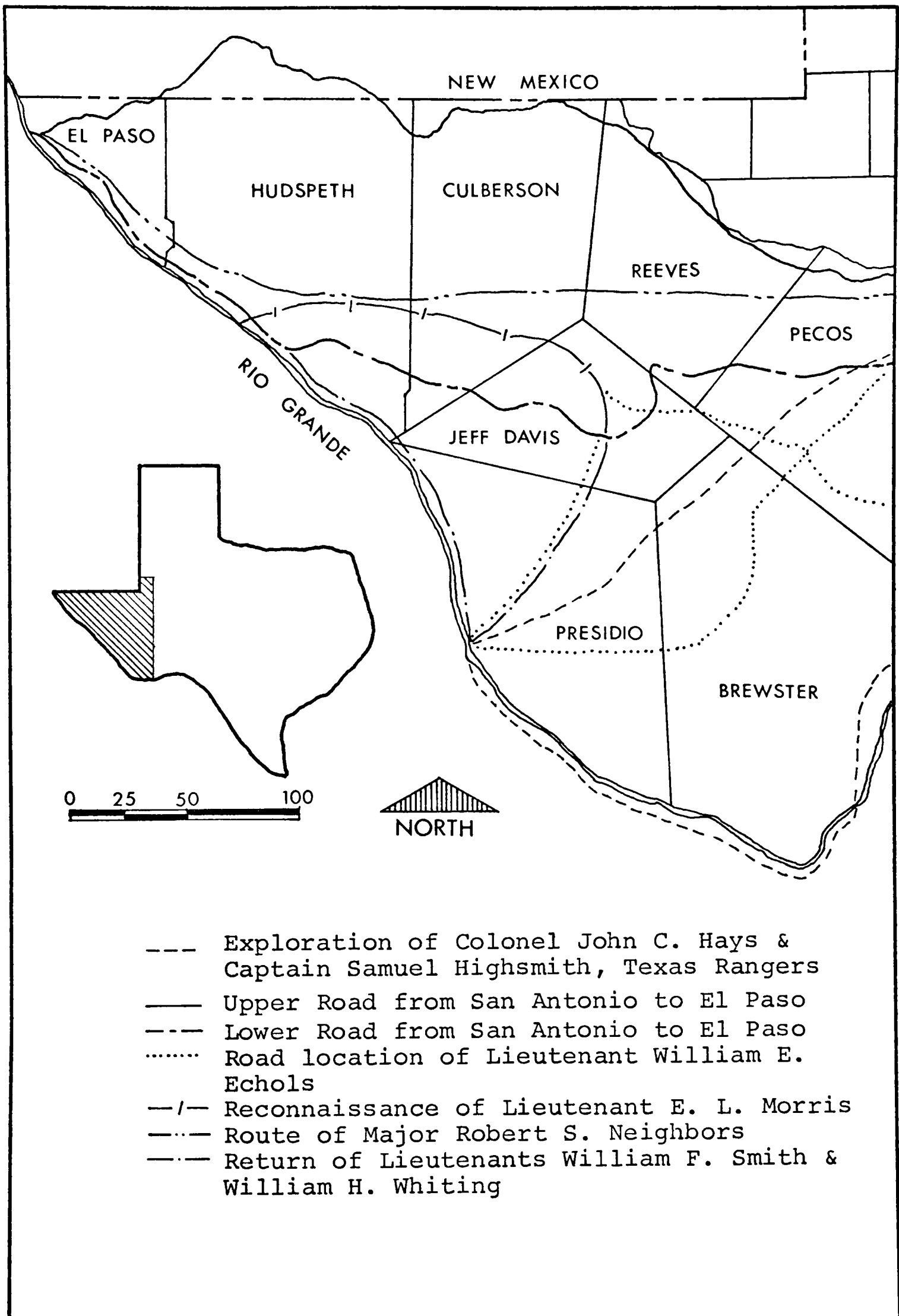


Figure 4.--Trail exploration on the West Texas frontier (As adapted from 12:33).

were under limited orders and the civilians were short of rations and exhausted. While Captain Hays' expedition was unsuccessful, based upon his observations during the journey he recommended that a wagon road be established in the general vicinity of his route. Hay's recommendation led to an expedition by Lieutenants William H. C. Whiting and William F. Smith from San Antonio on February 12, 1849. This expedition reached El Paso on April 12, 1849, and their more direct return route was looked upon so favorably it later became the Lower Military Road (11:41-47). In the summer of 1849, Lieutenant Colonel Joseph E. Johnson, with an elaborate government supply train and six companies of infantry, marched from San Antonio to El Paso, traversing 650 miles in 100 days, following Whiting's return route along the Rio Grande (5:7). Major William H. Emory with survey crews headed by Lieutenant N. H. Michler, M. T. W. Chandler, and Maurice Von Hippel began a river boundary survey in November of 1852 which carried them through the Candelaria area (27:80).

Trails through the Trans-Pecos meant the influx of travel where the Apaches and Comanches raided regularly. While several private forts were constructed in the area, with the signing of the Treaty of Guadalupe Hidalgo the United States became responsible for the protection of

the travelers and military outposts were established along these routes as well.

Ben Leaton, a former soldier in the Mexican War and reputedly the first Anglo American farmer in Presidio County, settled near present Presidio to carry out his farming activities and established Fort Leaton in 1848 for protection. Possibly the largest adobe building in Texas, the Fort contained some forty rooms. Ben Leaton discontinued his farming activities to sell guns to the Apaches, and the Fort served as his protection until his death in 1851. In 1850, Fort Leaton was designated as the temporary seat of justice for the then unorganized Presidio County (11:209). Fort Cibolo, like Fort Leaton, was a private fort established by Don Milton Favor on Cibolo Creek as headquarters for his five ranches and as protection for himself, his wife, and ranch hands against the raiding Apache Indians. The walls of Fort Cibolo were quite thick and twenty feet high with a lookout post and portholes. Added protection was afforded by a small cannon that had been furnished by the Army Post at Fort Davis (8:63).

The United States government established several forts in the area, the first being Fort El Paso which was later abandoned. Fort Davis was second and was established in 1854 by Lieutenant Colonel Washington Seawell with eight infantry companies in a box canyon in the Davis Mountains.

Also in 1854, Fort Bliss was established as a replacement for Fort El Paso. Fort Quitman and Fort Stockton were also established in the Trans-Pecos, and like the other forts were garrisoned by infantry who were almost helpless in defending the settlements and transportation routes against the highly mobile Indians in the area. During the Civil War, the forts were manned temporarily by Confederate troops who soon pulled out leaving the region completely unprotected. Reoccupation of the Trans-Pecos came in 1866 with the arrival of the Ninth and Tenth Cavalry to protect the area from Apache raids. The Comanches had turned their attention to the north Texas frontier leaving the Trans-Pecos to the Apaches (23:47).

Protection of the region by both government and private forts brought immigrants to the area. Ranching developed during the 1850's and farming which began in the 1870's was topped off in 1913 with the ginning of the first bale of Big Bend cotton.

The first large rancher in the Big Bend area was Don Milton Favor with a total of five ranches headquartered at Fort Cibolo. Four of these ranches were stocked with cattle while the La Morita Ranch was established as the first sheep ranch in the area. Favor's ranches prospered until the beginning of the Civil War when the troops were recalled from the frontier posts leaving the herds open to heavy Indian

raiding. Following the Civil War, Favor's herds and land continued to diminish and with the coming of new settlers, Favor finally sold his "F" brand to Joe Humphreys for \$18,000 (15:102-106).

When William Russell first arrived in the Fort Stockton area, he built a small store at the famous Horse Head Crossing. He purchased mules and a freight wagon to haul supplies to Chihuahua City. In 1852, he moved to Ojinaga and began ranching. In 1870, Russell established a sheep ranch and farm in the vicinity of present Candelaria. He produced grain on his farm to supply the troops at Fort Davis and Fort Stockton. His sheep ranch spread across both sides of the Rio Grande (16:101-105).

