

AN ARCHAEOLOGICAL SURVEY FOR
RIO GRANDE ELECTRIC COOPERATIVE, INC.
IN SOUTHERN AND WESTERN TEXAS

Eric C. Gibson and Herbert G. Uecker

Center for Archaeological Research
The University of Texas at San Antonio
Archaeological Survey Report, No. 98

ABSTRACT

In March, April, and May 1980, the Center for Archaeological Research, The University of Texas at San Antonio, conducted an archaeological reconnaissance in portions of Dimmit, Kinney, Terrell, Pecos, and Hudspeth Counties. The survey was performed for the Rio Grande Electric Cooperative, Inc. Seven archaeological sites were located during this project. Recommendations for protection and/or further archaeological examination for six of these sites (41 PC 2, 41 TE 3, 41 TE 283-285, and 41 PC 393) are presented in this report. A brief discussion of prehistoric settlement patterns is also provided.

TABLE OF CONTENTS

	Page
Abstract	i
List of Figures.	iii
Acknowledgments.	iv
Introduction	1
Methodology.	1
Environmental Setting.	1
Chronology of Prehistoric Occupation	2
Previous Archaeological Research	6
The Survey	8
Description of Artifacts.	8
Areas Surveyed.	10
Settlement Patterns: Interpretations and Discussion.	20
References Cited	24

LIST OF FIGURES

Figure	Page
1. Survey Area 6, Location of 41 PC 393.	13
2. Survey Area 7, Locations of 41 PC 2, 41 TE 3, and 41 TE 283 . . .	15
3. Survey Area 7, Location of Site 41 TE 284	19
4. Survey Area 7, Location of Site 41 TE 285	21

ACKNOWLEDGMENTS

The assistance and courtesies extended to the authors by the following personnel of the Rio Grande Electric Cooperative, Inc. are gratefully acknowledged: Henry Fuentes, Leroy Heneke, Eddie Solis, Jim Freeman, and Reno Lewis.

We also thank Jack Eaton, Associate Director of the Center for Archaeological Research, and Dr. Thomas Hester, Center Director, for their encouragement, suggestions and comments relative to the organization of this project.

INTRODUCTION

In mid-March 1980, Alexander Utility Engineering, Inc. of San Antonio contracted with the Center for Archaeological Research (CAR), The University of Texas at San Antonio (UTSA), to perform an archaeological survey for the Rio Grande Electric Cooperative, Inc., in southern and western Texas.

The purpose of the survey was to locate and assess the potential value of cultural resources which might be present along rights-of-way for proposed new electric tie and transmission lines, and in switching and distribution station and substation sites. These new construction areas are scattered across southern and western Texas from Brundage in Dimmit County, to near Dell City in Hudspeth County.

The survey was originally intended to be a continuous eight day project; however, due to an unexpected access problem, the work was divided into two phases. On March 25 and 26, CAR staff archaeologists Herbert Uecker and Edwin Scruggs conducted an on-site examination of the three areas included in Phase I. The field work for Phase II, which included four additional survey areas, was undertaken by CAR staff archaeologists Herbert Uecker and Curtis Dusek from April 28 to May 3, 1980. Analysis and interpretations of the results were completed by Eric Gibson and Herbert Uecker. General supervision of the project was provided by Dr. Thomas R. Hester, Center Director, and Jack D. Eaton, Associate Director.

METHODOLOGY

In accordance with standard procedures for such surveys, all transmission lines and construction site areas were traversed on foot by the survey team, and the entire ground surface was carefully and thoroughly examined for evidence of significant historic and prehistoric cultural activities. Particular attention was given to crowns of terraces and toes of slopes, floodplain rises (levees, swales, Pleistocene terrace remnants, etc.) within minor creek systems, and major line crossings. In the case of lines, surfaces approximately 6 m (3 m to either side of the lines) wide and the length of the lines were examined. In the case of station or substation sites, parallel transect lines were walked at approximately 3 m intervals, first in one direction and then in the perpendicular direction. All artifacts, features, and sites were appropriately noted, photographed, or documented on standard site survey forms and were located on USGS 7.5 or 17 minute quadrangle topographic maps or on county highway maps. When present, samples of smaller surface artifacts were collected, provenienced, bagged, and returned to the CAR laboratory for further study and storage.

ENVIRONMENTAL SETTING

This section summarizes the environmental characteristics of the five counties that were surveyed during the field work phase of this project.

Dimmit and Kinney Counties are located in the South Texas Plains, an area of rolling hills where mesquite trees and thorny brush thrive. Both counties are included within the Tamaulipan Biotic Province (Blair 1950). High temperatures and low rainfall characterize the present climate.

Terrell and Pecos Counties are located in the Stockton Plateau region of Trans-Pecos Texas, which is the southern extent of the Great Plains Physiographic Province (Fenneman 1931:10). The Stockton Plateau consists of massive, horizontally bedded, chert-bearing limestones of the Comanche series, which was formed during the lower Cretaceous age. This area is included in the Chihuahuan Biotic Province (Blair 1950:98). The climate is semiarid; summers are hot and winters are usually mild.

Flora common to this region are agarita, yucca, lechugilla, sotol, screwbean, catclaw, ocotillo, greasewood, juniper, allthorn bush, mesquite, hackberry, willow, Mexican persimmon, Mexican Buckeye, live oak, and various cacti (Walters 1971:10).

Aside from an occasional jackrabbit, few animals were seen during the survey in this region. However, such fauna as deer, cottontail, jackrabbit, raccoon, fox, ringtail skunk, armadillo, peccary, badger, rock squirrel, dove, quail, and wild turkey are reported to be common in the area (*ibid.*).

Hudspeth County is in far western Trans-Pecos Texas. The area surveyed is confined to the physiographic district of the Salt Basin which is a portion of the Sacramento Mountains Section of the Basin and Range Province (Hunt 1967). In the floor of the Salt Basin, numerous dry lakes and ponds form an alluvial flat composed of clayey or silty ground covered by an extensive deposition of salt. The basin floor is surrounded by alluvial fans, composed of gravel and sand, which extend from the flats to the foot of the bordering hills and mountains to the east and west (Katz and Lukowski 1976:3).

The central area of salt lakes and ponds is essentially barren of vegetation, whereas the broad flats bordering the lakes, the higher ridges, and the alluvial fans toward the Guadalupe escarpment are characterized by creosote bush, mesquite, yucca, cacti, and several grasses such as tobosa and grama. Presumably an increase in moisture, suspected during certain prehistoric periods, would shift the vegetation in or along the salt lakes.

In summary, as Katz and Lukowski (1976), Inglis (1964), and Hester (1980) have pointed out, the present environmental conditions in these areas are not what they were in the past. The widespread mesquite and brush vegetation, which characterizes south and west Texas today, is a relatively recent phenomenon. These vegetation changes were caused by a variety of factors, especially the overgrazing by commercial livestock since the nineteenth century which led to the increased dispersal of mesquite seeds (Hester 1980:34). Prior to the Euro-American settlement, broad grasslands were more common but mesquite was also present, particularly in upland gravel areas and in scattered thickets along stream channels (Inglis 1964; Hester 1980).

