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The East Chacon Project Project: 11,000 Years of Prehistory Along the Upper Nueces River, Southern Texas

A. Joachim McGraw

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The East Chacon Project Project: 11,000 Years of Prehistory Along the Upper Nueces River, Southern Texas

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THE EAST CHACON PROJECT:
11,000 YEARS OF PREHISTORY ALONG THE
UPPER NUECES RIVER, SOUTHERN TEXAS

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and
Dennis A. Knepper

With contributions by
Kenneth M. Brown

Prepared for Normandeau Associates, Inc.

Center for Archaeological Research
The University of Texas at San Antonio
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ABSTRACT

During 1981 and 1982, the Center for Archaeological Research, The University of Texas at San Antonio, conducted a cultural resources assessment of ca. 30,000 acres leased to the Carter Mining Company in Uvalde and Zavala Counties, Texas. Known as the East Chacon project, the survey was undertaken to identify and assess the cultural resources of the locality prior to potential modification or destruction due to proposed mining operations. Archaeological and historical sites (149) were identified and recorded that represent a span of human activities from approximately 11,000 B.P. to the Historic period. A detailed description of these site locations, interpretations of their cultural-environmental contexts, and determinations of potential eligibility to the National Register of Historic Places are presented in this report.

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INTRODUCTION

During June and July 1982, personnel from the Center for Archaeological Research (CAR), The University of Texas at San Antonio (UTSA), conducted a Phase 2, 100% surface survey of cultural resources within 10,000 acres of properties leased to the Carter Mining Company, approximately 25 miles southwest of Uvalde in southern Uvalde and northern Zavala Counties, Texas (see Figs. 1 and 2). The survey operation was an extension of investigations begun in 1981 and encompassed additional acreage in the East Chacon portion of the Chacon Creek lignite mining project. The results of the current survey work, which identified 66 historical and prehistorical sites, as well as recommendations for further work are presented in this report. In addition, the recommendations presented for the original 1981 cultural resources survey in the East Chacon area (Kelly *et al.* 1983), for the sake of continuity, will also be included in this report. The present volume will summarize all work to date in the East Chacon Creek survey area as well as present interpretations of the areal archaeological significance and recommendations for any future work.

The purpose of the survey work and a background archival search was to make a Phase 2 assessment of the archaeological and historical resources of the leased properties (as defined by the Texas Historical Commission 1981; see Appendix I for definition of Phase 2 assessment) before these locations would be extensively modified by proposed mining operations. The assessment of individual site significance and, eventually, recommendations for further work, was based on site potential for nomination to the National Register of Historic Places as well as State Historic Landmarks. The cultural resources survey was carried out under the provisions set forth in the ~~Historic Site Preservation Act of 1966.~~

Methodology also followed the guidelines suggested in the *Council of Texas Archaeologists Newsletter* (Eaton, ed. 1981) as well as the *Guidelines for Archaeological Investigations of Mining Areas in Texas* (Texas Historical Commission 1981). The survey was conducted under the terms of an agreement with Normandeau Associates, Inc., environmental consultants for the Carter Mining Company, and Dr. Thomas R. Hester, Director and Principal Investigator, Center for Archaeological Research, The University of Texas at San Antonio, letter of agreement dated April 1, 1982. The field work was conducted by Sam Laskowski, Dennis Knepper, Ralph Snively, Stephen Black, and Cecil Peel. A. Joachim McGraw of the CAR staff directed the field work.

A survey area, identified on copies of USGS topographic maps, was located on the properties of Mr. Reagan Houston and Mr. Chester Kiefer of San Antonio and Batesville, Texas, respectively. The leased properties included portions of Turkey Creek, Windmill Creek, Mustang Creek, and a segment of the Nueces River.

In addition to the field work, preliminary historical record searches were conducted at the Texas State Land Office, the Texas State Archives, and the Barker Texas History Center, The University of Texas at Austin. Additionally, the Uvalde and Zavala County courthouses were visited as well as the local Texana Collection at the Uvalde Garner Memorial Museum and the El Progreso Memorial Library, Uvalde, Texas. Several local individuals of the area including the well-known vocational archaeologist T. C. Hill, Jr., of Crystal City, and George Nelson, excavator of Fort Inge, of Uvalde, were visited. The extensive archaeological collection of L. L. Andrews of La Pryor was reviewed and both landowners, Kiefer and Houston, were also contacted.

Performance Guidelines

National Historic Preservation Act of 1966, as amended.

a
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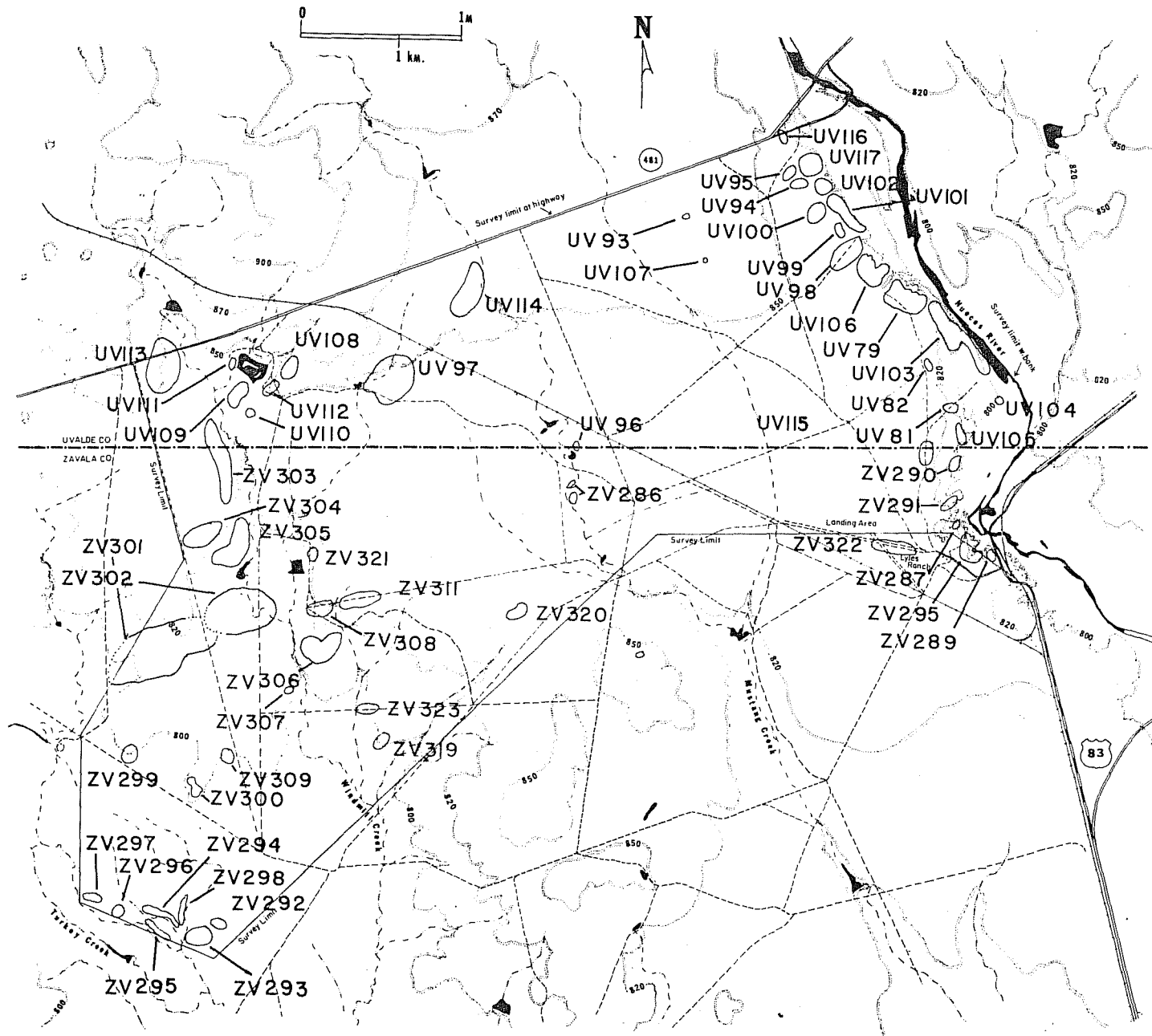


Figure 1. Map of Study Area.