With a cattle herd numbering one hundred forty, Lucas C. Brite arrived at the base of Capote Mountain to establish his ranching operations on October 12, 1885. Originally from Frio County, he and his brother Robert had been ranching in Tom Green County. Upon his brother's death, Brite joined a trail drive headed for Santa Fe, but seeing the country around Capote Mountain he decided to stop and make that land his new home. During the 1890's, a particularly long drought forced the majority of ranchers in the area into bankruptcy. Brite managed to survive and was able to buy out other ranchers. It was during this period that Brite purchased the Cienaga pasture which encompasses Capote

Falls. Robert Nixon had owned this land. As Brite was amassing land, he was also improving his cattle with the introduction of the Highland Herefords. Following World War I, Brite helped to organize the local Highland Hereford Breeders Association to acquaint the breeders with the Highland Herefords and to assist in a more uniform breeding for the development of quality animals in the Marfa area. Prior to his death in 1941, Lucas Brite had assembled approximately 125,000 acres of land, one of the largest ranches in the county. Upon his death, this land was made part of a trust fund and so remains today. Mr. Jim White and his wife, the former Jane Brite, are the present over-seers of the ranch (13:3-5, 24-25, 48-49, 434).

J. K. Kilpatrick moved from Houston, Texas, to Candelaria and began experimenting with cotton. Irrigated farm land was already available as Mexicans had dug an irrigation ditch some four miles long to divert the waters of the Rio Grande and Capote Creek to two hundred acres of farm land. In 1913, Kilpatrick raised seven bales of Big Bend cotton, and with the anticipation of a better crop the following year, he built the first cotton gin in the area. In 1914 his cotton crop increased to forty bales. Until 1918, Kilpatrick's was the only cotton gin in the area, and it could not gin all of the cotton produced along the river farms so farmers were forced to haul their cotton to Barstow

for ginning. Jim Halper erected a gin in Presidio in 1923 to fill this need (8:128-138).

Mining in Presidio County began almost as early as the farming and ranching industries. Minerals such as coal, nitrate, petroleum, uranium, manganese, and mercury have been excavated from the area (see Figure 3).

In 1882, John W. Spencer on his way from his farm to Fort Davis stopped to rest and noticed an unusual rock ledge which looked like silver ore. Spencer took samples of the ore to General Shafter in Fort Davis where an assay of the ore revealed the silver content to be high. General Shafter traveled to California where he successfully borrowed the capital to organize a company and to purchase equipment necessary to develop a silver mine. The Presidio Mining Company was established with the mine being located not far from Don Milton Favor's Cibolo Ranch Headquarters in the Chinati Mountains. The mining equipment was hauled to Paisano Pass on the Pacific Railroad and from there by freight wagon to the mine (15:169-170). From 1883 to 1942 the mine, now known as the Shafter Mine, produced more than 31,000,000 ounces of silver worth more than \$18,000,000. The mine was closed in 1942 due to labor difficulties, water in the lower levels, lowering grades of ore, and depletion of ore reserves. The mine was reopened for a brief period after World War II but was closed again in 1947. R. I. Carr

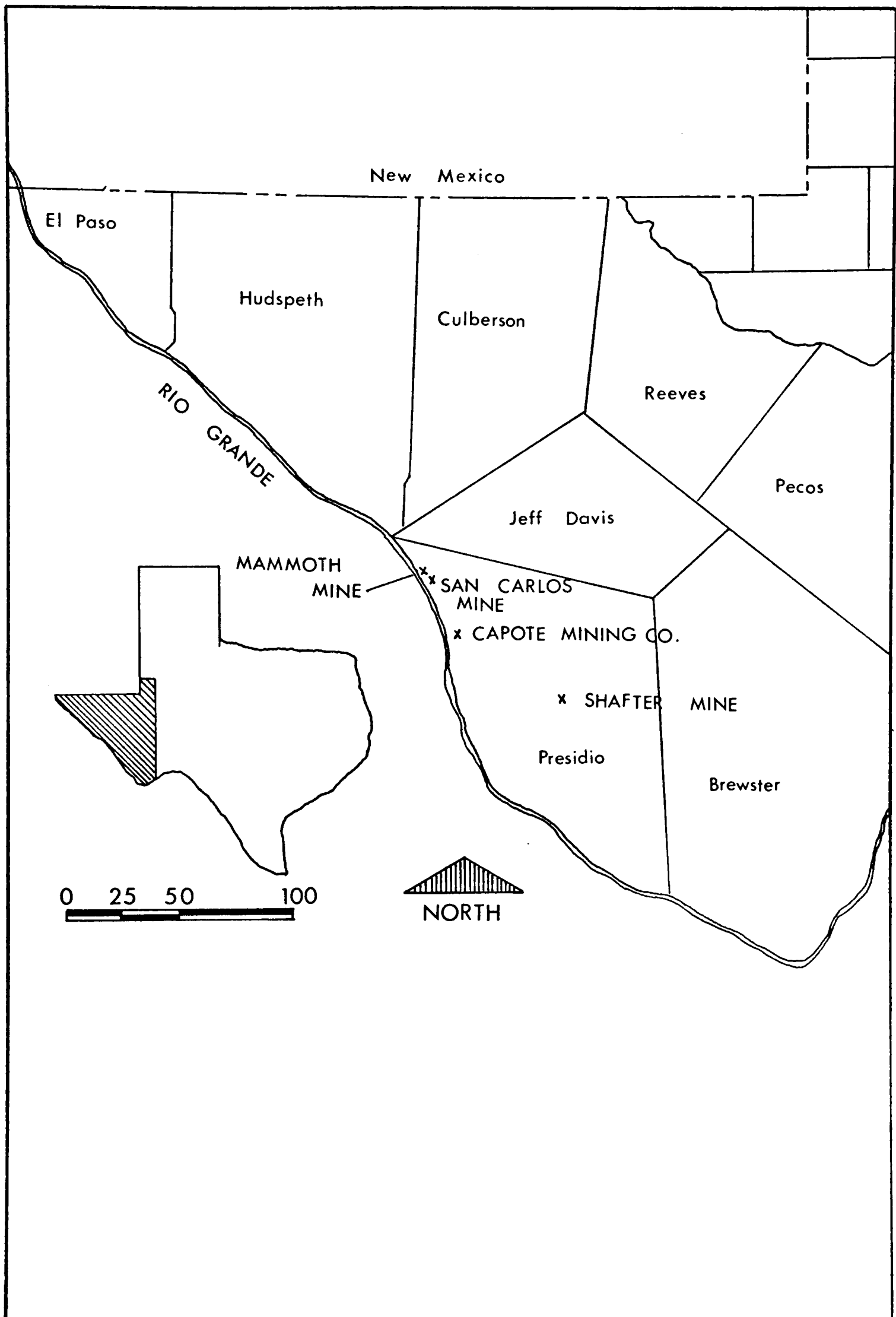


Figure 5.--Mining locations

operated a small mine several miles west of Shafter from 1946 to 1950 which produced lead and silver ore in small quantities (1:80).

Coal was discovered at the now abandoned town of San Carlos, some twenty-five miles north of present Candelaria. On February 15, 1893, a charter for the San Carlos Coal Company, with a capital stock of \$300,000 was filed with the State of Texas. The coal company purchased 1,280 acres of land from the State of Texas and leased 53,120 acres of land from private owners for its venture. The Rio Grande Northern Railway, chartered to furnish transportation for the coal produced, agreed to construct a railway to the mine for cost plus ten percent. The contract covered construction work, materials for the main line, all sidings, the telegraph line, water wells, water tanks and pumps, and engineering expenses. The railroad was completed in 1895 for a total expense of \$403,154 covering twenty-seven miles of track including one-hundred yards of tunnel. The railroad was completed before the mine began operating and when the first coal mined proved to be of such low quality, the railroad refused to haul it. The coal company then leased the engine and cars and obtained permission to use the tracks. This agreement lasted six months. The railroad company terminated the agreement and without

transportation, the coal company was forced to close down (1:24-25).