CHRONOLOGY OF PREHISTORIC OCCUPATION

Current concepts of the succession of cultures in southern and Trans-Pecos Texas and their characteristics are summarized in this section. All dates for cultural-historical periods are approximate. The term "cultural-historical period" in this report refers to a range of behavioral and cultural activities and their observed traits within a broad geographic and temporal setting.

Paleo-Indian (13,000 to 6000 B.C.)

Paleo-Indian is the term used by some archaeologists to refer to the earliest human inhabitants of North America. Little is known of this period. Although some archaeological dates suggests that humans entered North America from eastern Asia as early as 30,000 years ago (Krieger 1964; Szabo 1969; Gagliano 1967), firm evidence places their entrance within the terminal stages of the Wisconsin Glaciation, ca. 13,000 to 11,000 B.C. (Jennings 1974). At Meadowcroft Rock-shelter in western Pennsylvania, radiocarbon dates of approximately 13,000 B.C. (Adavasio *et al.* 1978,1980) were determined for Paleo-Indian cultural remains. Although radiocarbon dates of nearly equivalent time depth have been reported, such as 11,300 B.C. for the earliest occupation of Fort Rock Cave in Oregon (Bedwell 1973), the majority of the reliable dates for Paleo-Indian occupation of North America fall between 10,500 B.C. and 6000 B.C.

During the greatest advance of the Wisconsin Glaciation, the ice extended as far south as the present location of St. Louis, Missouri. The land in southern and western Texas was primarily piñon pine parkland (Oldfield and Schoenwetter 1975). In Texas and northeastern Mexico, Hester (1976:5) has discerned two major cultural traditions present at ca. 8000 to 9000 B.C. These traditions may indicate cultural adjustments to local environmental and subsistence resources. Hester (1976:5) states that:

The most visible of these is the Plains-related Tradition. In this I would group all of the Clovis and Folsom sites known thus far in the state.

Hester (1976:6) also recognizes the Small Projectile Point Tradition as emerging from northeastern Mexico during this time (ca. 8000-9000 B.C.). Based on the work of Epstein (1975), there is evidence from the site of La Calzada in Nuevo Leon that this tradition began as early as 8600 B.C. Evidence of this tradition in southern and western Texas comes from undated sites, which is why it has received little emphasis in the archaeological literature.

During this time span, in Texas and the western plains, megafauna such as giant bison, mammoth, camel, and horse were hunted. In North American prehistory much emphasis has been placed on the "Big Game Hunters" of the Plains-related Tradition, even though many sites (Meadowcroft, Lindenmeir, Blackwater Draw No. 1) present evidence that smaller game and wild plants were also exploited (Jennings 1974; Adavasio *et al.* 1980). Plains-related Paleo-Indian occupation of southern and Trans-Pecos Texas is indicated by surface finds of *Clovis*, *Plainview*, *Golondrina*, and *Meserve* projectile points throughout both areas (Campbell 1970; Marmaduke and Whitsett 1975; Hester 1976; and Marmaduke 1978).

The Amistad Reservoir region, which is a transitional zone between southern and Trans-Pecos Texas, has produced subsurface evidence of Paleo-Indian occupation. Bone Bed 2, at Bonfire Shelter, contained *Folsom* and *Plainview* projectile points in direct association with extinct bison (Dibble and Lorrain 1967). The lowest level of the Devil's Mouth site contained *Lerma*, *Angostura*, *Plainview* and *Golondrina* projectile points (Johnson 1964).

Pre-Archaic (6000 to 3500 B.C.)

The piñon pine parkland of Texas was gradually replaced by a grassland savanna early in this period (Bryant 1969). This change was caused by an increasingly semiarid climate that probably diminished the amount of available ground water. This climatic warming trend occurred throughout most of North America during the post-Pleistocene. Climatic conditions and biotic provinces varied considerably from region to region. Throughout Texas, cultural groups of the Pre-Archaic reflected this environmental variability, as can be seen in the diversified tool assemblages from various areas. As Pleistocene megafauna became extinct, more animals such as bison, deer, rabbit, squirrel, and other small game were hunted (Marmaduke 1978). Concomitantly, techniques and tools for hunting and plant processing gradually became more specialized. Typical Pre-Archaic projectile points are triangular, corner-notched and stemmed varieties. Significant Pre-Archaic sites in southern and western Texas are Devil's Mouth, Devil's Rockshelter, and Baker Cave (Hester 1980:147-148).

This period of transition between the Paleo-Indian and Archaic periods has only been recognized in recent years and is not well understood (Hester 1977, 1980). Further research is necessary, particularly in investigations of synchronic and diachronic relationships between local adaptive strategies.

Archaic (3500 B.C. to A.D. 1000)

The climate had changed from semiarid to arid by the beginning of the Archaic period. Desert shrubs such as creosote bush, catclaw, and mesquite began to occur more frequently. Agave, prosopis, and acacia also began to appear in significant numbers in the Trans-Pecos region (Bryant 1969). However, southern Texas was characterized predominantly by prairie vegetation. Seed-bearing plants became increasingly important food resources to the local inhabitants of both areas. As in the Pre-Archaic, hunting continued to be focused on deer and small game during the Archaic period. Evidence of bison hunting in the region is present at Bonfire Shelter and is dated to approximately 3200 B.C. (Dibble and Lorrain 1967). However, evidence suggests that bison were not always available. A study by Dillehay (1974) indicates that bison were absent during two different periods, from approximately 5800 B.C. to 3200 B.C. and from 1000 B.C. to A.D. 200; he also suggests that warmer climatic fluctuations may have caused these absences.

During the Archaic period, the regional diversification became more pronounced. Kelley (1959) contended that the Texas Archaic linked the Eastern Midcontinent Archaic Tradition and the Desert Archaic of western North America. Kelley's viewpoint has recently been supported by Jennings (1974:152).

The Archaic period in southern and western Texas is characterized by such lithic artifacts as percussion-flaked stemmed projectile points, various manos and metates and other grinding stones, unifacial and bifacial choppers, gouges, various large scrapers, drills, and utilized flakes. Such "perishable" artifacts as baskets, mats, nets, fur and leather cloth, sandals, cordage, wooden darts, atlatls, and clubs have been reported from Archaic occupation levels in west Texas rockshelters (Kelly 1959:281).