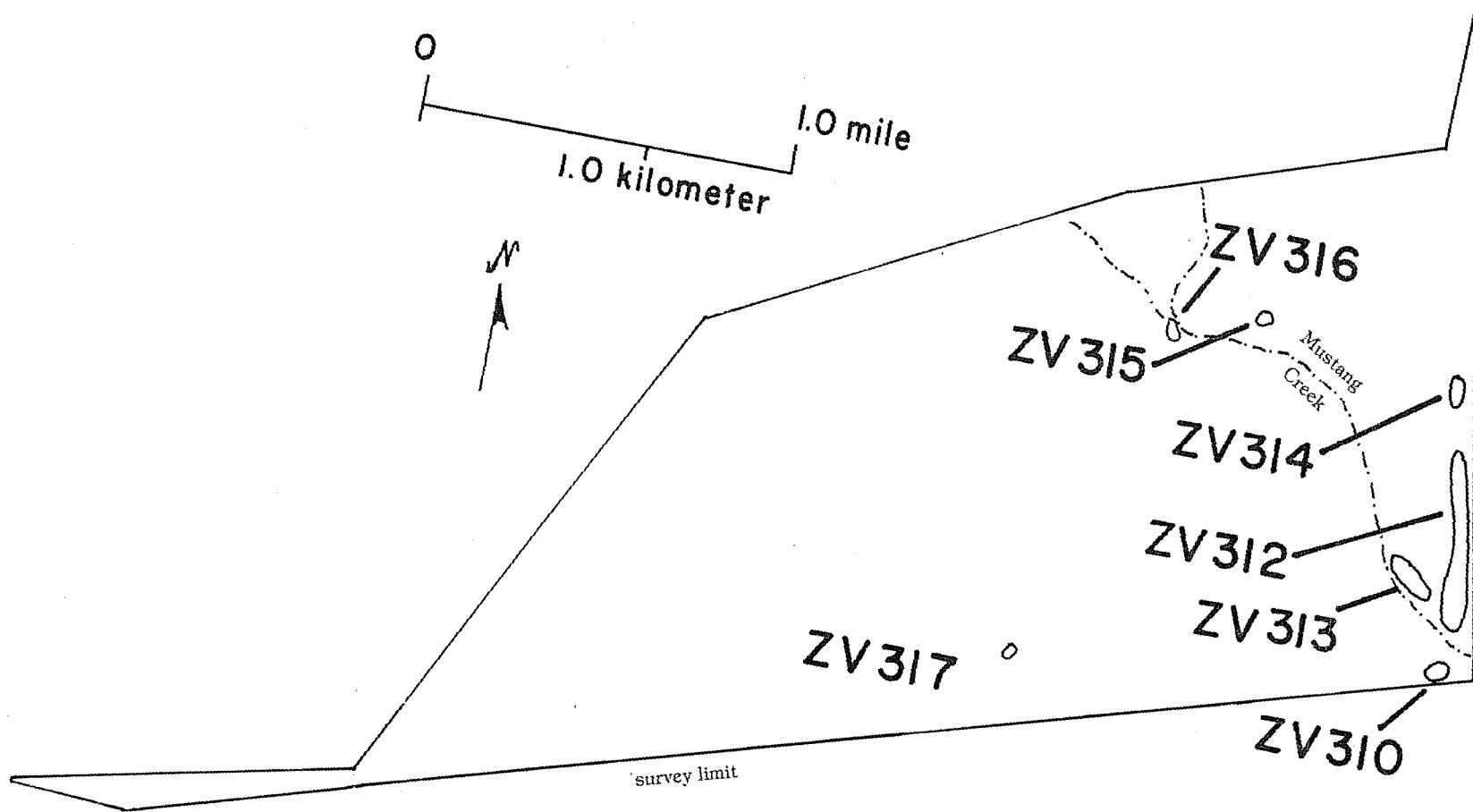


Figure 2. Location of Sites in Southern Portion of Study Area.

ENVIRONMENTAL BACKGROUND

Introduction

A general environmental background for the study area has been provided in Kelly *et al.* (1983) survey report, and this volume will not seek to replicate this data. However, because of ongoing research, additional environmental information which was not previously available will be presented as a complement to the introduction presented in Kelly *et al.* (1983). This environmental summary will: (1) discuss additional environmental information which is thought to have had a significant impact on the present setting; and (2) present a brief discussion of paleoenvironmental conditions as they are perceived to have occurred on the basis of various hydrological, geomorphological, and archaeological information. The latter will be used as a basis of information to infer general trends of prehistoric site distributions through time within the study area (see Interpretations section). A short review of the present geology, hydrology, flora, fauna, and geomorphological setting will be discussed and then compared to historical geology and paleoenvironmental data. The focus of this section will be either regional or, when noted, specifically directed toward the East Chacon study area.

Geology

The geological setting for southern Uvalde, northern Zavala, and northeastern Maverick Counties is characterized by exposures of Upper Cretaceous to Quaternary deposits, with the more recent materials exposed in a general southward trend toward the Gulf Coast. Cretaceous deposits in the locality are related to the last great epicontinental invasion of a sea from the south. Advancing across much of North America, this Cretaceous sea finally retreated toward the present Gulf Coast near the end of this period. Later Tertiary inundations were limited to more narrowly confined continental margins. Tertiary and Quaternary geological history in south-central and southern Texas are related to oscillations of the water level in the Gulf of Mexico and massive sediment deposits by large streams.

Geology in the vicinity of the study area is dominated by the western margins of the Balcones Fault Zone. Faults within this zone are nearly straight and semi-parallel. The displacements of thrown blocks vary as much as 700 feet. While total displacements across the zone may vary as much as 1500 feet (in Comal County), block displacements in Uvalde County range approximately 700 feet. The faulting, presumably related to excessive depositional stress over formations of only limited elasticity, cannot be accurately dated, but it is believed to have occurred shortly after the end of the Cretaceous period (W. Hammond, instructor of Geology, UTSA, personal communication). Fractures within the faults became effective channels for the movement of ground water and have a direct relationship to the recharge and discharge zones of the Edwards Aquifer. Basaltic intrusions of an unknown age are another associated significant structural feature of the local geology. In the Uvalde area, there are about 125 igneous outcroppings, varying from extremely large plugs (some of which are mined for road metal and ornamental rockwork) to those that are less than two feet in diameter. An occasional worked stone fragment of basaltic material at local archaeological sites suggests that the lithic material was at least minimally exploited in prehistoric times.

Throughout the survey area and much of the region south and somewhat eastward, a series of gravel deposits are found in the uplands which contain large amounts of chert cobbles and pebbles. (As such, it is quite possible these, too, were exploited locally in the study area.) These gravel deposits capping the highest hills and bluffs above large rivers, were defined as Upland Gravels by Penrose in 1890 and retyped as the Uvalde Formation by Hill in 1891. Thought to be of Pleistocene (or slightly older) origins, these gravels are not obviously associated with modern streams. Presumed to be related to the gravel deposits in the nearby, somewhat more recent, Leona Formation, Uvalde Gravels are derived from the decay of Edwards Limestone in the Plateau as well as from igneous plugs. The Uvalde Gravels, according to Hill and Vaughn (1898) have ". . . spread like a mantle over the lower plain. . . ." Slightly south of the study area, in Maverick County, most of the gravel materials composing terrace deposits were not only derived from the erosion of Tertiary and Cretaceous Formations but also from the erosion of older rocks in the Trans-Pecos area or in northern Coahuila, Mexico (Weeks 1933:482).

Geological formations in the vicinity of the study area consist of fluvial layers known as the Leona Formation. Outcroppings of Uvalde Gravels occur on high terraces along the west bank of the Nueces River just above and below the Zavala-Uvalde County line. The East Chacon project area, along an east to west axis, consists of Recent and Quaternary alluvial deposits, Tertiary Carrizo Sands, and Wilcox and Midway Groups deposits. Riverine archaeological sites are located near fluvial layers known as the Leona Formation of Pleistocene origins (Neck n.d.:3).

Soils

As noted in Kelly *et al.* (1983), soils throughout much of the study area consist of Uvalde silty clay loam. The margins of the (tertiary) stream channels reflect a greater complexity and interdrainage heterogeneity of soil types. Soils along river terraces consist of Uvalde gravelly loam, Olmos and Valco Series soils. These deposits are all related to ancient outwash plains and old stream terraces. Within the East Chacon study area, a diversity of soil types occur adjacent to the mainstream channels of Turkey and Windmill Creeks. The greatest variety of soils occur along Turkey Creek with a series of soils formed from sandy, clayey, upland materials. Over 10 individual soil series in this location have been identified (Soil Conservation Service [SCS], Zavala County, personal communication). A large portion of Windmill Creek is associated with the Olmos and Randado Series, shallow soils underlain by massive caliche deposits. These soils, because of their association with caliche, are considered to be relatively older than surrounding soils. Soil deposits along Mustang Creek are distinctly different from the soils along Turkey and Windmill Creeks. A Montell Series soil formed from an ancient clay alluvium predominates the soils along Mustang Creek.

Hydrology

Mainstream Tributary Channels

The East Chacon study area is dominated by the Nueces River channel and its associated drainage pattern. Turkey Creek, a major tributary of the river

system, has a portion of its watershed in the western section of the project area. The Windmill Creek drainage adjacent (east of) and parallel to Turkey Creek seems to represent an earlier dominant, mainstream channel in the study area because of its similar but more diffused (older) dendritic drainage system pattern.