A nitrate mining company was chartered in 1918 and, like the coal mining company, proved to be an unsuccessful venture. Nitrogen compounds used in items such as fertilizers, coke, and explosives were of primary importance especially prior to and during World War I for the manufacture of explosives. Prior to the production of synthetic nitrogen, numerous attempts were made to locate natural deposits. A nitrate discovery was made in Capote Canyon in the early 1900's. The charter for the Capote Nitrate Company with a capital stock of \$100,000 was filed on November 4, 1918. Alfred Dueler, G. C. Simpson, and J. B. Herff chartered the company, spending most of their initial investment for equipment. Nitrate ore of profitable quantities was never found and the company forfeited its charter in 1950 leaving some \$15,000 to \$20,000 of debts (3:50-54).

Uranium was discovered in Presidio County by J. M. Daugherty and Cecil Geaslin of Van Horn, Texas. A prospecting permit was obtained in July of 1954 and in November of 1955, the Mammoth Uranium Corporation was incorporated with two-thousand shares of stock at one hundred dollars per share, as authorized under state law. The Mammoth Mine was located some six miles due west of the old San Carlos coal mining development. A five year lease was obtained

on a 587.8 acre tract of State owned land in April 1955. This ore has been assayed and found to be of low quality. Presently, the Mammoth Uranium Corporation is attempting to determine the amount of ore available, and the future of the corporation is indefinite. Additional uranium has been discovered in the area, but the prospects have remained unworked (1:59-77).

Along with the occupations of ranching and mining, there was still another occupation in the area. Throughout the history of the Trans-Pecos Region, crime was almost a way of life. The most troublesome period of crime for the residents along the Rio Grande was during Pancho Villa's reign when every bandit in Mexico raided under Villa's name. Villa and his troops attacked Juarez in November, 1913, and from there proceeded to Chihuahua City. By the time Villa reached Chihuahua City, Huerta and his federal troops had retreated with thousands of civilians to Ojinaga across from Presidio, Texas.

On December 8, 1913, the federal troops defended Ojinaga against revolutionary troops. Their defense system was one of rifle pits and entrenchments established in different lines and angles around the city so that if one pit or entrenchment was taken, the defenders could fall back to a new position and continue the battle. The battle lasted from mid-December until January, 1914, when the federal

troops in the front lines heard that they were to be attacked by six thousand troops and rushed back to Ojinaga. The troops in the rear lines thought that the retreating men were the enemy and fired on them, thus causing panic. Soon the whole federal defense was fleeing to the Rio Grande and the protection of the United States. Here the Mexican Army surrendered to the United States Army, an unusual occurrence as the two countries were not at war (15:53-58).

In their escape from Ojinaga, the Mexican Army fled to Presidio with all of their equipment which included mules, horses, wagons, guns, ammunition, saddles and harness. The Mexican Consul in San Antonio was authorized by the Mexican Government to sell all of the army equipment then on Texas soil. Zack and Joe Miller, ranchers from Oklahoma in Presidio buying mules, were on hand to offer a total of \$45,000 for this equipment. The Miller brothers not only became the first individuals to purchase an army, but also were the only individuals to profit by the surrender of the Mexican Army. Their profit on the resale of the army equipment was \$65,000 (15:58-62).

Two major raids by Villa's Raiders took place in the Candelaria area, the first occurring on the Brite Ranch Headquarters located at the base of Capote Mountain two miles north of the falls and the second occurring on the

Ed Neville Ranch located west of Vieja Pass some three months later on March 25, 1918 (see Figure 4).

The L. C. Brite Ranch Headquarters was raided by Pancho Villa's Raiders on Christmas morning, 1917. L. C. Brite and his family were in Marfa at the time, but the ranch foreman, his family, and a few visitors were at the ranch when the raid began. During the attack, a mail stage with two passengers arrived at the Brite Store, but having been caught in the cross-fire, all were dead. A neighboring rancher, hearing the gun fire, telephoned the news to Marfa. By noon, dozens of ranchers, cavalrymen, and rangers arrived at the Ranch. Upon the approach of reinforcements, the Mexicans pulled out, heading for Pilares and the border. The pursuers came within shooting distance before the raiders made their destination. The raiders were forced to abandon their loot as several of the raiders were dropped by gun fire. Thus ended one of the most violent raids of the time (2:3-4). Other sources differ in the account of the death of the stage driver. Virginia Madison relates that the driver was captured by the bandits and hung (15:67), while Stacy Hinkle writes that the driver was captured and his throat was cut by the bandit leader (10:15-16).

When the Neville Ranch was raided, Ed Neville and his teenage son, Glen, ran from the house hoping to escape. Ed reached the chaparral, but Glen was shot down. His body

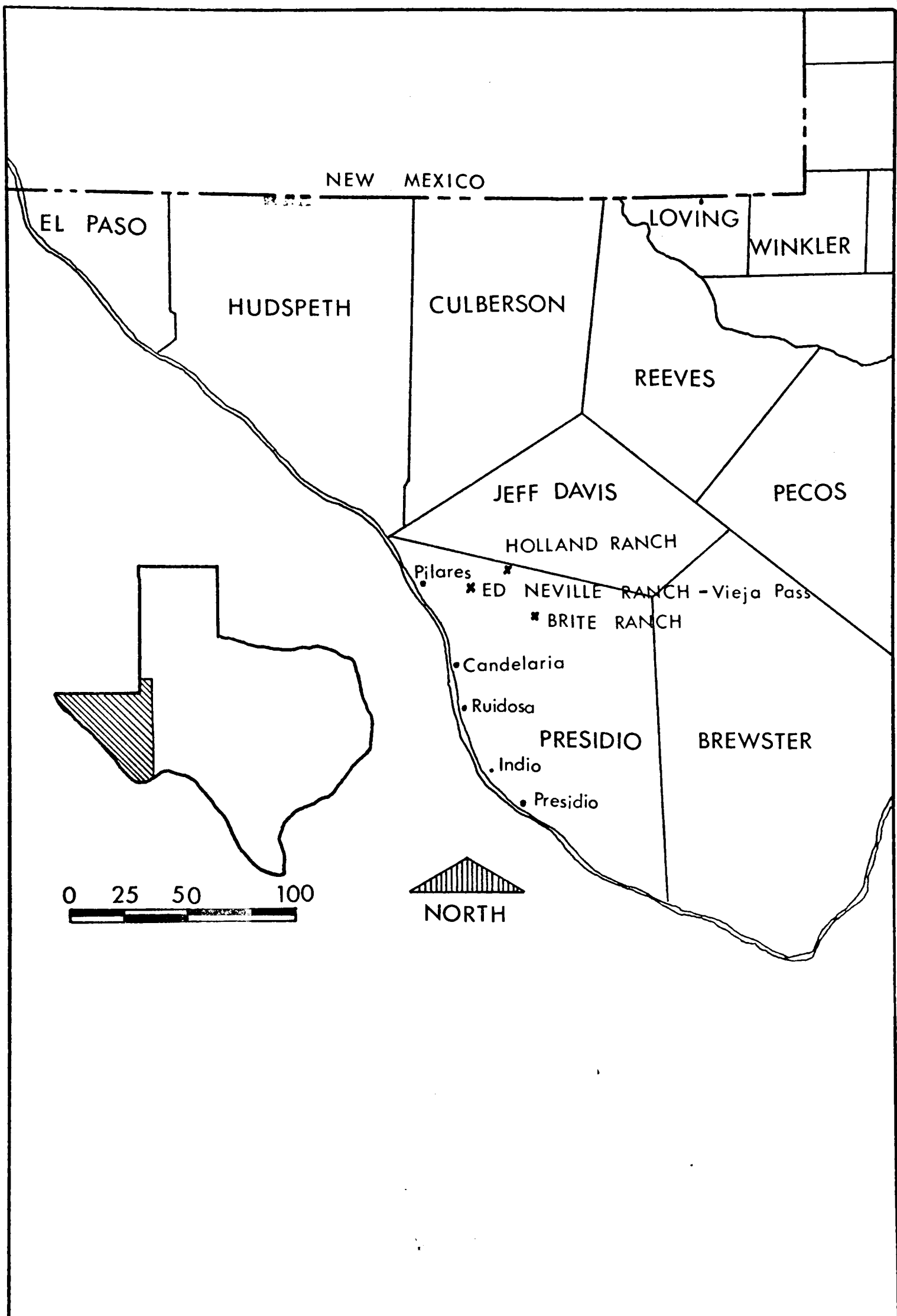


Figure 6.--Area ranch headquarters

was found later in the doorway, shot and badly beaten by clubs and rifle butts. Two troops of the Eighth Cavalry were alerted and quickly followed the trail. The raiders rode to Pilares, where they were heavily reinforced, to receive the invading cavalry. As the cavalry charged, the bandits retreated, and the fight ended in Pilares with thirty-three Mexicans and one American dying in the battle (2:4-5).