Late Prehistoric Period (A.D. 1000 to 1530)

The climate became increasingly arid, and the occurrence of agave, prosopis, and acacia plants became more common during this period (Bryant 1969). The Archaic period and the Late Prehistoric period are separated by a technological innovation, the introduction of the bow and arrow. Small, very light, and thin pressure-flaked projectile points of various types (*Perdiz*, *Scallorn*) are diagnostic of the Late Prehistoric period (Hester 1980:154). Other indicators are ceramics and agriculture in some areas, very small end scrapers, and in certain regions polyhedral blade cores and blades (*ibid.*:158).

Historic Period (A.D. 1530 to 1900)

Cabeza de Vaca's journey through southern and western Texas, during the 1520s to 1530s, is the first documented contact between the Spanish explorers and the aboriginal inhabitants. However, the Europeans had minimal impact on the natives until the advent of the Spanish missions, during the late 1600s and early 1700s (Hester 1980:160).

Throughout the Historic period, southern Texas was the domain of dozens or even hundreds of bands of Indians who spoke Coahuilteco ("Coahuiltecan"). Hester (1980:40) has described the generalized life-ways of these bands as:

The Coahuilteco and other hunting and gathering Indians in southern Texas lived in small groups, each with a distinctive name and territory utilized for the hunting, plant food gathering, and fishing necessary to obtain subsistence. They moved throughout their territories, sometimes overlapping into the territories, of other groups, in a seminomadic fashion. More detailed population and territorial estimates are difficult, as many groups were often found in widely separated areas during the seventeenth and eighteenth centuries. Villages were established at favored locations near rivers or creeks, occupied for a short time, and then the groups would move on.

In Trans-Pecos Texas, based on the writings of various Spanish explorers and the research of ethnohistorians, the inhabitants of the region, from 1500 to the late 1590s, were called the Jumanos. Jumano, like Coahuilteco, is a generalized label for a great number of nomadic bands. They have been described as bison hunters who lived in "tents" (possibly skin tents). However, they sometimes may have been mistakenly identified by the Spanish. Athapascan speaking people, who later became known as the Apache, were also present in eastern Trans-Pecos Texas during the early 1500s (Bolton 1916; Newcomb 1961; Collins 1971; Skeels 1972).

By 1684, the Apaches (either Mescalero or Lipan) may have been warring on the Jumano peoples of the region. The aggressors in this conflict were called "Salineros" (Bolton 1916; Collins 1971).

By 1715, the Jumano bands were allied with the Apache and hostile to the Spanish. After this time there is no further mention of the Jumanos. They probably were assimilated by the Apache groups (Forbes 1959; Collins 1971).

During the 1720s, the Comanches arrived in west Texas, and were constantly at war with the Apaches. By the late 1700s, this warfare had led to the displacement of the Apaches into four groups: the eastern group, known as the Kiowa of the Texas Panhandle; the Lipan of southwest Texas and northern Mexico; the Jicarillo of northern New Mexico; and the Mescalero of southeastern New Mexico and adjacent parts of Texas (Newcomb 1961:108-109; Collins 1971:93).

A treaty between the Comanches and the Spanish "Ciboleros" of New Mexico brought peace and trade to the region in 1786. Early trade items were bison hides and meat for Spanish goods. By the 1820s, the Comanches were trading horses, mules, and captives for rifles, knives, and hoop-iron (for lance and arrow points). The Spanish traders (or Comancheros) encouraged Comanche attacks on Anglo settlements by providing a constant market for plunder from the Trans-Pecos Texas and New Mexico settlements (Haley 1935; Smith 1962; Collins 1971).

In the 1850s, a series of forts was built by the federal government in the region with the intention of halting Comanche raids and protecting settlements. Fort Davis, Fort Stockton, and Fort Lancaster were all established during this time.

At the outbreak of the Civil War, these forts were seized, their stores confiscated, and their garrisons imprisoned by the secession government of Texas. After the war ended, the frequent raids of the Comanches and Apaches necessitated the reoccupation of some of these forts (Hays and Jelks 1966). Many unsuccessful attempts were made to halt or control the illicit trade of the Comancheros and Comanches, but it persisted until the 1870s, when there were no longer any Comancheros left to trade with (Haley 1935; Collins 1971).

PREVIOUS ARCHAEOLOGICAL RESEARCH

This section presents a brief review of archaeological research in the four counties examined during the field work phases of this project. A more detailed synthesis of archaeological research in southern Texas is available in Hester (1980). Additionally, Lehmer (1958) and Marmaduke (1978) have summarized previous archaeological research in the Trans-Pecos region.

Dimmit County

In 1932, A. T. Jackson of the University of Texas investigated a site in southwest Dimmit County. This site, 41 DM 1, yielded a collection of Archaic dart points, choppers, knives, and hammerstones (site report on file, Texas Archeological Research Laboratory, Austin).

During the 1950s and 1960s, the Carrizo Springs High School Archeological Society (organized by J. W. House in 1953) conducted many investigations in the area (Hester 1964, 1965). This group prepared several special reports on such subjects as type descriptions, rockshelters, and burned rock middens (Nunley and Hester 1966).

In 1964 and 1965, the Dimmit County Archeological Survey carried out investigations in Dimmit and Zavala Counties. Twenty-four sites were recorded, dating from the Archaic to the Late Prehistoric period (Nunley and Hester 1966:1).

Also in 1965, M. K. Schuetz of the Witte Memorial Museum excavated an Archaic Indian burial in southeast Dimmit County.

The files of the Texas Archeological Research Laboratory in Austin show that, from its inception in 1953 to ca. 1966, the Carrizo Springs High School Archeological Society continued its contributions to understanding the archaeology of Dimmit County.

Kinney County

A search of the files at the Texas Archeological Research Laboratory, Austin, and at the Center for Archaeological Research, The University of Texas at San Antonio, revealed a dearth of published materials on the archaeology of Kinney County.

The Las Moras site, located at the junction of the Trans-Pecos and south Texas regions, showed evidence of intermittent occupation over a period of 6000 to 9000 years, and is one of the few sites that has been reported from Kinney County (Patterson and Wehner 1975).

Terrell County

Most of the archaeological research reported from Terrell County has been confined to the Sanderson Canyon area in the southwestern part of the county. In 1970-1971, H. J. Shafer of the Texas Archeological Salvage Project conducted an archaeological reconnaissance of Sanderson Canyon for a proposed watershed project. Shafer recorded 22 prehistoric sites, including rockshelters, burned rock middens, hearth concentrations, and quarry sites. Shafer (1971:23) observed that all of the open sites were located near an arroyo, and that site location may have been dependent on water availability. Further reconnaissance and testing in the Sanderson Canyon Watershed was conducted by the Texas Archeological Survey in 1976 (Brown, Prewitt, and Dibble 1976). The final salvage and mitigation work was done by Environment Consultants, Inc., in 1978 (Anderson 1980). The sites were identified as dating from the Archaic period through the Late Prehistoric period. Among the conclusions of this research was the interpretation of a technological change during the Late Prehistoric period. Apparently there was an emphasis away from large central oven (ring midden) food processing to dispersed smaller hearths. This trend was interpreted as being a possible result of: (1) a shift in the seasonal occupation of the xeric uplands; (2) a change in band social structure/group composition; and (3) a shift in food procurement and processing technology (Anderson 1980:618).