At least three major mainstream examples of stream piracy are thought to have taken place during post-Pleistocene times. The evidence for this is based on a careful review of aerial and topographic maps and a preliminary analysis of archaeological site distributions.

As noted, a major episode of stream shifting may be related to the pattern of water drainage in the locality of Turkey and Windmill Creeks. The intensively occupied portion of Turkey Creek is contrastive to archaeological sites along nearby Windmill Creek. Late Prehistoric and Late Archaic materials dominate the artifact collections from Turkey Creek, while only earlier materials (and practically no Late Prehistoric artifacts) were recovered from the parallel Windmill Creek drainage. This report speculates that an eroding Wood Slough (just north of the study area) at one time intersected and beheaded the previously established stream trend affecting the upper Windmill Creek watershed. The divergence of this water upstream then pirated much of the runoff of this drainage to Turkey Creek and may have been a major factor in the expansion of the Turkey Creek drainage network within this vicinity.

A second example of stream piracy may be related to the apparent upland location of archaeological site 41 ZV 320, situated between the margins of Windmill and Mustang Creeks. While not a large occupation site relative to the study area, 41 ZV 320 is an unusually extensive occupation, and the recovered artifacts consisted of a variety of chronologically diagnostic dart points. A review of topographic and aerial maps indicates that the contour pattern and former riparian vegetation zones suggest a channelization link between the two streams. This apparent link accounts for the moderately extensive occupation in a water-proximate location (a much more probable camp location). Additionally, this link would have affected the runoff of Windmill Creek and suggests that the lower portion of Mustang Creek is a more recent geomorphological development. There is practically no variation or development of soils along the terraces of lower Mustang Creek as it winds its way across river alluvium deposits in the ancient river floodplain. Archaeological sites along the lower portion of Mustang Creek are few and lack the intensity of occupation that characterizes much of the Turkey and Windmill Creek drainages. While there are several explanations for this phenomenon, it is believed that the relatively modern development of lower Mustang Creek may be a major consideration in the interpretation of archaeological site distributions within the study area.

A third example of stream divergence within the study area appears in the lower Windmill Creek drainage approximately three to four miles north of its confluence with Turkey Creek. Contour relief in this low lying area as well as the complex hydrological dendritic pattern indicates a meandering confluence point between the two creek channels. Kelly's (Kelly *et al.* 1983) collection of *Plainview*, *Early Corner Notched*, and other early point types along this portion of Turkey Creek and below the area of this proposed channel shift may indicate an ancient mainstream channel originating north of Smyth Tank along the present-day Windmill Creek and turning southward along the northern margins of the large, modern Turkey Creek floodplain.

The Nueces River

The Nueces River, running through the eastern segment of the study area, has its origins in Real County to the north. Its drainage area of approximately 17,075 square miles includes all or parts of 24 counties and is about equal to the combined areas of the states of Maryland and Connecticut. From its headwaters to about river mile 342, the river flows through steep, narrow valleys. Below this point and just above the present study area, the gorge section abruptly transitions into a broad valley section with a corresponding decrease in channel size and capacity.

Flooding of the Nueces River usually occurs over the watershed in the spring and fall; in May, June, and September, respectively. Actual flooding can be caused by regionally heavy rains or intense, local thunderstorms over parts of the drainage. Historically, major floods since 1913 have occurred during a maximum interval period of 13 years, although flooding intervals have become increasingly shorter within the past decade. The upper terraces of the Nueces River along the study area are still vulnerable to massive floods. Neck (n.d.:4) describes a flood which peaked at over three meters of water at the Anthon site, 41 UV 60 (just northeast of the East Chacon study area), in 1935. Flooding of the Nueces River and its tributaries constitute a major environmental impact on the condition and preservation of archaeological sites located along stream or river terraces within the study area. Damage can occur through massive, single-event erosional sequences or by equally significant alluvial depositions.

Flora and Fauna

In addition to the flora of the study area mentioned by Kelly *et al.* (1983), Neck (n.d.:6) lists several other plant species identified along drainages as well as in upland areas (Fig. 3,a). Riparian zones include sycamore (*Platanus occidentalis*), black willow (*Salix nigra*), and button-brush (*Cephalanthus occidentalis*) as well as live oak (*Quercus fusiformis*), pecan (*Carya illionensis*), and rough-leaf hackberry (*Celtis reticulata*). Brush invasion from upland areas has encroached the riparian zone, and the most abundant species included catclaw (*Acacia greggii* and *A. romeriana*), whitebrush (*Aloysia gratissima*), mesquite (*Prosopis glandulosa*), and prickly pear (*Opuntia lindheimeri*). Upland brush most commonly consists of mesquite, guayacan (*Porlieria angustifolia*), blackbrush (*Acacia rigidula*), and whitebrush (Fig. 3,b). While Neck (n.d.) concludes that upland brush has expanded into riparian zones, other authors (cf. Bogush 1952; Inglis 1964) suggest that at least some elements of present-day upland brush, such as mesquite, may have expanded into upland zones from actual riparian origins. Regardless, it should be noted Neck (n.d.) is apparently referring only to the vicinity where site 41 UV 60 is located.

In more general terms, the ecology of the study area is associated with the northern margins of the Tamaulipan Biotic Province as described by Blair (1950).¹ The northern boundary of this biotic province corresponds with the Balcones Fault Zone. Historically, the Tamaulipan Biotic Province in Texas was

¹The flora and fauna native to the study area often reflect a mixture of Tamaulipan and Balconian (Edwards Plateau) elements, thus placing it in an ecotone (Neck n.d.:5).

a plain (Inglis 1964), however, recent brush invasions have given it the appearance of a brushland, and the southern Texas plain has been described as the worst, most impenetrable chapparal in the United States (Dobie 1943:190-191).

Predominant fauna are not, like many plant species of the area, usually restricted to specific vegetation areas or associations. White-tailed deer are the dominant wild herbivore, and Uvalde County is known to support one of the largest javelina populations in Texas. Ring-tailed cats, of considerable value as furbearers, although most abundant in the Edwards Plateau, are also found along bluffs and rock outcrops near drainages such as the Nueces River.

A more extensive listing of the flora and fauna of the area not discussed in Kelly *et al.* (1983) or this report may be found in Austin *et al.* (1975:Appendix C through K).

Comments on the (Post-Quaternary) Paleoenvironmental Development of the Study Area

The Quaternary and post-Pleistocene development of the project area is still poorly understood, and this report will review only a few of its more significant, postulated episodes. These developments, especially those environmental changes that occurred at the terminal or post-Pleistocene epoch are thought to have had a major affect on the character and distribution of later prehistoric peoples throughout the area. The interpretations briefly presented here are a result of discussions between geologists and the writers, a review of associated geological literature, and the archaeological evidence, as it is understood. As such, the shortcomings of this synthesis and its possible inaccuracies must lie with the authors and not necessarily with the validity of the background data.

Table 1 presents a summary of geological evidence as it relates to the Nueces River drainage from a regional perspective. Weeks (1945) suggested that during Pleistocene times, large gravel units were deposited throughout the south-central Texas region. These materials, originally obtained from central Texas and Pliocene-related erosional debris from further westward, were deposited along the terraces of ancient drainage channels. Further southward, fine sand, silt, and clay materials of a contemporaneous age replaced these gravels along stream terraces. The stream gravel deposits, Uvalde Gravels, now often cap the highest terraces adjacent to drainages such as the Nueces River and indicate at least portions of an ancient lower Pleistocene river channel and drainage system. This ancient river system is described in this report as the "Old Uvalde River" to distinguish it from the modern Nueces River (and system). Within the study area, a portion of the Old Uvalde River is thought to have been located near the present Nueces River just below the Uvalde-Zavala County line. The old river course before or below this point are not clearly identified, as several major movements and rechannelizations may have since occurred. Weeks (1945: 1718) points out that the distributions of these gravels in northeastern Maverick County (about 100 km southwest of the study area) suggest a stream connection (confluence?) between the Rio Grande and the Nueces River (or more accurately, the Old Uvalde River). Until late Pleistocene times and after the depositions of the slightly more recent Lissie Formation, Neck (n.d.:3) postulates the changing Old Uvalde/Nueces River had drained into the valley of the