Shortly after these two raids, Colonel George T. Langhorne, Commander of the Eighth Cavalry and the Big Bend Military District headquartered in Marfa, established Fort Holland on the east side of Vieja Pass. Fort Holland was established as a garrison post to strengthen the upper Big Bend District. The Brite and Neville raids were determining factors in the location of the fort. The men of the Eighth Cavalry referred to Fort Holland as a "jackass" camp because supplies had to be packed in by jackass. After the establishment of the fort in 1918, border raids were reduced. Air patrols by the Army Air Service began in late 1918, making surveillance and control of remote regions possible (2:2).

On Sunday morning, August 10, 1919, Lieutenants H. C. Peterson as pilot and P. H. Davis as observer-gunner, left Marfa by plane to patrol the border from Lajitas on the Rio Grande to Bosque Bonito, located 120 miles southeast of

El Paso. When the plane failed to land at Fort Bliss as intended, it was assumed that it had made a forced landing or turned back to Marfa. When no word of the plane or flyers had been received by the following day, search flights were made but in vain. On Sunday, August 17, a ransom note from Jesus Renteria, a Villista bandit leader, was delivered to Dawkins Kilpatrick a merchant in Candelaria. The note demanded \$15,000 to be paid by midnight August 18, and threatened that the flyers would be shot. The United States War Department authorized General Dickman to pay the ransom, but the authorization did not state that the ransom payment could be made in cash as the note demanded. Upon hearing of the need for cash, ranchers in the area subscribed the necessary \$15,000 within a five minute period, and the Marfa National Bank provided the funds. The ransom was to be paid in two steps. After dark on the night of August 18, across the Rio Grande opposite Candelaria, a successful trade for Lieutenant Peterson was made by Captain Matlock of the Eighth Cavalry who paid the bandits half the ransom. He learned of a planned ambush and instead of paying the second half, he freed himself and Lieutenant Davis at gun's point.

Early on the morning of the 19th, an expedition composed of the Candelaria Column, Ruidosa Column, and Indio Column of the Fifth and Eighth Cavalries was underway

across the border into Mexico to capture the bandits. By Saturday, August 23, the bandit leader, Renteria, had been killed and the other bandits taken prisoner. This expedition almost created an international incident as Mexico objected to the crossing of the border by American troops. As a result of the continuous turmoil, small detachments of United States troops remained in the area until 1924 (10:3-43).

Today, the Capote Falls region is still strongly tied to its rich, and colorful history. The chief economic activities of the area are predominantly those related to ranching and farming with mining playing only a small part.

Geology

The Sierra Vieja Mountains, which house Capote Falls in a box canyon, lie between the Van Horn Mountains to the northwest and the Chinati Mountains to the south. The Vieja Rim forms the east side of a structural trough (graben), for a distance of 44 miles along the Rio Grande. The Rio Grande follows the graben from El Paso southwest to the Big Bend area along which a down cutting has been made to serve as a base level of erosion (22:1).

The area's most prominent topographic features are three westward facing escarpments or rims, which are the summits of the Sierra Vieja Mountains. These rims are

mostly thick sequences of Tertiary volcanic rocks, classified as the Vieja Group, which unconformably overlies Upper Cretaceous rocks. The Vieja Group includes in ascending order, the Jeff Conglomerate, Gill Breccia, Colmena Tuff, Buckshot Ignimbrite, Chambers Tuff, Bracks Rhyolite, Capote Mountain Tuff, Brite Ignimbrite and Petan Basalt (6:23). The area at Capote Falls has two distinct rims of which the upper "flat" is formed by the upper part of the Capote Mountain Tuff, with the falls flowing over Bracks Rhyolite. The narrow box canyon from the falls to the old nitrate mine is formed in Chambers Tuff (22:1).

The Vieja area was subjected to extensive erosion followed by a deposit of volcanic lavas and pyroclastics interbedded with local lacustrine and fluvial deposits during lower Tertiary times. Potassium-argon dates in the Vieja Rim area indicate that the Brite Ignimbrite ranges from 29.7 to 33.0, the Bracks Rhyolite from 33.0 to 36.0, and the Buckshot Ignimbrite from 35.0 to 38.0 million years B.C. (32:590-604). From these dates it is concluded that volcanic activity in the Trans-Pecos area began in late Eocene time and continued sporadically into Miocene time. During late Tertiary time multiple igneous intrusions produced sills and dikes in many areas causing local deformation. Regional block faulting occurred along northwest-southeast lines creating large Bolsons which filled with

thousands of feet of fluvial and lacustrine fill during the late Pliocene and early Pleistocene time. The Bolsons became entrenched and integrated during later Pleistocene time. Today streams are the indicators of the Bolsons (22:1-2).

Soils

The soils of the area have been described as those belonging to the Brewster series which are red or reddish-brown soils that have developed from igneous and volcanic mountains rocks (21:17).

Brewster soils are normally shallow, less than 20 inches thick, and contain more than 35 per cent by column coarse fragments over igneous rock having a hardness of more than 3, Moh's scale. Brewster soils are found on slopes ranging from less than 1 per cent to approximately 45 per cent in semi-arid to arid climates (21:17).

Both above and below the falls, alluvium deposits 25 to 30 feet thick can be seen. Head waters of Capote Creek originate from a spring in a alluvium fill above the falls that is 25 to 30 feet thick and covers 100 to 150 acres. This material is graded from sand to large boulders and is highly erosive (26:1).

Bioecology

The Candelaria area has an average rainfall below the Sierra Vieja Rim of 4 to 12 inches and above the rim of 15

to 20 inches, thus classifying the area below the rim as arid and the area above as semi-arid land.

The area below the rim is prevented from receiving moisture bearing winds due to its mountainous enclosure. The mountains and higher elevation allow the area above the rim to receive greater amounts of the moisture. Rains generally occur in the afternoons in the form of local showers. These showers are accompanied by active thunderstorms that are short and intense causing flash flooding of the area resulting in erosion rather than beneficial watering (3:13-18).

Capote Falls is located within the Chihuahuan biotic province which has a great diversity of physiographic features. The Falls is in an area of transition from the desert to the mountains. The larger portion of Capote Canyon should be included in York's Roughland Belt of the Sierra Vieja biotic district with four ecological associations being recognized within this district. The western portion of the Canyon should be included in the Rio Grande Basin District also having four ecological associations (21:81). The ecological associations with the Roughland Belt are: the upper stream bed, the canyon slope, the rock bluff, and the lechuguilla. The Rio Grande Basin ecological associations are: the lower stream bed, the mesquite, the desert, and the transitional area (21:81-98).

Vertebrates and plants of these associations are shown in the Appendix (see Tables 1-8 in Appendix) (see Figure 5).

Archeology

James Malone of the Texas State Historical Survey Committee made a reconnaissance of the area giving special attention to Capote Canyon and Capote Falls in November of 1971. According to Mr. Malone, the canyon contains only random prehistoric items, possibly because the canyon is so narrow that an occupying group would risk danger of annihilation. The canyon floor does contain extensive 20th century artifacts of the nitrate mine established there in 1918. Visible evidence of mining machinery and structures as well as stone and adobe huts used as living quarters are found in the floor of the lower half of the canyon. Further investigation needs to be made in the area above the falls and the area west of Capote Canyon, permission to survey the property for this investigation could not be secured from the private landowner (17:1).