Pecos County

In Pecos County, very little archaeological research has been conducted, and even less has been published. W. C. Holden (1941) carried out limited excavations in a few caves and open sites in the Tunis Canyon between Iraan and Fort

Stockton. Eagleton (1955) reported a cache of historic Indian materials attributed to the Comanches from eastern Pecos County.

In 1970-71, D. D. Crawford (1973) of the Texas Highway Department conducted an archaeological survey in areas to be affected by the Interstate Highway 10 construction project in Crockett and Pecos Counties. In 1971, E. Walters (1971) published a study on the pictographs and petroglyph sites in Pecos and Crockett Counties.

Recently, from 1977 to 1980, J. W. Greer investigated archaeological sites on Cannon Ranch in Pecos County for the Texas Division of Natural Resources. Additionally, in 1979, G. Bronitsky of The University of Texas-Permian Basin conducted a reconnaissance of the Skyscraper Peak area in Pecos County. The results of Greer and Bronitsky's research have not yet been published (Carolyn Spock, personal communication).

Hudspeth County

The earliest site reports from Hudspeth County were made by A. T. Jackson in 1932. Later research was limited (see the discussion in Lynn and Baskin 1975). In 1959, more extensive archaeological work was conducted by Gerald (1959).

After the work of Gerald, it was not until the 1970s that archaeological research was renewed in Hudspeth County. Contract archaeology, carried out by universities under contract with governmental agencies, has been responsible for most of the recent work. Examples of projects of this type include those contracted by the Texas General Land Office and Texas Historical Commission (Lynn and Baskin 1975; Katz and Lukowski 1976); by the Soil Conservation Service (Skinner and Bousman 1973; Rohrt and Skinner 1974; Warren 1976); and by the National Park Service (Shafer 1970; Katz and Katz 1974).

THE SURVEY

The first part of this section lists the artifact categories and descriptive terms in alphabetical order, followed by descriptions of the sites discovered during the reconnaissance. First, the areas surveyed, site descriptions and recommendations for future work (if any) are summarized. Second, a discussion of possible settlement pattern interpretations is presented.

Description of Artifacts

Bifaces. These are tools which have had flakes removed from both the dorsal and ventral surfaces and also along at least one edge of the implement. They may have functioned as cutting tools (knives) and as preforms; bifaces intended for further modification into tools.

Cores. Cores are pieces of siliceous stone or raw material which have at least one flat surface from which flakes have been removed.

Core Tools. These exhibit attributes of cores, but additionally show marginal retouch, modification, or wear (observable modification caused by use) along portions of edges.

Flake. A piece of stone that has been removed from a core through the introduction of force in the core. In this report, flakes are viewed as the result of human flintworking activities. Diagnostic attributes of a flake are a striking platform, ripples, fissures, and a bulb of percussion.

Flakes with Converging Edge Modification. These are flake tools that are very similar to unifaces, with the exception that alteration occurs on both sides of an edge. In every other way these tools resemble unifaces (see uniface definition below).

Interior Flake. A flake that lacks cortex is usually the most common flake form found at a site. Interior flakes are flintworking debitage produced from a core, another flake, a tool which has had all cortex removed from previous flake detachments.

Primary Cortex Flake. A flake characterized by a cortex dorsal surface. Presence of these flakes at a site indicates that core preparation (or initial flintworking activities) took place.

Projectile Point. Usually a bifacial tool used on the distal end of a projectile such as an arrow, atlatl dart, or spear commonly called an "arrowhead".

Raw Material. Stone, usually of cryptocrystalline composition (chert or flint), used to make tools (raw material may also be bone, antler, wood, etc., but no such artifacts were found during this period).

Secondary Cortex Flake. A flake characterized by some cortex remaining on the dorsal surface. These flakes are indicative of flintworking activities.

Scrapers. These formalized tools exhibit either unifacial or bifacial modification. They may also have steep edge angles. Wear patterns are often common along edges in the form of damage and/or polish.

Unifaces. Unifaces are tools which have been modified on only one surface or one edge of a flake. Edge modification may be the result of intentional retouch or use. The uniface category includes any non-formalized unifacially worked tool (scrapers generally are formal distinctive unifacial tool categories, whereas unifaces have more generalized functions).

Areas Surveyed

Area 1

Area 1 is the site of a proposed new distribution substation located adjacent to FM 334 and about 0.4 km northeast of the intersection of Brackettville city limits and FM 334. No evidence of other than modern cultural activities was discovered.

Recommendations

It is recommended that no further archaeological work be performed in this area.

Area 2

Area 2 is a tie-line route along approximately 2.0 km adjacent to Sheedy Road (from the intersection of Sheedy Road, and U.S. Highway 90 to the intersection of Sheedy Road and FM 334) in Brackettville. It continues along approximately 0.6 km adjacent to FM 334 (from the intersection of FM 334 and Sheedy Road to the locale of the proposed new distribution substation mentioned above) northeast of Brackettville. The only cultural resource of possible significance found in this area is a historic structure (41 KY 20).

Site 41 KY 20

Location and Environment. This site is located near the intersection of El Paso and Sheedy Streets, in Brackettville and approximately 8 m west of the proposed utility tie-line route.

Description. The site has the remains of a small (approximately 3 x 5 m) rectangular dwelling of possible historical significance. There are two earth-dug cisterns located approximately 5 m west and southwest of this dwelling. One of the cisterns is stone-lined and rectangular (about 1 x 2.5 m). It apparently had a wooden over-structure of lining, the remains of which appear to be collapsed into it. The second cistern appears to have been dug so that the hard white caliche earth formed and maintained a square perimeter facing approximately 1 m across.

Probable Cultural Association. Probably late nineteenth or early twentieth century.

Artifacts Collected. A number of artifacts were discovered and collected by the survey team from the ground in and around the dwelling and near the cisterns and are curated at the Center for Archaeological Research Laboratory (UTSA).

Condition. The existing ruins consist of several broken and collapsed segments of mortar and plaster-over-wood frame walls, fragments of wood frame

roofing, and a low, native stone and mortar foundation wall. Both of the cisterns are now filled with earth and debris to within about 0.5 m of the present ground surface.

Recommendations

The structure described is located about 0.8 km from the Fort Clark Springs military post grounds and could possibly date from the late 19th century; therefore, if any grading or clearing operations or similar surface or sub-surface disturbances (other than post hole digging directly along the tie-line) are to be undertaken in conjunction with the tie-line construction, it is recommended that this dwelling and its attendant features be examined and documented prior to such disturbance.