	Nueces River System & Regional Setting	Mainstream Tributaries of Study Area	Comments
Late Prehistoric	modern channelization	development of lower Mustang Creek drainage	extensive occupations along Turkey Creek
Late Archaic		Turkey Creek becomes primary mainstream tributary in study area	occupations begin at 41 UV 60
Middle Archaic		episodes of stream piracy Windmill Creek primary mainstream tributary	extensive occupations vicinity Symth Tank, along Windmill Creek
Early Archaic	distinctive channel movements extensive alluvial/fluviatile depositions		
ca. 8000-9000 B.C.	river rechannelizes into its approximate present configuration	development of shallow, intermittent lakebeds in central portion of East Chacon study area	fluted projectile point associated with 41 ZV 285
Late Pleistocene	river drains into Leona River drainage vicinity of Garman Slough (?) Leona Formation deposited Uvalde Clays in adjacent Leona River drainage deposited Uvalde Gravels correlate with materials in Maverick County; suggest stream connection of Nueces River and the Rio Grande "Old Uvalde River" flows through study area (related to presence of Uvalde Gravels)		development of Aquifer/faulting sequences along Edwards Plateau
Lower Pleistocene	1) streams deposit materials obtained from denudation of Ont'l Texas & Pliocene erosional debris west of Rocky Mountains 2) streams deposit fine sands, silts/clays in southwest Texas (Bee, Live Oak, Jim Wells, and Nueces Counties) 3) no early Pleistocene deposits along lower courses of Rio Grande (obliteration of these deposits in mid-late Pleistocene?) 4) development of Pinyon Pine, Big-tooth Maples in upper Old Uvalde River drainage system		

present Leona River in the vicinity of Garman Slough, about 5.2 km north of the East Chacon survey area. During or before this time, the massive fluviatile terrace materials were deposited as far as 10 km or more away from the modern river channel. It is possible that 41 ZV 285, an upland site containing a fluted projectile point fragment (*Folsom* or *Clovis*; generally dated at about 9200-8500 B.C.) actually represents a site once located on the edges of an extensive Pleistocene river floodplain. This interpretation is based in part on the remains of (Pleistocene) fluviatile deposits adjacent to 41 ZV 285 (as noted in Barnes 1974). Apparently, by the terminal Pleistocene and the beginning of the Early Archaic cultural period in southern and south-central Texas (approximately 5000 B.C.) the river within the study area had rechannelized into its approximately modern configuration. By 2000-1000 B.C. (the Middle Archaic), extensive site distributions along river terraces indicate several more recent, only partially identified rechannelizations and terrace developments. Gravel and soil deposits at the Anthon site, 41 UV 60, suggest that (at least locally) by about 1400 B.C., the river was downcutting and moving westward into its modern channel (after Neck n.d.; see also Table 2). The location of 41 UV 60 and its relation to the study area and river terrace systems are presented in Figure 4).

By the Early Archaic cultural period, streamflow development of mainstream tributaries within the East Chacon study area may be recognized. As noted earlier, the early Windmill Creek is considered to be the primary mainstream channel west of the Nueces River at this time, and this is partially correlated with the frequency and relative ages of archaeological materials found along this drainage. After the Middle Archaic period (post 1000 B.C.), occupations began developing in the vicinity of site 41 UV 60 along the Nueces River channel. Some time before the turn of the millenium, the beheadment and divergence of the Windmill Creek drainage is thought to have taken place with a corresponding increase in the frequency of Late Archaic and Late Prehistoric materials along the Turkey Creek drainage. A divergence of the upper Mustang Creek drainage into its lower channel is postulated to be the most recent and major geomorphological development, characterized by a lack of terrace soils development, an extremely narrow drainage channel, and a lack of prehistoric occupations along this drainage.

Little is understood about the development of small to moderately sized, shallow, lake beds in the central portion of the East Chacon area (i.e., Green Lake). Surveys around Green Lake have discovered prehistoric occupations that date to at least Early Archaic times (by association with collected *Guadalupe* tools). Preliminary interpretations suggest that a lake bed, of possible Pleistocene origins, was once associated with a former channel of lower Mustang Creek and as such may have received its water from both surface runoff as well as possible spring seepage.

While the local environmental sequence of the area may be only generally described, R. Neck (n.d.), through his studies of terrestrial gastropods at 41 UV 60, has reconstructed an environmental sequence that ranges from about 1600 B.C. to the present. His estimated biotic communities vary from open woodlands (ca. 400 B.C. or earlier) to a true savannah, which he believes existed around A.D. 1200-1300. Table 2 presents a combination of Weir and Doran's (1980) radiocarbon data and diagnostic projectile point sequence in

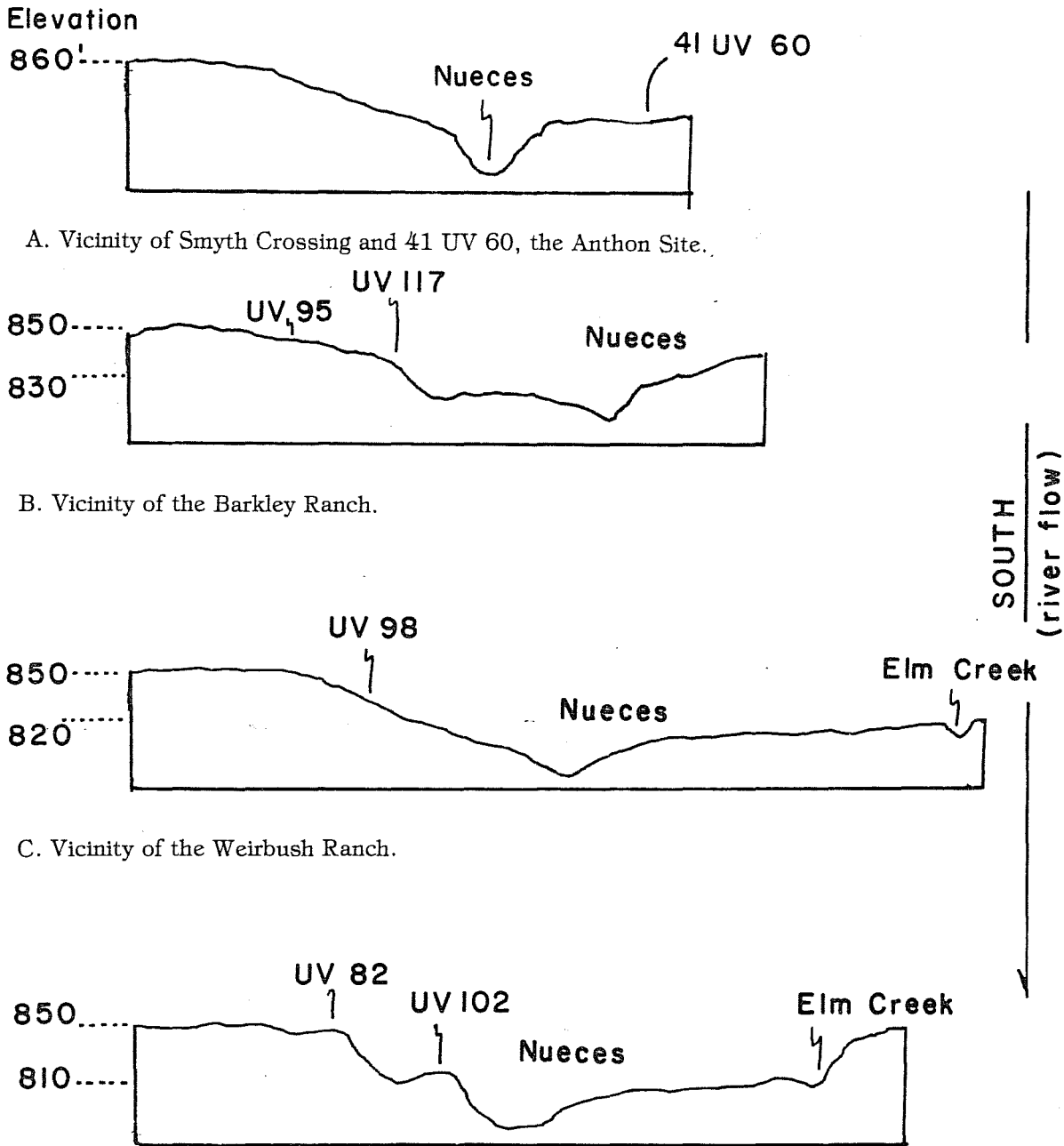
TABLE 2. SUCCESSION OF BIOTIC COMMUNITIES, 41 UV 60, THE ANTHON SITE

Biotic Communities	Date	Postulated Local Environment	Comments
1	Present	overgrazing/chapparral	
2	1272*	true savannah	cultural materials include: <i>Perdiz</i> , <i>Scallorn</i> , <i>Sabinal</i>
3	1200	beginning prairie-savannah	
	1152*		
	1122*		
	1040		
	960		
	880		
	800		
4	400	open areas increase in size, live oak increases in abundance	"San Marcos Phase"***
	372*	well-developed woodland; pecan, black willow predominate	
	302*		
	240		
	160		
	80		
5	A.D.	impacted woodland; possibly natural flooding of habitat	"Round Rock Phase"***
	B.C.		
	80		
6	160	developed woodland; dense mottes. incipient (open) woodland; decline of sycamore and black willow, increase in rough-leaf hackberry and pecan	
	252*		
	240		
	320		
7	400		
	960		
	1048*	development of sycamore, black willow, little walnut, button brush, etc.	
	1040		
	1120		
	1168*		
	1200		
8	1570*	gravel bar (river bank woodlands), sparse woody plant associations	
	1600		

Source: Weir and Doran (1980) and Neck (n.d.).