Accessibility

Because the accessibility of Capote Falls is difficult and limited, the area has retained much of its natural wilderness characteristics.

Access to Capote Falls may be gained from a partially paved, partially graveled Farm Road 2810. One leaves U.S.

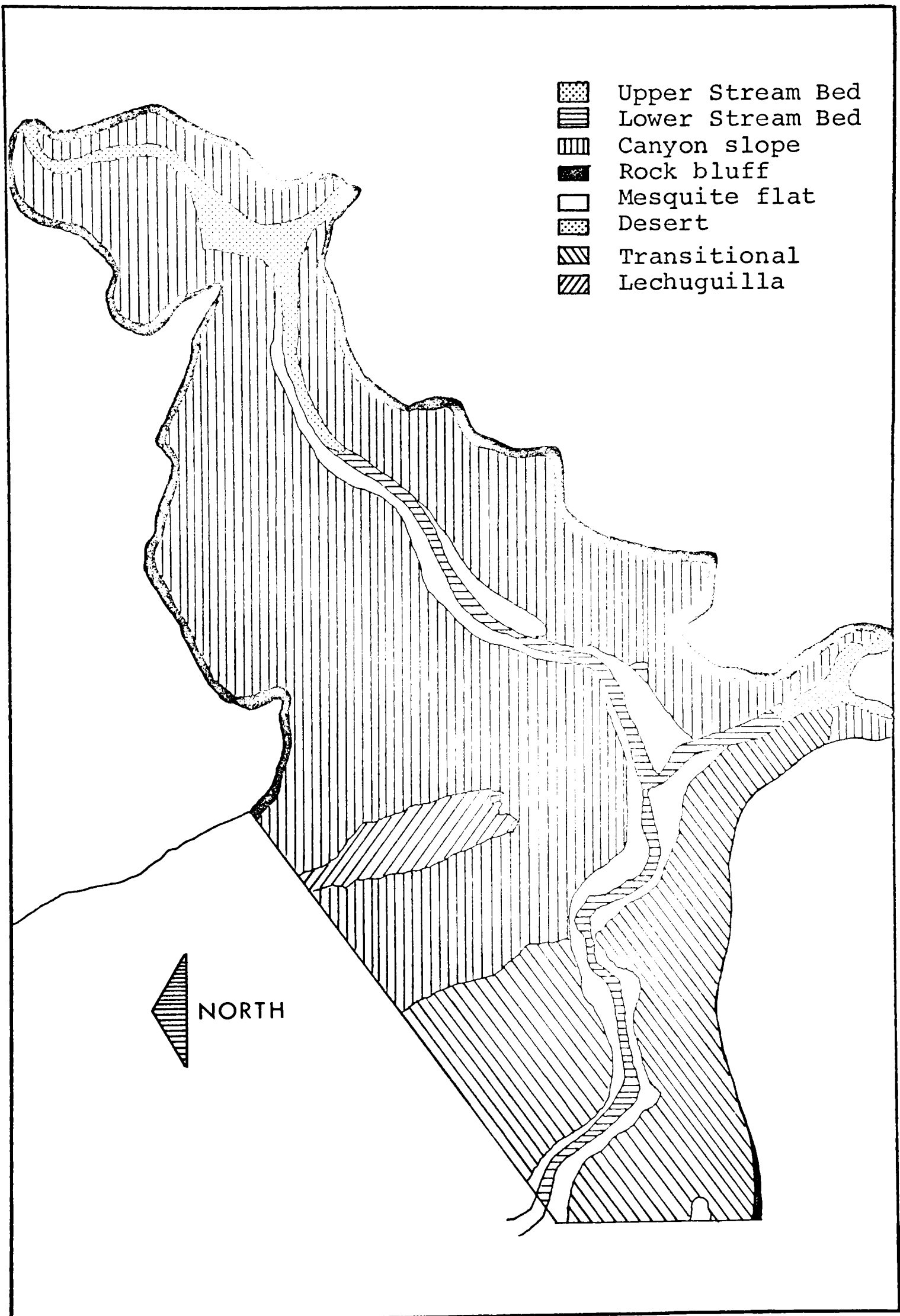


Figure 7.--Ecological association - Capote Canyon

Highway 80 at Marfa traveling west to Ruidoso, north to Candelaria and east to the box canyon. Thirty-two miles of this 72 mile road is paved.

The best access road is from Presidio northwestward to Candelaria and then east to the box canyon. This is Farm Road 170 referred to as "The River Road" or El Camino del Rio and is paved to Ruidosa leaving one to traverse approximately only 22 miles of gravel road.

The gravel roads are maintained by Presidio County from the pavement to Candelaria and northwestward to Capote Creek Crossing. From this crossing eastward, the road is privately owned and poorly maintained.

Should the site be established as a park an easement will need to be acquired from the terminus of the County Road at Capote Creek Crossing east to the Capote Falls site (see Figure 1).

Competing and Complementing Facilities

The Trans-Pecos Region of Texas has several recreational, historical, and scenic facilities. Big Bend National Park, Guadalupe Mountains National Park, and Fort Davis National Monument represent federally owned lands in the region while Hueco Tanks, Balmorhea, Monahans Sandhills, Fort Leaton, and the Davis Mountains are some of the state owned recreational and historic facilities located in the

region. The University of Texas McDonald Observatory, located west of Fort Davis, is also a tourist attraction which could complement Capote Falls.

In the State of New Mexico, adjacent to Texas' Guadalupe Mountains National Park, lie the Lincoln National Forest and Carlsbad Caverns National Park. One of the features of Lincoln National Forest is Sitting Bull Falls. Although this falls is situated some 250 miles to the north of the Capote Falls area, it is a developed waterfall in an arid climate similar to that of Capote Falls.

The Sitting Bull Falls development contains a picnic area, concrete walk, stairs leading to the falls, ramadas, paved parking, a water well, three flush toilets, and landscaping. The original picnic grounds were developed by Civilian Conservation Corps workers and in 1969, \$50,000 was spent by the National Forest Service to upgrade the 17 family unit picnic area. Maintenance of the area costs approximately \$700 per month and is spent primarily on toilet and water systems. Administration and maintenance is accomplished for \$2,400 per year. Over the past three years, there have been 29,900 visits representing \$1,995 single day (\$1.00) use permits and \$700 annual permits collected (9:1-2).

Big Bend National Park contains Cattail Falls approximately 55 feet in height. Cattail Falls is not a developed

area but accommodations for visitors consist of two chemical toilets, unpaved parking, an access road, and hiking trail to the falls. The falls is located in a box canyon approximately one mile from the parking area. The number of visitors to the falls is not known nor is the cost of development known (see Figure 6).

Water Supply for Capote Falls

The 100 to 150 acre alluvium supplying the dry-weather flow to Capote Falls is a highly erosive material which washes badly during periods of flooding. Long time residents of the area report that Capote Creek has never gone dry during their times. However, if the erosion of the cienaga and stream bed is not stopped, there is a possibility of the stream becoming intermittent.