Area 3

Area 3 is a tie-line route along approximately 1.25 km adjacent to an unnamed private ranch road which runs between FM 190 and State Highway 85, and additionally along approximately 2.8 km adjacent to FM 190 (from the intersection of the unnamed gravel ranch road mentioned above with FM 190, to a point along FM 190 approximately 0.8 km southwest of the Nueces River bridge). This general area is approximately 10 km southwest of the town of Brundage, in Dimmit County.

Recommendations

It is recommended that no further archaeological work be performed in this area.

Area 4

Area 4 is a tie-line route approximately 8.0 km in length, and located approximately 24.0 km northeast of Sanderson in Terrell County.

Recommendations

No evidence of other than modern cultural activities was encountered; therefore, further archaeological work in this area will not be needed.

Area 5

Area 5 is a tie-line route approximately 2.4 km in length, and located approximately 40.0 km southwest of Dell City, Hudspeth County, Texas.

Recommendations

No evidence of other than modern cultural activities was encountered; further archaeological work in these areas will not be needed.

Area 6

Area 6 is a tie-line approximately 19.3 km in length, and located approximately 32.2 km south-southeast of Fort Stockton, in Pecos and Terrell Counties (see Fig. 1). One archaeological site (41 PC 393), which is considered significant, was found in this area.

Site 41 PC 393

Location and Environment. This site is located approximately 9.9 km northeast of the Lone Star gas plant along the proposed electric tie-line route, and is situated on the floodplain adjacent to an unnamed tributary which drains Belding Draw (see Fig. 1). Vegetation in the immediate area of the site consists primarily of greasewood, with a few mesquite and cacti. The soil is a light tan-colored silty-sandy loam mixed with limestone gravels and chunks and chert gravels. The floodplain has very low relief, and is mostly flat with only a few gently sloping rises and depressions. The site is on one of these low rises, the crest of which is only about 4 m above the adjacent tributary channel floor.

Description. The site is elongate to rectangular in shape, having a major axis approximately 330 m in length and oriented parallel to the tributary channel, which runs approximately south-southwest to north-northeast. The width of the site is roughly 210 m. The surface of the site is scattered with perhaps 10 to 15 individual burned rock hearth-like features. Each of these is 1 to 2 m in diameter and consists of 20 to 30 exposed burned rocks, containing and surrounded by flintworking debris and tool fragments which are of prehistoric human origin. An examination of the tributary cut-bank wall provided no evidence of stratigraphy or depth of cultural deposits; however, the general topography suggests the possibility that additional hearths or other features could be buried in this area beneath the floodplain alluvium.

Probable Cultural Associations. A few fragments of stemmed projectile points were found at this site during the survey. Although not able to be positively typed, the general form and workmanship of these points, along with the superficial nature and state of preservation of the other cultural evidence present, indicate that occupation probably dates from the Middle to Late Archaic period and/or the Late Prehistoric period.

Artifacts Collected.

- 3 bifaces
- 0 cores
- 2 core tools
- 6 flakes with converging edge modification
- 11 interior flakes
- 0 primary cortex flakes
- 4 secondary cortex flakes
- 2 scrapers
- 6 unifaces
- 3 projectile points

This page has been
redacted because it
contains restricted
information.

Condition. The site in general, and the hearth-like features in particular, appear to be fairly well preserved; having been affected only by natural sheet erosion and cattle grazing. No artificial disturbances were evident.

Recommendations

It is recommended that this site be protected from any surface or subsurface disturbances which might result from tie-line construction, preferably by rerouting the line around the site. If this is not possible, then a controlled artifact collection and a detailed map of archaeological surface features needs to be made prior to construction.

Area 7

Area 7 is a tie-line approximately 35.4 km in length, and located 8.0 km south of Sheffield, Texas (see Fig. 2). Five additional sites were discovered in this area. Summary data and recommendations for these sites follow. This line runs through a portion of the Live Oak Archaeological District of the National Register of Historic Places.

Site 41 PC 2

Location and Environment. This site is located along the tie-line route about 0.8 km south of the Pecos River bridge at Highway 290, and is situated on the Pecos River floodplain approximately 100 m west of, and 3 to 5 m above the existing river channel (Fig. 2). The site lies at the point of transition between the relatively flat floodplain and a zone of higher promontories to the west of the floodplain, the crests of which are about 5 m above the site. It is included in the Live Oak Archaeological District. Maximum elevation in the area (100-120 m above the river channel) is on mesa tops ranging from several hundred to several thousand meters distant. The site itself has been very recently root-plowed in its entirety; however, vegetation in the immediate area consists of mesquite, cacti, juniper, agarita, and cat's claw. The soil consists of light tan to light gray silty-sandy loam with limestone chunks and gravels.

Description. The site is a prehistoric, moderately dense, burned rock and flint-working debris surface scatter, elliptical in shape, with a major axis of about 30 m in length running north-south (parallel to the river channel), and a minor axis about 20 m in length. It appears to have been a small midden concentration or possibly a stratified terrace accumulation which was subsequently buried by floodplain deposits.

Probable Cultural Associations. Uncertain.

Artifacts Collected. No collection was made. Various kinds of flakes were observed on the surface, in association with burned limestone and mussel shells.

This page has been
redacted because it
contains restricted
information.

Condition. Poor preservation of surface features; site was recently root plowed. Because of its floodplain geological context there are potentially intact buried components.

Recommendations

Provided subsurface disturbances will not be made during construction, we recommend no further archaeological work. However, if subsurface disturbance will result from construction, test excavations are recommended.

Site 41 TE 3

Location and Environment. Like 41 PC 2, this site is included in the Live Oak Archaeological District and is located along the tie-line route approximately 1.6 km south of the Pecos River bridge at Highway 290 on the arm of a promontory about 200 m distant and 30 to 40 m above the present river channel (see Fig. 2). Vegetation and soils are similar to those described for site 41 PC 2. The surface of the promontory where the site is located is relatively uniform (except where artificially disturbed) and slopes gently upward to the west where it intersects the base of a series of taller and steeper hills. The eastern end of the promontory forms a gradual transition to the floodplain. The site is bounded on the northernmost and southernmost sides by slopes terminating in gullies, which drain these promontories and foothills in a dendritic pattern.

Description. The site is prehistoric, elongate shaped, and extends approximately 160 m north-south by approximately 500 m east-west. It is a moderate density of burned rocks, flintworking debris, and tool fragments scattered over a broad area, and containing an interior, circular, and slightly domed, concentrated burned rock midden feature approximately 60 m in diameter and rising about 0.5 m above the surrounding surface.

Probable Cultural Association. Based on a surface collection made during the survey, the site was probably occupied at least during the Middle to Late Archaic period.

Previous Archeological Work. The site was officially discovered and recorded by Dave Dibble and John Clark in 1970 (site survey form on file, TARL).

Artifacts Collected.