* Indicates associated radiocarbon date (from Weir and Doran 1980 or Neck n.d.).

** As defined by Weir (1976); Weir and Doran (1980).



A. Vicinity of Smyth Crossing and 41 UV 60, the Anthon Site.

B. Vicinity of the Barkley Ranch.

C. Vicinity of the Weirbush Ranch.

D. Approximately two miles south of Smyth Crossing.

Vertical Exaggeration: 1x20.
 Elevation in feet above msl.

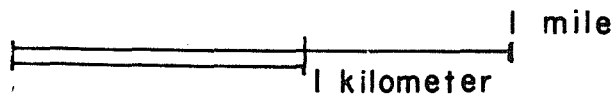


Figure 4. Terrace Morphology and Associated Archaeological Sites, East Chacon Study Area, Along the Nueces River.

relation to Neck's (n.d.) environmental reconstructions. Neck's (n.d.) description of biotic communities should be interpreted as a local succession related to the vicinity of site 41 UV 60. Regional inferences are more complex and, as such, less definable.

In summary, the character of the East Chacon study area has changed extensively since the termination of the Pleistocene epoch. Developments in the past 20,000-12,000 years have accounted for major shifts of drainage systems and associated biotic communities. It is only through a recognition and an understanding of these developments that the archaeological record may be more clearly perceived as part of a dynamic and evolving environmental system.

ARCHAEOLOGICAL BACKGROUND

This volume, in addition to the data presented in Kelly *et al.* (1983), reviews the areal significance of archaeological sites in the vicinity of the East Chacon project. The localities and sites discussed below correlate with the general chronological periods described by Kelly *et al.* (1983): the Paleo-Indian, Archaic, Late Prehistoric, and Historic periods. This discussion will concentrate on information obtained from the Chaparrosa Ranch area (Hester 1978; Montgomery 1978); recent excavations in the vicinity of Eight Mile Waterhole, Uvalde County (Lukowski n.d.); at the La Jita site (Hester 1971); and at excavations conducted at the Anthon site, 41 UV 60 (Weir and Doran 1980; Neck n.d.). In addition, a review of T. C. Hill's (notes on file, CAR-UTSA) extensive archaeological site data for Zavala County as well as information derived from the Texas Archeological Research Laboratory, Austin, will be presented.

Uvalde County

Prior to the 1981-1982 East Chacon surveys, 92 archaeological sites had been officially recorded for Uvalde County. Because this county, like several other counties of Texas, lies along the margins of the Balcones Escarpment, its archaeological record reflects the diversity of its exploited aboriginal resources. Northern Uvalde County is characterized by the resources and natural biota of the Edwards Plateau, while the southern portion reflects the changing environmental systems of the Gulf Coastal Plain. This natural distinction is apparently reflected in archaeological site distributions as well; diagnostic materials reveal a mixture of some Trans-Pecos but primarily central Texas and southern Texas prehistoric materials. A description of the more significant sites as well as archaeological research related to Uvalde County follow.

The La Jita Site (Hester 1971)

In 1971, Hester conducted extensive excavations at the La Jita site, 41 UV 21, in northeastern Uvalde County. Following investigations around three loosely grouped burned rock middens, he determined the site was occupied throughout the Archaic period and into Late Prehistoric times. Radiocarbon data from the site are somewhat mixed (Hester 1971:120-121). No dates were identified prior to

A.D. 100. Middle Archaic occupations are thought to be associated with this assay, and Late Archaic activities may be related to several dates ranging from A.D. 400 to A.D. 950. The Late Prehistoric period is represented by several dates, the most recent being A.D. 1290 \pm 70. Hester speculated that the burned rock middens of the La Jita site originated through hearth-rubble accumulations. The middens, associated with Middle Archaic cultural activities, apparently resulted from a dumping of expended or shattered hearthstones (*ibid.*:124-125). Studies and interpretations of faunal and shell remains related to the La Jita site will be discussed in the Interpretations section of this report.

The Anthon Site (Weir and Doran 1980; Neck n.d.)

The Anthon site, 41 UV 60, located on the eastern, upper terrace of the Nueces River adjacent to Smyth Crossing and just northeast of the study area, is discussed in some detail in the Environmental Background section of this report. First excavated by the Texas Department of Highways and Public Transportation in 1975, the site covers an area of approximately two acres. Nine radiocarbon dates were assayed from the site and the earliest, 3520 \pm 60 B.P. (TX-2422) was associated with Middle Archaic cultural materials. The most recent date, 830 \pm 70 B.P. (TX-2838), is apparently associated with Late Prehistoric *Scallorn* arrow points. A total of five soil zones were identified at 41 UV 60. Stratum 1 (surface to ca. 50 cm) was a loosely packed gray soil associated with Late Prehistoric materials. Stratum 2 (ca. 50-200 cm) was dark to light brown in color and represented Late Archaic cultural associations. Stratum 3 (200-300 cm) also related to Late Archaic materials with earlier, Middle Archaic, materials noted in the lower portions. Stratum 4 (ca. 300-400 cm) was associated with Middle Archaic materials. Stratum 5, essentially sterile, extended to at least 1.65 m below the surface. No occupational deposits were found in this stratum. Although Late Prehistoric *Perdiz* points were collected, no ceramics were recovered. A new (Middle Archaic?) dart point type, the *Anthon* type, was proposed following the analysis of 21 recovered specimens.

Archaeological Excavations Along the Leona Watershed (Lukowski n.d.)

Lukowski (n.d.) has recently completed test excavations at four prehistoric sites along the Leona River drainage several miles north of Uvalde. A quarry site, 41 UV 43, and three Late Archaic/Late Prehistoric sites (41 UV 45, 41 UV 47, and 41 UV 48) in the vicinity of the Eight Mile Waterhole were tested. Early Archaic materials were noted in surface collections from 41 UV 45, but no intact subsurface component was recognized. The sites, in general, were characterized by moderate Late Archaic and Late Prehistoric deposits, and undecorated ceramic sherds were associated with the latter. A total of eight radiocarbon assays were collected. The dates ranged from 1060 \pm 60 B.P. to 410 \pm 50 B.P. (approximately A.D. 950-A.D. 1440). Lukowski (personal communication) speculated that earlier materials may have been removed by a series of scouring episodes that eventually resulted in massive gravel deposits that now underlie the Late Archaic cultural deposits.

Montell Rockshelter (Evans n.d. and Hester n.d.)

Located in northern Uvalde County at the base of a steep bluff along Montell Creek, the rockshelter has a total length of approximately 20 m. Evans and Meade, as part of the Texas Memorial Museum investigations, conducted excavations at the shelter during the spring of 1947 and 1948. Three (cultural?) zones were noted: (1) an upper 15-20 cm of loose rock spalls, excreta, charcoal, and cultural materials including broken arrow points; (2) a middle layer of burned bone, charcoal, and artifacts to a depth of 1.5 m; and (3) a lower zone of loose rock spalls, some charcoal, and a marked decrease of cultural materials. Evans (n.d.) postulated that an earlier cultural level might underlie the spall zone; and later returned and excavated a trench through the shelter. He noted Archaic and underlying "sterile" deposits that might be related to an earlier, lower (cultural?) zone. Below this, Evans recovered a long, unidentified, lanceolate point and noted Pleistocene faunal remains. In another area of the shelter, he also collected two painted pebbles "similar to those of the Pecos River cultures." In addition, he found the tip of an iron spike in upper deposits which might indicate historical contact with Spaniards at nearby Mission Montell in the 18th century.

Hester (n.d.) visited the shelter in October 1977 and observed a series of polychrome pictographs on the back walls. Painted primarily of red and yellow hues, these pictographs include zig-zag and straight lines and a small anthropomorphic figure.

Kincaid Rockshelter (Krieger 1947)

First described by Krieger in 1947, Kincaid Rockshelter is located north of Sabinal in Uvalde County. Relic collectors recovered several Paleo-Indian *Folsom* projectile points, and Suhm and Jelks (1962:193) noted that these specimens were unusually large variants of that type. Pleistocene bison were found *in situ* in lower deposits and were apparently related to the *Folsom* points. An obsidian point found at the base of the shelter has been demonstrated to originate from an obsidian source in Queretaro, Mexico, some 600 miles distant (Hester 1980: 129-130).

Zavala County

The Chaparrosa Ranch (Hester 1978 and Montgomery 1978)

Located in Zavala County, approximately six miles south of the study area, the Chaparrosa Ranch has been studied archaeologically since 1970. Hester (1970) began long-term studies of the locality because the area appeared to have a significant potential for regional interpretations of southern Texas prehistory. Since the initial work, two other field seasons and several smaller investigations have been conducted at the ranch. The 1974 and 1975 seasons of the UTSA Graduate Field Course in Archaeology were conducted at the Chaparrosa Ranch. The 1974 work included extensive excavations at the Mariposa site, 41 ZV 83. The investigations, which included site surveys, controlled surface collections, testing, and excavations, led to the documentation of nearly 200 prehistoric and historic sites by 1978.