Comparisons of existing conditions of the cienaga with aerial photographs made in 1940 by Dr. Dan Wells show that the cienaga has undergone radical changes in the past thirty years. The creek bed has become deeper due to rapid erosion which is still taking place and has in turn resulted in the lowering of the normal water table. A more variable rate of flow has resulted from the lower water table and a remarkably high quantity of sediment, even under low flow conditions is carried by the creek. The "Travertine" cape structure from which the falls derives its name is

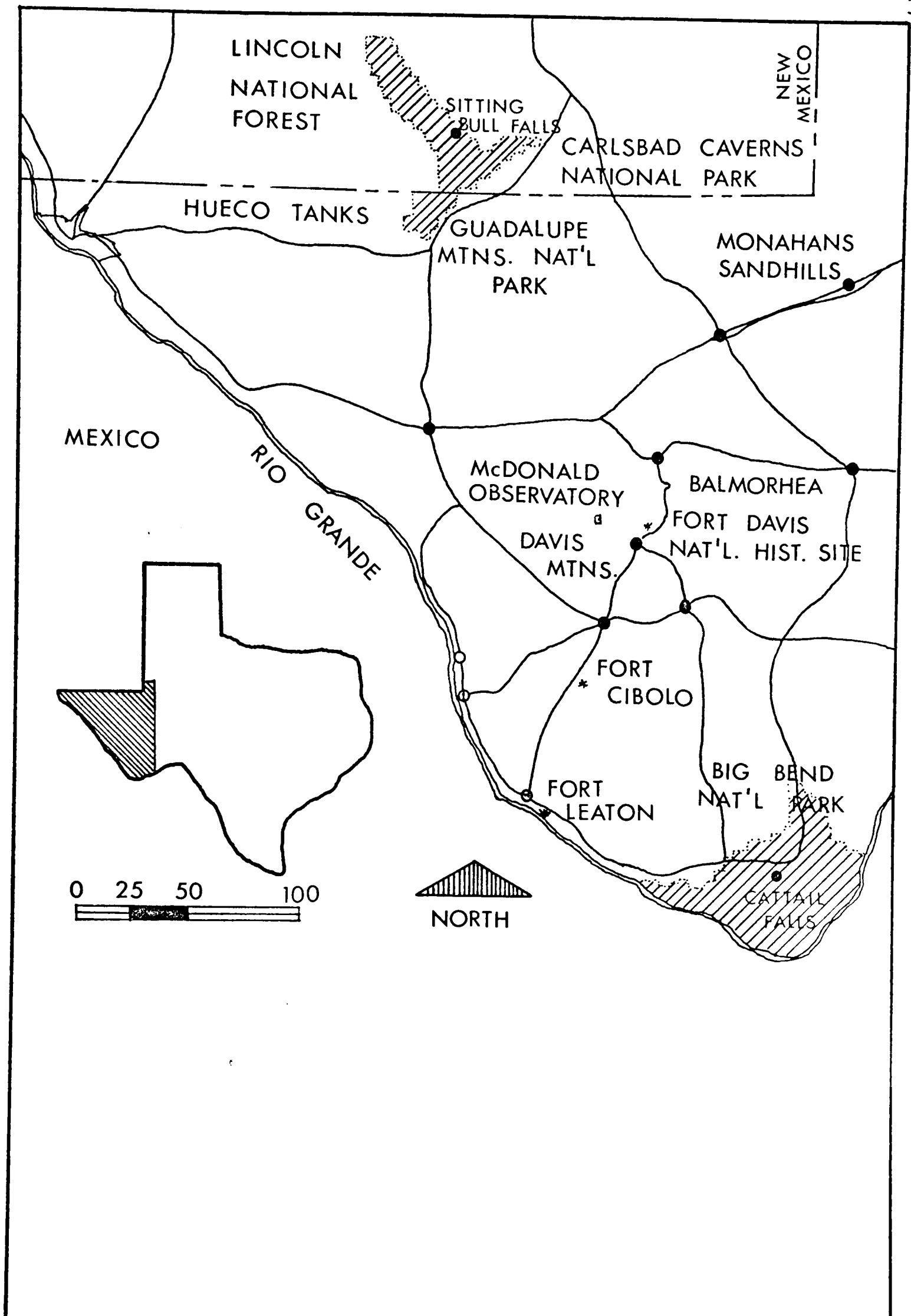


Figure 8.--Recreation sites, Trans-Pecos Region

endangered by the abrasive action of the sediment carried by the stream. The cape is eroding very rapidly and if allowed to continue, this erosive action will destroy in a few decades what took thousands of years to build.

There exists, above the falls, evidence of a dam which was constructed sometime after 1940, and the rapid erosion of the cienaga may be associated with the construction and subsequent failure of this dam. The dam impounded significant quantities of water to allow undermining and failure which released a surge of water on to a stable channel causing the erosion processes to begin. Natural processes of revegetation have not been able to restabilize the stream bed and thus erosion continues.

Prior to acquisition of the watershed above the falls, a comprehensive detailed engineering and hydrologic analysis should be made. Acquisition of the watershed should be based upon this engineering and hydrologic analysis. At present it appears if Capote Falls is to be preserved for present and future generations of Texans, the entire watershed of Capote Creek above the falls must be acquired to allow the development of an effective system of erosion and streamflow control. However, the hydrologic analysis may indicate otherwise (30:1-2).

Utilities

Electricity, telephone, and water are the only utilities that are close to the Capote Falls area. Water would be available to a limited extent from Capote Creek. Probably this water would be in sufficient quantity to support development if it were drawn from the creek, treated and placed in a large storage tank to be used during peak periods of visitation. Electricity and telephone service are available at Bill Middleton's ranch headquarters which is approximately one mile to the west of Capote Canyon. Fuel for the area could be in the form of butane or propane.

Sewage will have to be treated through means of a septic tank or by constructing a small sewage treatment plant. Solid waste will have to be disposed of in a sanitary landfill.

Land Ownership

The land necessary for acquisition to preserve Capote Falls is owned by seven landowners. They are the L. C. Brite Estate; the M. D. Bryant Estate; the Bill Middleton Estate; the Mabel Middleton estate; the A. D. Dickinson Estate; the F. M. Maddox Estate; and the State of Texas (see Figure 7).

The watershed area above and including the falls is owned by the L. C. Brite Estate which is managed by Mr.