22	bifaces
1	cores
1	core tool
1	flake with converging edge modification
0	interior flakes
0	primary cortex flakes
1	secondary cortex flake
3	scrapers

- 6 unifaces
- 2 projectile points
(1 was parallel sided, lanceolate with a concave base; 3.5 cm long and 1.4 cm wide, 1 was a corner notched fragment, ca. 2.4 cm long and 1.7 cm wide).

Note: In 1970, Dibble and Clark (site survey form on file, TARL) collected 40 bifaces, 10 scrapers, 1 denticulate, 7 cores, and 7 projectile points from this site.

Conditions. Partly destroyed: a road has been built directly through the burned rock midden feature and a backhoe trench, possibly for a pipeline, has also been cut through this feature. In addition, a major portion of the promontory has been cleared of surface vegetation within the last year or so, apparently by bulldozing or chaining.

Recommendations

In spite of the disturbances mentioned above, the site contains areas which are at least relatively intact and it probably represents a moderate sized to major occupation by prehistoric peoples, the Pecos River being the water source; therefore, if any surface or subsurface disturbances, other than posthole digging are to occur during the tie-line construction, the line needs to be rerouted to avoid this site, or further archaeological work in the form of subsurface testing needs to be done prior to construction.

Site 41 TE 283

Location and Environment. This site is located about 100 m south of site 41 TE 3, within the Live Oak Archaeological District, on an adjacent promontory (separated by a gully). It is about the same distance from, and elevation above the river channel as site 41 TE 3. Vegetation and soils are the same as those described for site 41 TE 3.

Description. The site is prehistoric, elongate shaped, having a north-south minor axis approximately 75 m in length, and an east-west major axis about 200 m in length. It is a moderately dense, burned rock, flintworking debris, and tool fragment scatter, and contains a small (2 x 5 m) elongate concentrated burned rock midden feature which rises about 0.3 m above the surrounding grade.

Probable Cultural Association. 41 TE 283 is possibly contemporaneous with site 41 TE 3.

Artifacts Collected.

- 4 bifaces
- 0 cores
- 0 core tools
- 3 flakes with converging edge modification
- 8 interior flakes

- 0 primary cortex flakes
- 3 secondary cortex flakes
- 1 scraper
- 8 unifaces
- 0 projectile points

Conditions. The site is moderately well preserved. Land clearing, which probably occurred at the same time as that on site 41 TE 3, has removed surface vegetation, probably by chaining.

Recommendations

Subsurface cultural deposits at this site may still be mostly intact; the site may have been occupied at the same time as site 41 TE 3, or may represent a chronologically distinct habitation locus. In any event, as in site 41 TE 3, if disturbances other than post-hole digging are to occur during tie-line construction, the line should be rerouted around the site or subsurface archaeological testing should occur prior to construction activities.

Site 41 TE 284

Location and Environment. This site is located about 7.5 km along the tie-line route from the Pecos River bridge at Highway 290 on an upland mesa approximately 100 to 200 m above the adjacent valley floors (Fig. 3). The area, in which this site is situated, constitutes a different resource zone from those settings previously described for sites along this tie-line route. In contrast to the floodplain alluvium and bordering stream terrace deposits characteristic of the sites previously described, the subsurface geology consists of Edward's Limestone bedrock, usually covered by less than 1 m of soil and gravels. This bedrock is frequently exposed on the surface of this and other nearby mesa tops. Limestone bluffs and benches on the sides of these mesas are dotted with small rockshelters, cryptocrystalline quarrying areas, and small, shallow rainwater catchment basins. A series of these basins are located around this site on the mesa top and several of these rockshelters are visible across the canyon to the west of the site. Vegetation consists of junipers, scrub oak, field grasses, sotol, agarita, persimmon, and mountain laurel. The soil is medium brown, silty clay loam.

Description. The site is prehistoric and elliptical shaped, with a major north-south axis 150 m in length, and a minor east-west axis 75 m in length. It is a moderately dense burned rock, chipping debris, and tool fragment scatter which contains a small (about 10 m north-south by 3 m east-west) concentrated burned rock midden feature that rises approximately 0.3 m above the surrounding grade.

Probable Cultural Associations. A surface sample obtained during the survey indicates that the site was at least occupied during the Middle to Late Archaic period.

This page has been
redacted because it
contains restricted
information.

Artifacts Collected.

- 1 biface
- 1 projectile point
 (leaf-shaped with bileveled edge)

Condition. Well preserved: same as in site 41 TE 3.

Recommendations

Same as in site 41 TE 3 and 41 TE 283.

Site 41 TE 285

Location and Environment. This site is located on the southern edge of the north-west branch of Reagan Canyon, approximately 4.25 km south of 41 TE 284, on the proposed tie-line route (see Fig. 4). The topography of the site is characterized by a gentle slope ending at the edge of Reagan Canyon. The soil is a light brown sandy silt. The vegetation observed in the site area includes juniper, scrub oak, agave, sotol, agarita, persimmon, mountain laurel, and various grasses.

Description. This site is a prehistoric burned rock midden that is 21 m long (north to south), and 7 m wide (east to west). It is a nearly circular midden rising to approximately 0.4 m above the surface. Two possible hearths are located near the burned rock midden.

Probable Cultural Associations. Possibly Late Archaic.

Artifacts Collected. No collection was made; however, cryptocrystalline flakes were observed, as well as a few biface fragments in superficial association with two hearths.

Condition. Well preserved, relatively undisturbed site has suffered some slight soil erosion.

Recommendations

If this site cannot be avoided we recommend surface mapping, controlled collection and subsurface archaeological testing prior to any activity.

Settlement Patterns: Interpretations and Discussion

This section briefly summarizes the results of the survey in the regional context of interpretations offered by Shafer (1971) and Anderson (1980). These interpretations are confined to the Trans-Pecos area because that is where all of the prehistoric sites located during this survey were found. Furthermore, since six prehistoric sites was a small sample from which to make broad interpretations, comparisons must be made to previous research in the region. First, each site is reviewed and characterized in terms of its function(s) and location. Following this review, regional comparisons are discussed.

This page has been redacted because it contains restricted information.

41 PC 393 appears to be a site that was frequently used as a short term occupation camp by prehistoric hunters and gatherers. It is located on the eastern edge of a dry creek bed. Tentatively, we infer that the site was occupied during the Late Archaic period and/or Late Prehistoric period.

41 PC 2 may have been a burned rock midden site that also functioned as a flintworking station. The gravels of the Pecos River bed were probably used as a resource for cryptocrystalline nodules. It is located on the west slope of the Pecos River, within 100 m of the present channel. We are uncertain of the cultural historical association of the site.

41 TE 3 appears to be a site that may have been used frequently for long-term or repeated short-term occupations by prehistoric hunters and gatherers. The amount and kinds of tools, flintworking debris, burned rocks and midden deposits supports this interpretation. Like 41 PC 2, it is located on the west slope of the Pecos River. However, it is ca. 200 m away from the present river channel. This site was probably occupied during the Middle to Late Archaic period.