Two major tributaries of the Nueces River flow through the ranch area: the Chaparrosa and Turkey Creeks. Preliminary studies suggested that most identified sites were located on the floodplain of major streams or on low terraces bordering the major streams. Many of these archaeological sites are extensive and are situated on natural levees (Hester 1978:7). Depth of cultural deposits was estimated to extend beyond one meter in thickness in these areas. Less frequently, other site locations were discovered on more water-distant gravel terraces and in upland areas.

Deposits at floodplain sites were characterized by alluvial materials associated with transitional Archaic and Late Prehistoric materials. A soil gradation was noted at approximately 40 cm below the surface along with horizontally irregular cultural deposits. A tan clay and sterile subsoil was noted in the lower excavation levels (Hester 1978:10). Upland deposits were dissimilar to those found at the former riparian sites. Hester (*ibid.*) noted debitage, including a fragmentary Paleo-Indian *Angostura* projectile point on a "desert pavement" surface. He speculated that if Paleo-Indian occupations were present, they would be located on high gravel terraces rimming the floodplain.

Montgomery (1978) described testing and excavations of the Mariposa site, 41 ZV 83, excavated by Hester in 1974. Material remains from 41 ZV 83 included a Late Prehistoric cultural assemblage that contained *Scallorn* and *Perdiz* arrow points. *Zavala* points appeared in earlier (deeper) contexts and apparently continued in usage along with *Perdiz* and *Scallorn* types (Montgomery 1978:142). He also suggested that the high frequency of ground sandstone slabs at the Mariposa site indicated an unusually intensive reliance on vegetal processing, while, at the same time, the low frequency of hammerstones was also unique.

In general, Montgomery (1978) noted that 41 ZV 83 was, in some respects, both similar and dissimilar to other Late Prehistoric occupation sites. Hearth areas and specialized lithic activity loci commonly occurred both at the Mariposa site and other Late Prehistoric campsites. Interestingly, like those Late Prehistoric sites identified in the current East Chacon study area, no ceramics were recovered. Radiocarbon dates from the Mariposa site suggest that Late Prehistoric occupations spanned a time period from A.D. 1430 to A.D. 1650. This may be compared to a radiocarbon date from the Holdsworth and Tortuga Flat sites of approximately A.D. 1440 to A.D. 1760 (Hester and Hill 1975). All three sites were apparently occupied into the early Historic period, yet none contain evidences of European contact.

Unpublished Zavala County Site Data¹

While over 200 sites have been previously recorded from Zavala County (excluding those of the 1981 and 1982 East Chacon surveys), 76 of these are identified in CAR-UTSA files as having detailed site information. Since all of this sampled data originates just south of the current study area, the characteristics of this arbitrary (ca. 30%) sample will be summarized and briefly discussed to give the reader an overall description of the types of sites and their significance to the archaeological record. These observations are general and based only on a preliminary records review.

¹Extracted from the notes of T. C. Hill, Jr., an avocational archaeologist in Crystal City, Zavala County, and Thomas R. Hester, Director, CAR-UTSA.

Of the 76 sampled sites, 60 contain chronologically diagnostic materials. The temporal associations of these 60 sites are summarized in Table 3.

In Table 3, the entire prehistoric cultural sequence is represented in Zavala County from the sampled sites. Because of the long span of time involved during the Archaic period, it is not unusual to find that Archaic age materials dominate the collected artifacts. The Early Archaic is well represented (approximately 27% of the type sites; Total = 84 in this case), and there appears to be a less frequent number of Middle Archaic diagnostic materials. Single period Archaic-aged sites and multiperiod Late Prehistoric/Archaic sites compose over 64% of the identifiable site associations of the sample. Paleo-Indian sites occur as either single period sites or as part of multiperiod site locations, but are not usually associated with Late Prehistoric-dated sites. A detailed description of this data is on file at the CAR-UTSA; additionally the reader is cautioned that this presentation of data reflects only the information from a preliminary records review. It is believed that subsurface testing at these sampled site locations would significantly alter interpretations.

Summary

The distribution of archaeological sites in the vicinity of the East Chacon study area represents extensive archaeological resources of significant regional value. As an example, the presence of intrusive basaltic materials at sites, 41 ZV 35 and 41 UV 42, suggests exploitation of this lithic resource from basalt outcroppings further to the north. The proliferation of *Dimmit* scrapers throughout the prehistoric sites of the Chaparrosa Ranch may imply a subregional variation of a distally beveled tool type. Additionally, such unusual artifacts as incised limestone cobbles and the occurrence of possible wattle-daub materials reflect prehistoric materials that are still only poorly understood as part of aboriginal cultural activities. It is believed that further studies of the area's prehistoric background will contribute to a clearer understanding of its past inhabitants and will shed more light on the complexity and anonymity of the archaeological record.

HISTORICAL BACKGROUND

Recent historical studies of the Fort Inge, Uvalde County, area by Nelson (1981) present a rather detailed review of the early history of both Uvalde and neighboring Zavala County, as it is known to date. The reader is referred to this publication for further general information on the interesting and often violent early history of this area.

Continuing historical records research within the East Chacon study area has led to the identification of three 19th/early 20th-century historical sites. Records research identified 41 ZV 326 (the Heard Ranch), 41 ZV 327 (the Washer Ranch), and 41 ZV 328 (Turk's Ranch). Additionally, during the 1982 field survey, a historical grave site at 41 ZV 290 was also recorded. Site descriptions for these localities are described in some detail in Appendix II, along with the 1982 site description of 41 ZV 290. A brief review of their significance to the local historical record (as introduced by Kelly *et al.* 1983) is

TABLE 3. SUMMARY OF SAMPLED SITES FROM ZAVALA COUNTY

a. Occurrence of diagnostic materials associated with cultural periods from 60 sampled sites:

Late Prehistoric	Late Archaic	Middle Archaic	Early Archaic	Paleo-Indian
18	19	13	23	11

Note: Total = 84. Sampled sites are often multiperiod and, thus, occurrences of diagnostic materials from subperiods do not total 60.

b. Frequency of single and multiperiod archaeological sites total 60.

<u>Single Period Sites</u>			<u>Multiperiod Sites</u>			
Late Prehistoric	Archaic	Paleo-Indian	Late Prehistoric/Archaic	Late Prehistoric/Archaic/Paleo-Indian	Archaic/Paleo-Indian	Late Prehistoric/Paleo-Indian
8	22	4	16	5	4	1

presented below. Further information on other relevant historical aspects of the project study area, as identified from continuing records investigations, is also summarized.

Historical Sites of the East Chacon Survey Area

The three historical sites identified from background research are of late 19th century to early 20th century origins. The grave site at 41 ZV 290 suggests that earlier, middle 19th century activities (and possible occupations), may have taken place, but no definite evidence is yet available.

First identified on an 1896 copy of the Texas Military Map, Uvalde Quadrangle, the Heard (Herd?) Ranch (41 ZV 326) and the Turk Ranch (41 ZV 328) are shown to be located in the present-day Kiefer Windmill area and along the southern portion of Turkey Creek, respectively. Little other descriptive information is available at this time. The date inscribed on the grave marker at 41 ZV 290¹ indicates that W. T. Cook was buried there in 1867. An extensive literature search did not uncover further references to Cook prior to this date. A Cook is mentioned in the diary of Reading W. Black, the founder of Uvalde, but the name mentioned in the diary is apparently of a relative. A review of the census records indicates an early link between L. P. Heard and Thomas Cook during the 1860 census of Uvalde County. This Cook, the son of David Cook, may be the same individual as the W. T. Cook at 41 ZV 290; however, there is no conclusive evidence to this speculation.

The dearth of information regarding the Heard and Turk ranches, as well as the grave site at 41 ZV 290, and the lack of land titles during this period may indicate possible homesteading with no clear titles applied for or granted. Further archival research would do much to further identify the significance of these sites.

A review of the early records and census information relating to the Heard, Turk, and Washer ranches, as well as W. T. Cook, are presented below. The information includes the available census records from 1850 to 1880.

A Historical Census Review of the Heard and Cook Families, Uvalde County

1850 Census, Bexar County, Texas

Bexar County in 1850 was inclusive and ill-defined; the census is organized by informal districts (e.g., "Ft. Inge," "west side Leona River"). No inhabitants are listed for the Nueces River. A cursory check was made for inhabitants named Cook--none were found; but the census is lengthy, and only a brief examination was conducted.

¹The inscription reads "W. T. Cook, son of David Cook/Franklin Co., Alabama/ Died July 11, 1867."

1860 Census, Uvalde County, Texas (July 5, 1860)

David Cook first appears in this census (house #557, family #473), as a stock-raiser, born in South Carolina, with a personal estate valued at \$400. His household is listed as follows:

	<u>Age</u>	<u>Sex</u>	<u>Place of Birth</u>
David Cook	48	M	South Carolina
Elisa Jane Cook	30	F	Alabama
James Collin Cook	13	M	Alabama
David G. Cook*	11	M	Alabama
Magareth (sic) Cook	7	F	Arkansas
Rob. Jefferson Cook	5	M	Arkansas
Thalis T. Cook	2	M	Texas

* Presumably the same as the David S. Cook listed in the 1870 Zavala County census.