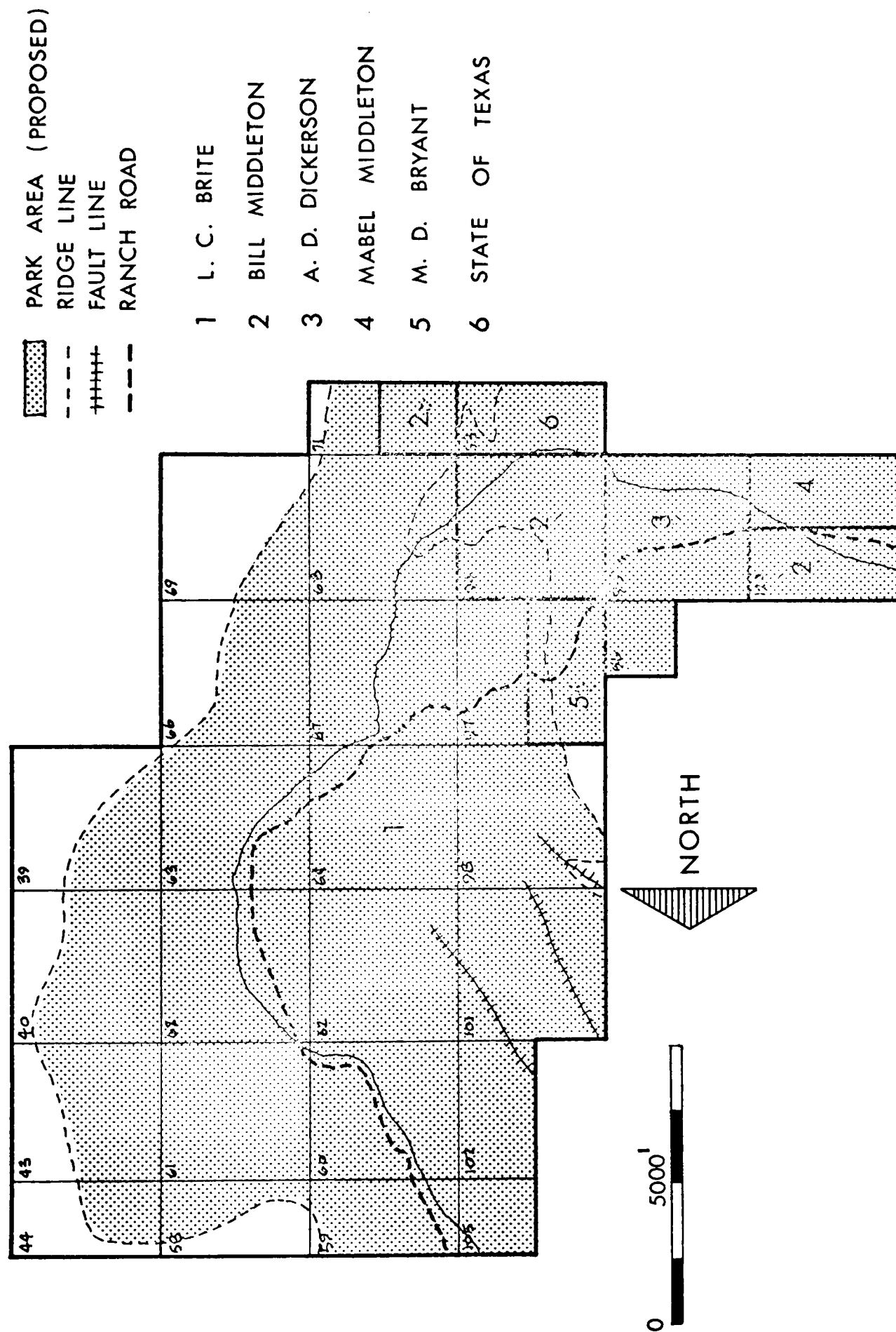


Figure 9.--Land ownership map

Jim White. In a telephone conversation with the author, Mr. White stated that the estate is held in trust and cannot be sold by the heirs and that the heirs do not want a park near their property (31).

Mr. Bill Middleton indicated to the author that he would sell his property for a park development (19). As other landowners were not contacted, their points of view are not known.

CHAPTER III

RECOMMENDATIONS AND THE CONCEPTUAL PLAN

Capote Falls is indeed one of the unique natural areas in Texas. Its characteristics of remoteness and virtual inaccessibility have preserved the area, thus far, in an almost pristine state. The riparian vegetation one finds existing in a desert climate as well as the colorful history associated with the development of the area accent the need for preservation. Public ownership would make Capote Falls available not only for scientific study but also for enjoyment by the general public. The inclusion of Capote Falls in the Texas Parks and Wildlife System would enhance the existing system and increase tourism to that section of the state.

Based upon the inventory and the evaluation of Capote Falls in Presidio County, the following methods are recommended to preserve the area for present and future generations of Texas.

I. The Capote Falls area should be acquired and developed by the State as a scenic park with wilderness characteristics.

A. Planning goals should be

1. To develop a high density use park outside of the canyon area below the Sierra Vieja Rim.

2. To preserve the unique wilderness characteristics of the box canyon and waterfall.
 3. To create a wilderness park above the Sierra Vieja Rim.
- B. Planning should limit development to coincide with the limited carrying capacities of the land--in other words, the maximum number of visitors feasible. If too many visitors are present at the same time, none will enjoy the park.
 - C. Pending the outcome of an engineering analysis, it would appear that acquisition should include the entire watershed from Capote Mountain south and from the west to the east rims above the falls.
 - D. All of the box canyon should be acquired from rim to rim and be developed to preserve its wilderness characteristics.
 - E. Land west of the box canyon should be acquired and developed as a high density use zone.
- II. An archeological investigation above the falls and along the Capote Canyon should be made.
 - III. Prior to acquisition, an engineering and hydrological investigation for the development of an erosion control system should be initiated.

- IV. Land should be acquired for the development of an access road into the Capote Falls area from the county road. Cooperation with the Texas Highway Department to develop Farm Road 170 to Candelaria and north to Valentine should be implemented.
- V. Add the river road from Presidio north to Valentine to the Trans-Pecos Trail as an alternate route for visitors.
- VI. An early alert system should be set up to warn visitors of flash floods along the access roads and the wilderness trail.
- VII. Develop a wilderness trail through the box canyon with posted warnings concerning unstable ground, snakes, etc.
- VIII. Management policies should include utilization of permits, fees, and reservations consistent with Texas Parks and Wildlife Regulations.
- IX. Management should prohibit
 - A. Off-road vehicles in Capote Canyon and watershed area
 - B. Collection of plants and rocks
 - C. Cutting of firewood
 - D. Development of permanent public facilities and roads outside the high density use zone

- X. Develop a comprehensive interpretative program to inform the visitor of the history, archeology, flora, fauna, and geology of the area.
- XI. Acquire an easement for the development of an access road to the watershed area.

The Conceptual Plan

The Capote Falls area should be acquired and developed to preserve Texas' highest waterfall. Acquisition of 9,920 acres above the rim would insure an effective erosion control program. It is recommended that this watershed above the rim be developed as a wilderness park. The land could be purchased and leased back to the original landowners or others keeping in mind that land management practices in this area will affect the erosion processes.

The area west of the canyon below the rim should be developed into a high density use zone having areas for picnicking, overnight camping, paved parking, interpretive center, park residence, stables, access roads, maintenance facilities, and utilities.

A wilderness trail from the interpretive center to the falls with some imaginative interpretative devices to interpret the history of the mining area, plant materials, and geologic formations along the way should be the only developments inside the canyon. This type development would

limit the walk to the physically able only but is necessary to preserve the wilderness characteristics of the canyon. Horses may provide some of the handicapped an opportunity of viewing the falls. A scale model of the canyon and interpretative devices would be a method of enhancing the handicapped visitor's experience for those who are unable to ride or walk.

The area above the rim should be developed as a wilderness park permitting only activities such as back packing, hiking, horseback riding, and wilderness camping.

Interpretative programs and devices should be located in the central location near the box canyon. History of the area and geologic history should be interpreted as well as flora, fauna, geologic structures, and archeological findings. All interpretative devices should give the visitor a more intimate understanding of the park.

Two combination campground-picnic areas should be established to include 16 multi-use sites and shade shelters at each location. A rotation of campsite visitation could then be initiated to allow for necessary repairs and restoration during low use periods. Both campsites could be used during peak periods of visitation.

A campground separate of the conventional picnic and overnight campgrounds for travel trailer campers should be

established. This campground should have utility connections and a sewage disposal station.

A stable complex is recommended to supply horses and equipment to accommodate visitors. The stable should be located near the road over the rim, with an auxiliary stable near the interpretative center for riders wishing to traverse to the falls.

Two residences should be constructed in the park area. If additional residences are needed the use of mobile homes could be employed.

The maintenance complex need not be large because this type of park requires only limited maintenance. The area should have a fenced storage area to store items such as firewood, sand and gravel for road and trail repair, and equipment (see Figure 8).