41 TE 283 is 100 m south of 41 TE 3, and may have been an auxiliary occupation site to 41 TE 283 (and possibly contemporaneous), or an alternative occupation location. The relationships between these two sites are problematic. In any case, 41 TE 283 was used probably as a short-term occupation camp and used less intensely than 41 TE 3. It is also located on the west slope of the Pecos River, within 100 m of the existing channel. The site appears to have been occupied during the Middle to Late Archaic period.

At 41 TE 284, the amount of tools, flintworking debris and the presence of a small burned rock midden suggests it was an upland occupation site. Perhaps it was used less frequently, or by smaller groups than those who occupied 41 TE 3. This site was probably occupied during the Middle to Late Archaic period.

Another upland site is represented at 41 TE 285. However, the small amount of cultural debris present at a site dominated by a burned rock midden and two hearths may indicate a more specialized function for this site. Probably, it was used primarily as a location for exploiting and processing plant resources such as agave, sotol, or agarita. This site may have been occupied during the Late Archaic period.

With the exception of 41 PC 393, all of these sites have burned rock midden features. 41 PC 2 probably had a burned rock midden feature prior to the severe surface disturbance; however, the nature and extent of the midden is unknown. All of the sites are exposed, open sites in a surface context. 41 PC 2, 41 TE 3, and 41 TE 283 were lowland, multipurpose occupation sites that may have been used frequently. 41 TE 284 was possibly an upland multi-purpose occupation site that may have been used infrequently by small bands of hunters and gatherers. 41 TE 285 appears to have been an upland, specialized plant extractive and processing locality. 41 PC 393 was probably a short occupation, lowland, camp site. It may have been used by small groups of hunters and gatherers from the Archaic period through the Late Prehistoric period. In general, most of the other sites appear to have been used during Middle or Late Archaic times (41 PC 2's cultural associations are unknown).

As stated earlier in this report, Shafer (1971:23) observed that all of the open sites in the Sanderson Canyon region were located near an arroyo, and that site location may have been dependent on water availability. In our study, four of the six prehistoric sites were located near an arroyo, or the Pecos River. 41 TE 284 and 285 were not located near any apparent prehistoric or present water resources. However, in their upland regions, during and after heavy rains, water is available in natural rock basins or *tinajas* for variable lengths of time. These upland sites may have been occupied after such rainy period. Anderson (1980), in describing the investigations of Environment Consultants, Inc., in Sanderson Canyon, notes that they interpreted a technological change in the Late Prehistoric period: a shift away from central oven (burned rock middens) as locations for food processing, to dispersed, smaller hearths. This trend was interpreted as resulting from possibly: (1) a shift in the seasonal occupation of the xeric uplands; (2) a change in band social structure/group composition; and (3) a shift in the food procurement and processing technology (Anderson 1980:618).

An alternative series of interpretations can be made: (1) this technological change did not occur. Ethnohistoric accounts describe the Lipan Apaches, of west Texas, building large rock ovens to process agave (Banta 1911; Opler 1941); (2) furthermore, this perceived shift away from large rock ovens to dispersed smaller hearths may reflect past seasonal fluctuations in resource availability and therefore necessitated small group compositions for exploiting the diminished floral and faunal communities. Such fluctuations probably occurred throughout the Archaic and Late Prehistoric periods. However, the major determinant (resource) for site location was probably as Shafer (1971) has suggested--the availability of ground water. Thus, lowland locations where water was available, during the Archaic and Late Prehistoric periods, may have been repeatedly occupied. If this was the prehistoric situation, then some of the dispersed, smaller hearth sites in the Sanderson area may have been occupied by Archaic and Late Prehistoric hunters and gatherers. We suggest that 41 PC 393 may have been used as such a locality.

When conditions were more favorable (after heavy rains), the uplands were again exploited for floral and faunal resources by large groups (41 TE 284 and 285 were probably such sites).

In the absence of detailed paleoclimatic data for the region, such interpretations remain speculative. Future research needs to address such problems of paleoclimatic influences on, and relationships with the hunter and gatherer adaptive system (particularly resource use scheduling, site placement and demographic arrangements).

REFERENCES CITED

Adovasio, J. M., J. D. Gunn, J. Donahue and R. Stuckenrath

- 1978 Meadowcroft Rockshelter, 1977: An Overview. *American Antiquity* 43:632-651.

Adovasio, J. M., J. D. Gunn, J. Donahue, R. Stuckenrath, J. E. Guilday and K. Volman

- 1980 Yes, Virginia. It Really is that Old: A Reply to Haynes and Mead. *American Antiquity* 45:588-595.

Anderson, A.

- 1980 Current Research: Plains. *American Antiquity* 45:614-620.

Banta, S. E.

- 1911 Buckelew, *The Indian Captive*. Mason, Texas.

Bedwell, S. F.

- 1973 *Fort Rock Basin Prehistory and Environment*. University of Oregon Press, Eugene, Oregon.

Blair, W. F.

- 1950 The Biotic Provinces of Texas. *Texas Journal of Science* 2(1):93-117.

Bolton, H. E.

- 1916 *Spanish Exploration in the Southwest, 1542-1706*. Scribners, New York.

Brown, K. M., E. R. Prewitt and D. S. Dibble

- 1976 Additional Archaeological Assessments in the Sanderson Canyon Watershed Area, Terrell County, Texas. *Texas Archeological Survey, The University of Texas at Austin, Research Report* 62.

Bryant, V. M.

- 1969 Late Full-Glacial and Post-Glacial Pollen Analysis of Texas Sediments. Ph.D. Dissertation, The University of Texas at Austin.

Campbell, T. N.

- 1970 Archeological Survey of the Big Bend National Park, 1966-1967. Unpublished report submitted to the National Park Service.

Collins, M. B.

- 1971 A Review of Llano Estacado Archaeology and Ethnohistory.
Plains Anthropologist 16(52):85-104.

Crawford, D. D.

- 1973 An Archaeological Survey on Interstate Highway 10. *Texas Highway Department, Publications in Archaeology* 2.

Dibble, D. S. and D. Lorrain

- 1967 Bonfire Shelter: A Stratified Bison Kill Site, Val Verde County, Texas. *Texas Memorial Museum, Miscellaneous Papers* 1, Austin.

Dillehay, T. D.

- 1974 Late Quaternary Bison Population Changes on the Southern Plain.
Plains Anthropologist 19(65):180-196.

Eagleton, N. E.

- 1955 An Historic Indian Cache in Pecos County. *Bulletin of the Texas Archeological Society* 26:200-217.

Epstein, J. F.

- 1975 Some Reflections on the Nature of the Northeast Mexico Lithic Tradition and the Problem of its Origin. Paper presented at the Conference on the Prehistory of Northeastern Mexico, Monterrey, N. L., Mexico.