By subtracting the ages of the children, it is clear that the family was located in Alabama in 1847 and 1849, in Arkansas in 1853 and 1855, and present in Texas by 1858.

Another man, Thomas Cook, appears in the household of L. P. Heard in the same census; he is listed as a laborer born in Alabama, with a personal estate of \$100. Heard is listed as a stockraiser born in Georgia, with a personal estate of \$1200. This household (house #554) is listed as follows:

	<u>Age</u>	<u>Sex</u>	<u>Place of Birth</u>
L. P. Heard	24	M	Georgia
Martha Heard	22	F	Tennessee
Thomas H. Hammes*	4	M	Texas
Mary Heard	1	F	Texas
Thomas Cook	20	M	Alabama

* Last letter is partly illegible.

Another Thomas Cook (?) appears in the 1870 census for Uvalde County, yet is listed (10 years later) as 27 years old, a laborer born in Alabama with a personal estate of \$100. Perhaps this is the same person, but contradictory ages were given to the census enumerator on the two occasions.

1860 Census, Franklin County, Alabama

This census is also present in the Texas State Archives on microfilm, but is almost completely illegible because it was not properly microfilmed. Approximately 90% of the names are illegible. Examination of the original in Washington, D.C., would probably be the only way to check for the presence of

William Cook. Neither the 1850 census for Franklin County, nor any of the censuses for Colbert County have been examined to date.

Franklin and Colbert Counties, Alabama

Franklin County, Alabama (presumably where Elijah Franklin was from?), was organized Feb. 6, 1818; the county seat was Russellville, now in Colbert County. Colbert County was established from the northern half of Franklin County on Feb. 6, 1867, abolished Nov. 29, 1867, and reestablished Dec. 9, 1869, with the county seat as Tuscumbia.

The Franklin County courthouse burned in 1889 or 1890, while the county seat was located at Belgreen, destroying nearly all the existing records.

1870 Census, Uvalde County, Texas

In the various censuses of Uvalde County, Coxes and Cooks are generally listed close together, possibly suggesting they may have lived nearby, and that the census enumerators followed much the same route from decade to decade, or at least traveled from household to household along established roads. Probably they emigrated from Alabama together and settled near each other in Uvalde and Zavala Counties. More detailed analysis might reveal something of the settlement pattern.

House #3, Family #3:

	<u>Age</u>	<u>Sex</u>	<u>Place of Birth</u>
Thomas J. Cook*	27	M	Alabama
Amantha M. Cook	22	F	Texas
Mary Jane Cook	1	F	Texas

* Last name is poorly written and may not be Cook; the first letter looks like a G; but there are no other names with similar configurations listed in the censuses.

1870 Census, Zavala County, Texas

After the organization of Zavala County, David Cook's household (the elder David Cook, house #557 in the 1860 Uvalde census) appears as house #9, family #9 for Zavala County. His personal estate by now had increased to \$1500, and real estate is listed at \$400, implying acquisition of title to land. Two more children and a nonrelative (?) had been added to the household:

	<u>Age</u>	<u>Sex</u>	<u>Place of Birth</u>
David Cook	59	M	South Carolina
Eliza Jane Cook*	41	F	Mississippi

John E. Cook**	33	M	Alabama
Margaret J. Cook	18	F	Arkansas
Robert J. Cook	15	M	Arkansas
Thalis T. Cook	12	M	Texas
Polly C. Cook	9	F	Texas
Lydia E. M. Cook	6	F	Texas
Thomas Folliard***	9	M	Texas

* Note that her birthplace was listed as Alabama in the previous census.

** John E. Cook is listed as a stock raiser with a personal estate valued at \$1000.

*** The last name is poorly written and may have been misread.

Note that in this census, the younger David Cook (David G. or S.) had left the household, and another relative, John, in his thirties and with a substantial personal estate has apparently emigrated from Alabama but has not been in Texas long enough to buy land or establish a family. See the 1880 Zavala census, below.

By 1870 the younger David Cook has established an independent household and is listed as house #2, family #2 for Zavala County:

	<u>Age</u>	<u>Sex</u>	<u>Place of Birth</u>
David S. Cook	20	M	Alabama
Martha Cook	21	F	Texas

His occupation is listed as "cattle h _____" (illegible) with a personal estate worth \$600, married June 1870.

1880 Census, Zavala County, Texas (June 28, 29, 1880; enumeration district no. 153)

By 1880, John Cook had left David Cook's household and established his own (house #53, family #59):

	<u>Age</u>	<u>Sex</u>	<u>Place of Birth</u>
John E. Cook	42	M	Alabama
Elizabeth Cook	25	F	Texas
Enoch Cook	4	M	Texas
Salong (?) Cook*	2	F	Texas
Washington Poteet	24	M	Missouri
Nancy Poteet	22	F	Missouri
(illegible)	11	M	Texas
Martha Poteet	8	F	Texas
Robert Poteet	5	M	Texas
Bertha Poteet**	3	F	Texas
Nancy Poteet	5/12	F	Texas

* This name is poorly written; last letter might be g, y, z, or something else.

** This name is poorly written, it could be something else.

This census gives details about the birthplace of each person's parents. John Cook is listed as a stockman whose father was born in South Carolina and mother in Alabama. His wife's father was born in Missouri and her mother in Illinois. Since the elder Poteets were born in Missouri, perhaps Washington Poteet was a brother to Elizabeth(?).

1880 Census, Uvalde County, Texas

Rebecca Cook (?--the last name is poorly written) is listed as "daughter" in the household (house #128, family #144) of John B. Goodman, a 65 year old master stonemason. Her occupation is listed as "Washer Woman," her age as 17; she was born in Texas, her father was born in Tennessee and her mother in Louisiana.

Summary

The land grants to Shackelford's volunteers (see Kelly *et al.* 1983) established an early link between the project area and Franklin and Colbert Counties in Alabama. The census records show the elder David Cook to be present in Texas by 1858; if he is the same Cook mentioned in Reading Black's diary, he was in the Uvalde area in 1854 and 1855 (although the birthdate of his son, Robert, implies the family was still in Arkansas in 1855). Thomas Cook appears at about the same time attached to the Heard household (located at Hurd Windmill?) as a laborer. By 1870 another relative, John Cook, emigrated from Alabama and joined David Cook's household, but left by 1876 to establish his own household.

The history of the settlement of these counties is similar to that in other areas of Texas at the time: a household head settled in an area, then after becoming established, sent back home for other relatives to follow, who lived with the first household for a while until they could establish their own households.

Other families, such as the Coxes, may have been relatives by marriage or neighbors in the Franklin County area and may have settled in Zavala or Uvalde Counties. Since David Cook's household is listed in Zavala County in the 1870 census, presumably that is where the household was established to begin with, and was listed with Uvalde County in the 1860 census only because Zavala County had not been organized at the time.

William T. Cook is not listed in any of the censuses, presumably he was still living in Alabama in 1860, and had died before the 1870 census.

Two other items of historical interest were discovered during a background historical records review: (1) further information on the location of General Woll's (1842) Road to San Antonio, which eventually led to the capture of the city and the Battle of the Salado; and (2) the existence of the Zavalla (sic) Irrigation Company Canal in the vicinity of the East Chacon project area.

General Woll's Road to San Antonio appears on the 1879 General Land Office map of Zavala County as "Gen. Wool's Cross," located at the southeast corner of the Lee F. T. Cottle grant (survey 79). General Woll crossed the Nueces River and

camped Sept. 5, 1842, on the "left bank" of the Nueces River (presumably the east bank). The force spent the following day resting. Carrasco's diary (Nance 1955:536-537) describes the route from the Chaparrosas Lagoons to the Nueces River, which would have crossed the project area:

"After crossing a small *arroyo*, it follows a plain with small perceptible hills which are called Colorados, ascends a larger hill called the Divisadero, [Sand Mountain, according to Nance] crosses two small valleys and arrives at the Arroyo de Rancherías, deep and rough. [A] ramp was made for each side. A very dense woods furrowed by small *arroyos* was crossed . . . and then at four-thirty in the afternoon arrived at the Nueces River, having gone . . . to the bank of the river, which it crossed between the passes known as the Amoladeras ["grindstones"] and the Chicle ["gum"]. . . . Its bed is spread with loose rocks and its deep ravines can flood right and left over much ground, and the soil of its banks is hard, the forest on the right bank very dense."