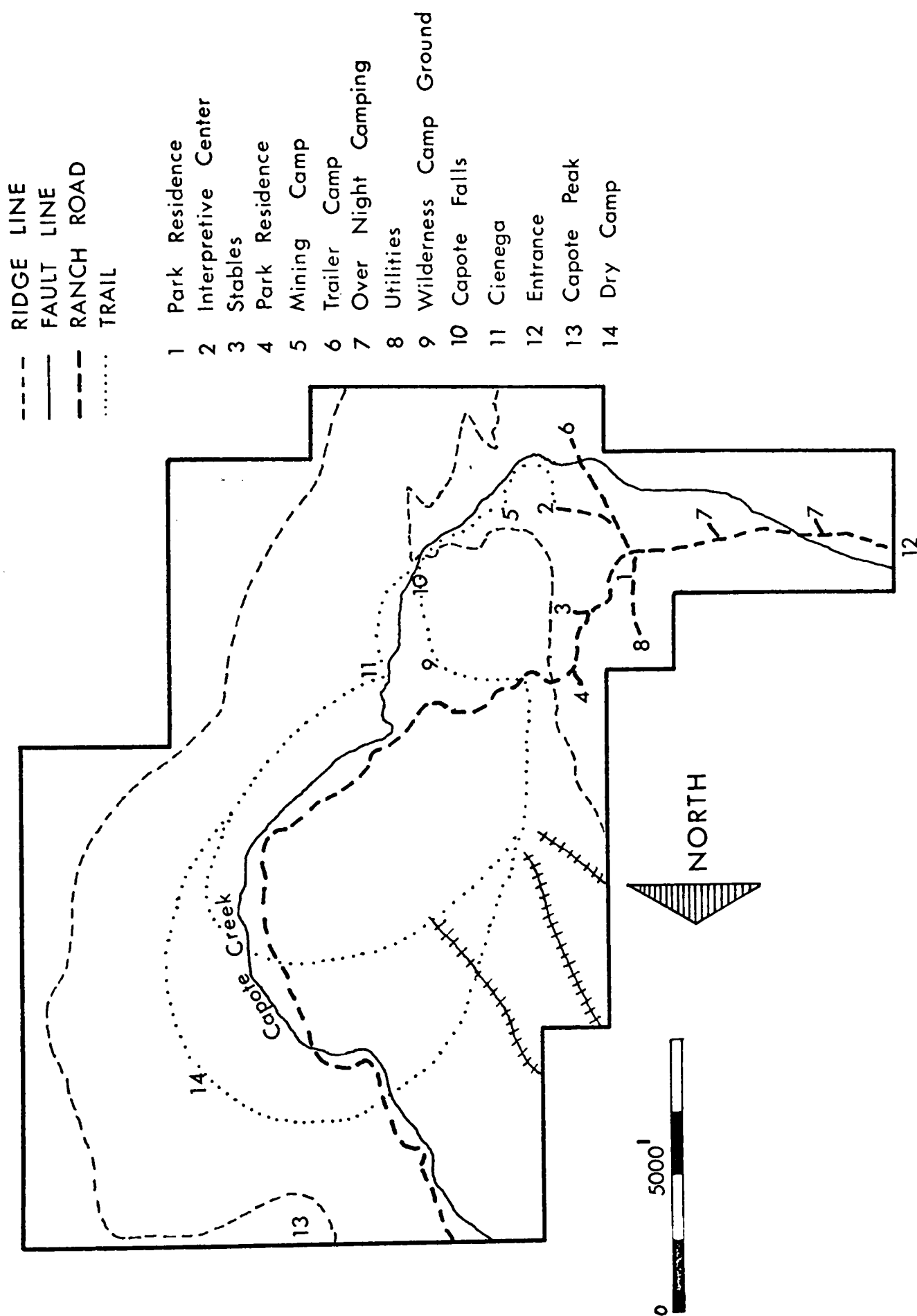


Figure 10.--Capote Falls, Wilderness State Park, conceptual plan

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APPENDIX

(Adapted from 21:34-38)

TABLE 1

UPPER STREAM BED ASSOCIATION

PLANTS

1. Ash - Fraxinus berlandieriana
2. Grape vines - Vitis rupestris
3. Columbines - Aquilegia hinckleyana
4. Sawgrass - Cladium jamaicensis
5. Tubetongue - Siphonoglossa pilosella

VERTEBRATES

1. Treefrog - Hyla arenicolor
2. Frogs - Rana pipiens
3. Reptiles - Eumeces brevilineatus, Crotalus lepidus
4. Vultures - Cathartes aura
5. Doves - Zenaida asiatica, Zenaidura macroura
6. Goldfinches - Spinus psaltria
7. Phoebes - Sayornis nigricans
8. Birds - Vireo belli

TABLE 2

CANYON SLOPE ASSOCIATION

PLANTS

1. Acacia - Acacia greggii
2. Hackberry - Celtis pallida

TABLE 2--ContinuedPLANTS

3. Grama - Bouteloua curtipendula, B. brevseta
4. Sotol - Dasyilirion leiophyllum
5. Cockroach plant - Haplophyton crooksii
6. Trumpet-flowers - Tecoma stans

VERTEBRATES

1. Skinks - Eumeces obsoletus
2. Wrens - Catherpes mexicanus
3. Pocket mice - Perognathus nelsoni
4. Mice - Peromyscus boylii
5. Raccoons - Procyon lotor
6. Bobcats - Lynx rufus
7. Ringtails - Bassariscus astutus

TABLE 3

ROCK BLUFF ASSOCIATION

PLANTS

1. Ephedra - Ephedra aspera
2. Prickly pear - Opuntia rufida
3. Bluets - Hedyotis intricata

VERTEBRATES

1. Tree lizards - Urosaurus ornatus
2. Swifts - Aeronautes saxatalis

TABLE 3--ContinuedVERTEBRATES

3. Swallows - Petrochelidon pyrrhonota
4. Phoebes - Sayornis saya
5. Bats - Eptesicus fuscus, Tadarida mexicana,
Eumops perotis

TABLE 4

LECHUGUILLA ASSOCIATION

PLANTS

1. Lechuguilla - Agave lechuguilla
2. Threeawns - Aristida sp.
3. Fluffgrass - Erioneuron pulchellum
4. Acacia - Acacia vernicosa
5. Croton - Croton pottsii
6. Cholla - Opuntia imbricata
7. Prickly pear - O. macrocentra

VERTEBRATES

1. Reptiles - Cophosaurus "Holbrookia" texanus
- Urosaurus ornatus
2. Birds - Catherpes mexicanus, Amphispiza bilineata
3. Pocketgophers - Thomomys bottae

TABLE 5

LOWER STREAM BED ASSOCIATION

PLANTS

1. Willows - Salix nigra
2. Cottonwoods - Populus wislizeni
3. Bentgrass - Polypogon semiverticillata
4. Spikesedge - Eleocharis sp.
5. Baccharis - Baccharis glutinosa
6. Brickelbush - Brickellia laciniata

VERTEBRATES

1. Toads - Bufo punctatus
2. Turtle - Trionyx spinifer
3. Rattlesnakes - Crotalus molossus
4. Hawks - Falco columbarius
5. Junco - Junco oreganus
6. Canyon Bats - Pipistrellus hesperus
7. Cupine - Eretizon dorsatum

TABLE 6

MESQUITE FLAT ASSOCIATION

PLANTS

1. Mesquite - Prosopis glandulosa
2. Hackberry - Celtis pallida
3. Lotebush - Condalia obtusifolia

TABLE 6--ContinuedVERTEBRATES

1. Toad - Bufo speciosus
2. Prairie lizard - Sceloporus undulatus
3. Patch-nose snake - Salvadora hexalepis
4. Rat snake - Elaphe subocularis
5. Banded gecko - Coleonyx brevis
6. Nighthawks - Chordeiles acutipennis
7. Hummingbird - Archilochus alexandri
8. Common birds - Auriparus flaviceps
 - Mimus polyglottos
 - Toxostoma dorsale
 - Regulus calendula
 - Pyrrhuloxia sinuata
9. Cottontails - Sylvilagus auduboni
10. Rock squirrels - Spermophilus variegatus
11. Mice - Mus musculus
12. Badger - Taxidea taxus
13. Skunk - Spilogale putorius

TABLE 7

DESERT ASSOCIATION

PLANTS

1. Creosotebush - Larrea divaricata
2. Ocotillo - Fouquieria splendens
3. Cholla - Opuntia imbricata
4. Prickly pear - O. macrocentra

TABLE 7--ContinuedVERTEBRATES

1. Whiptails - Cnemidophorus tigris
2. Sparrows - Amphispiza bilineata
3. Kangaroo rats - Dipodomys merriami

TABLE 8

TRANSITIONAL ASSOCIATION

PLANTS

1. Acacia - Acacia vernicosa
2. Cactus - Echinocereus stramineus

VERTEBRATES

1. Earless lizards - Cophosaurus texanus
2. Whiptails - Cnemidophorus tessellatus
3. Skinks - Eumeces obsoletus
4. Quail - Callipepla squamata
5. Wrens - Salpinctes obsoletus
6. Sparrow - Amphispiza bilineata
- Spizella passerina
7. Antelope ground squirrels - Ammospermophilus
interpres
8. Pocket mice - Perognathus penicillatus