Fenneman, N. M.

- 1931 *Physiography of the Western United States*. McGraw-Hill, New York.

Forbes, J. D.

- 1959 Unknown Athapaskans-Identification of Jano, Jocomes, Jumano, Manso, Suma and other Indian Tribes of the Southwest. *Ethnohistory* 6:97-159.

Gagliano, S. M.

- 1967 *Occupation at Avery Island*. Louisiana State University Press, Baton Rouge.

Gerald, R. E.

- 1959 An Archaeological Salvage Project in Hudspeth County, Texas. Manuscript on file at El Paso Centennial Museum.

Haley, J. E.

- 1935 The Comanchero Trade. *Southwestern Historical Quarterly* 38:157-176.

Hays and Jelks, E. B.

- 1966 Archeological Exploration at Fort Lancaster, 1966. A Preliminary Report. *State Building Commission Archeological Program Report* 4.

Hester, T. R.

- 1964 Group Uncovers Skeleton. *Peña Pow-Wow, Newsletter Carrizo Springs High School Archaeological Society* 2(9):1-2.
- 1965 *The Patterson Site Indian Burial, Farrias Ranch, Dimmit County, Texas*. Privately printed. Carrizo Springs, Texas.
- 1976 The Texas Archaic: A Symposium. *Center for Archaeological Research, The University of Texas at San Antonio, Special Report* 2.
- 1977 The Current Status of Paleo-Indian Studies in Southern Texas and Northeastern Mexico. In *Paleo-Indian Lifeways*, E. Johnson (ed.). *The Museum Journal* XVII. West Texas Museum Association, Texas Tech University, Lubbock.
- 1980 *Digging into South Texas Prehistory*. Corona, San Antonio, Texas.

Holden, W. C.

- 1941 McKenzie Cave and Adjacent Sites in Pecos County. *Bulletin of the Texas Archeological and Paleontological Society*, Lubbock, Texas.

Hunt, C. B.

- 1967 *Physiography of the United States*. W. H. Freeman and Company, San Francisco, California.

Inglis, J. M.

- 1964 A History of Vegetation on the Rio Grande Plain. *Texas Parks and Wildlife Department Bulletin* 45.

Jennings, J. D.

- 1974 *Prehistory of North America*. McGraw-Hill, New York.

Johnson, L., Jr.

- 1964 The Devil's Mouth Site: A Stratified Campsite at Amistad Reservoir, Val Verde County, Texas. *Department of Anthropology, The University of Texas at Austin, Archaeology Series* 6.

Katz, S. R. and P. R. Katz

- 1974 An Inventory and Interpretation of Prehistoric Resources in the Guadalupe Mountains National Park, Texas. Manuscript on file at Department of Anthropology, Texas Tech University, Lubbock.

Katz, P. R. and P. D. Lukowski

- 1976 Results of Archaeological Survey in the Salt Flat Locality of Northern Hudspeth County, Texas. Report prepared for the Natural Areas Survey, The University of Texas, Austin.

Kelley, J. C.

- 1959 The Desert Cultures and the Balcones Phase: Archaic Manifestations in the Southwest and Texas. *American Antiquity* 23(7):319-322.

Krieger, A. D.

- 1964 Early Man in the New World. In J. D. Jennings and E. Norbeck, (eds.), *Prehistoric Man in the New World*: 23-87.

Lehmer, D. J.

- 1958 A Review of Trans-Pecos Texas Archeology. *Bulletin of the Texas Archeological Society* 29:109-144.

Lynn, W. M. and B. J. Baskin

- 1975 An Archeological Reconnaissance of Public Free School Lands Tally Ranch, Hudspeth County, Texas. *General Land Office and Texas Historical Commission Archeological Survey Report* 14.

Marmaduke, W. S.

- 1978 Prehistory at Bear Creek, Brewster County, Texas. *Office of the State Archeologist, Archaeological Survey Report* 25.

Marmaduke, W. S. and H. Whitsett

- 1975 An Archeological Reconnaissance in the Devil's River-Dolan Falls Area, Val Verde County, Texas. A Natural Area Survey. Office of Research, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin.

Newcomb, W. W., Jr.

- 1961 *The Indians of Texas, from Prehistoric to Modern Times*. University of Texas Press, Austin.

Nunley, J. P. and T. R. Hester

- 1966 Preliminary Archeological Investigations in Dimmit County, Texas. *Texas Journal of Science* 18(3):233-253.

Oldfield, F. and J. Schoenwetter

- 1975 Discussion of Pollen - Analytical Evidence. In *Late Pleistocene Environments of the Southern High Plains*. Fort Burgwin Research Center, Rancho de Taos, New Mexico.

Opler, M. E.

- 1941 *An Apache Life-way*. University of Chicago Press, Chicago.

Patterson, L. W. and W. R. Wehner

- 1975 The Las Moras Site in Kinney County, Texas. *La Tierra* 2(4):11-15.

Rohrt, M. and S. A. Skinner

- 1974 Archaeological Survey of Hitson, C&L, and Washburn Draws and Cornudas, North, and Culp Draws Watersheds, West Texas and Southeast New Mexico. Manuscript on file, Archaeological Research Program, Southern Methodist University, Dallas, Texas.

Shafer, H. J.

- 1970 A Preliminary Report of an Archeological Survey in the Guadalupe Mountain National Park by the Texas Archeological Society in June, 1970. *Texas Archeology* 14(3):10-17.
- 1971 An Archeological Reconnaissance of the Sanderson Canyon Watershed, Texas. *Texas Archeological Salvage Project, The University of Texas at Austin, Survey Report 7*.

Skeels, L. L. M.

- 1972 An Ethnohistorical Survey of Texas Indians. *Texas Historical Survey Committee, Office of the State Archeologist, Report 22*.

Skinner, S. A. and C. B. Bousman

- 1973 Prehistoric Archaeology in the Three-Mile and Sulphur Draw Watershed. Manuscript on file, Archaeological Research Program, Southern Methodist University, Dallas, Texas.

Smith, R. A.

- 1962 Apache Plunder Trails Southward 1831-1840. *New Mexico Historical Review* 37(1):20-42.

Szabo, B. J.

- 1969 Dilemma Posed by Uranium-Series Dates on Archaeological
Significant Bones from Valsequillo, Pueblo, Mexico.
Earth and Planetary Science Letters 6(4):237-244.

Walters, E.

- 1971 Further Studies of Rock Art Sites in Pecos and Crockett
Counties. *Transactions of the Sixth Regional Symposium
for Southeastern New Mexico and Western Texas*: 9-38.

Warren, J. E.

- 1976 An Archeological and Historical Survey of Floodwater Diversion
No. 2 Hitson, C&L, and Washburn Draws Watershed Hudspeth
County, Texas. Manuscript on file, Soil Conservation Service,
Temple, Texas.