The route for the Zavalla (sic) Irrigation Company Canal was surveyed by Col. Archibald Boyle and filed in the Uvalde courthouse (Surveyor's Field Notebook B-1:88-91) on Sept. 7, 1875. Presumably the route for the Zavala County portion is filed somewhere in the Zavala County courthouse. Both parts of the route appear on a General Land Office map of Zavala County published in 1879; the Zavala part is labeled "file 21" which may be a clue to the location of the surveyor's notes. Note that the location of the county line is different on the 1875 plat and on the 1879 map.

The Uvalde County part of the canal route crossed three separate roads to Eagle Pass: the "Co. road," the "old Eagle Pass road abandoned," and the "old Main E. Pass road."

Similar canals were proposed by the Uvalde Irrigation, Manufacturing and Water Company in the 1890s for the area on the east side of the Nueces River.

A brief review of the historical background of the project area would not be complete without a comment on the historical Indian groups that are known to have lived in the area. One such group, a mixed camp of approximately 100 Lipan Apache, Mescaleros, and Tonkawas, occupied a locality three miles north of Ft. Inge near the Leona River (approximately 15 km northeast of the study area). F. L. Olmstead (1857:288-290) visited this camp in the 1850s and his succinct comments on these "civilized" Indians apparently reflect the prevalent attitude of the times: ". . . here was nothing but the most miserable squalor, foul obscenity, and disgusting brutality, if there be excepted the occasional evidence of a sly and impish keenness."

In summary, the historical research of the East Chacon project area has revealed a long but poorly documented episode of activities and occupations amid a background of frontier hardships and early Indian depredations. The historical era of the study area, as such, represents the last episode of a long and varied cultural history of what is now south-central Texas.

RESEARCH DESIGN

The purpose of the current archaeological and historical investigations of the 1982 East Chacon project was to identify, as completely as possible, the cultural resources of the survey area and determine their historical and archaeological significance in the light of potential eligibility to the National Register of Historic Places. This section will describe the organizational basis for the field, laboratory, and archival research of the project. As an introductory statement to the research design, the definition of a site is discussed from the perspective of the study area.

Site Definition

The question of site definition is especially pertinent in southern Texas, where sites are often characterized by thin scatters of cultural materials over large horizontal areas (Hester 1980:60). The published literature on site definition is largely theoretical in nature and does not directly address the practical problems involved in determining the minimum of attributes of an archaeological site. For example, Willey and Phillips (1958:10), in their landmark work on method and theory, provide the following comments: "a site is the smallest unit of space dealt with by the archaeologist and the most difficult to define. . . . About the only requirement ordinarily demanded of a site is that it be fairly continuously covered by remains of former occupation." This statement is of little help in defining a site in the field. Other, later definitions are no more instructive. Deetz (1967:11), for example, defines a site as "a spatial concentration of material evidence of human activity." Prewitt (1981:69) translates this as "a specific spatially definable locus which contains evidence of human occupation or use."

It was hoped that in this report we could be more explicit in objectively defining the characteristics of an archaeological site. Unfortunately, the definition offered here is, in fact, no more useful than those already presented. Nevertheless, for the purposes of this report, an archaeological site is taken to be any concentration of artifacts, features, or culturally significant nonartifactual materials (burned rock, for example), observed on the ground surface. The extent of the site is equivalent to the extent to which such materials can be observed. The result is that site boundaries as defined from surface survey may be different from those of subsurface deposits (or of the original, actual site area). This definition, like those before, is qualitative rather than quantitative, in that no ratio, such as flakes to surface area, is employed as a defining criterion. While such quantification would obviously enhance objectivity, it would also decrease flexibility, and is thus considered impractical and would be unable to account for all cases. Site definition in the field remains, finally, a judgmental operation.

General Background Review to the 1982 Survey

Before actual field work for the 1982 East Chacon survey began, a series of background archaeological and historical records searches, archival studies, and data interpretations were conducted. These operations were designed not

only to give project archaeologists a working familiarity with the character of the survey area but also to identify all previously known and/or recorded sites in the area.

A preliminary records review identified little in the way of historical sites within the investigated locations, although the occurrence of General Woll's Road in proximity to the study area was noted (see Historical Background section). Noted also were the first land grant boundaries awarded to early Texans as identified from titles and maps on file at the Texas State Land Office, Austin. Records review included visits to the State Land Office and the State Archives, Austin, Texas, records offices of the Uvalde and Zavala County courthouses, the Garner Memorial Museum, and the El Progreso Public Library in Uvalde. Published and unpublished data and maps on file at the CAR-UTSA were also consulted.

Prehistoric background research included visits to the records office of the Texas Archeological Research Laboratory in Austin, a review of published and unpublished information for Uvalde and Zavala Counties, and a careful inspection of the 1981 archaeological data presented in Kelly *et al.* (1983). Additionally, local historians of the Uvalde area were contacted and visits were arranged with avocational archaeologists and former relic collectors who were familiar with the general area. Data presented by Weir and Doran (1980) regarding the excavations at 41 UV 60, the Anthon site, were of particular interest because of its location adjacent to the northeastern margins of the study area. The detailed descriptions of Weir and Doran's (1980) subsurface cultural deposits as well as the physical soil types were thought to be directly related to soils and cultural deposits of the current survey. Additionally, because of the wide range of topographic conditions of the project location, careful study of aerial and topographic maps were conducted to identify modern as well as fossil stream channels, terraces, and general riparian zones that might contain prehistoric occupation sites. A general model of the recent physiographic development of the study location was devised, and W. W. Hammond, Jr., instructor of the Division of Earth and Physical Sciences, was consulted for his critical review of this data.

Survey Operations

The 1982 survey of the East Chacon project locality consisted of four specific elements of a research design that would contribute to a refined interpretation of the significance of the cultural resources of the area. Each element will be briefly reviewed below.

First, a priority system of survey investigations was initiated. As archaeological sites do not occur uniformly across a landscape, or series of topographic environs, it was thought certain portions of the project area would have considerably more potential for significant site locations. Given the constraints of scheduling, funding, and manpower, a series of topographic localities were identified and rank-ordered according to estimated site potentials. These locations were: (1) the terraces along the Nueces River; (2) the drainage floodplains of Turkey, Windmill, and Mustang Creeks; and

(3) upland areas. Because the large and permanent supply of water resources as well as past regional archaeological data suggested large occupation sites along major water courses, the terraces along the Nueces River received the highest survey priority. Secondly, Kelly *et al.* (1983) identified the Turkey Creek drainage as having unusually extensive occupations. Since pre-field map interpretations suggested the possibility that Windmill Creek may have been an earlier mainstream channel of the modern Turkey Creek, Windmill Creek received a major survey emphasis following the riverine surveys. Archaeological sites identified along Windmill Creek were compared to Kelly *et al.* (1983) sites along Turkey Creek and, secondarily, to other site locations along tributary drainages.

Developing from the priority system of survey investigations, a second major element of the research design became the systematic reconnaissance of survey areas. Weekly and daily survey operations were outlined in advance to facilitate logistics, areal accessibility, and efficiency. Since the survey area was located at a considerable distance from camping or motel facilities, arrangements were made to camp within the survey area to increase the amount of effective daily field hours. Through the hospitality of Reagan Houston, owner of the Lyles-Houston Ranch, the survey crew was able to utilize the facilities of Mr. Houston's hunting lodge, conveniently located near the center of the survey area. This factor, combined with favorable weather throughout the length of field work, significantly contributed to the effective utilization of man-hours.

A third element of the research design was an emphasis on cumulative data interpretation; that is, as information was gathered during daily surveys, the strategy of investigations as well as the field interpretations were modified to fit existing conditions. It was thought the flexibility of this approach would best reflect the interpretation of actual site locations. While the basic premises on the character of the survey area and site distributions composed the basis of the 1982 field operations, as site information on actual sites was recorded, the research design was modified to most advantageously study developing patterns of site distributions. As an example, based on previous work, a segment of the prefield strategy (design) indicated that upland areas were devoid of significant archaeological resources and, thus, assumed a low survey priority. Current research within the East Chacon project area indicated that modern upland locations do contain potentially significant resources (apparently related to all but unidentifiable fossil stream channels), and that upland areas cannot be assessed without a careful review of local physiographic as well as cultural patterns.

A fourth element of the research design was the emphasis on testable hypotheses developed from the regional archaeological record as well as from previous research of the study area. These hypotheses and related models, by their nature, are general and served to guide the strategy of investigations. Prefield interpretation of background information suggested that potential archaeological sites would be similar in content and character to other sites of the region and the study area. As such, this would be reflected by:

- (1) occupational and multifunctional activity concentrated along the terraces

and floodplains of mainstream channels; (2) a predominance of Late Archaic and Late Prehistoric materials and sites; (3) a poorly represented Paleo-Indian period; and (4) a frequent occurrence of moderately to deeply buried archaeological sites. Additionally, geological and topographic data hinted at possible shifts in mainstream channel movements of tributaries in the project area. If this were the case, it should be reflected by: (1) inter-tributary heterogeneity of site distributions and/or occupations; (2) a marked difference in chronological associations of sites from an inter-drainage perspective; and, summarily, (3) a much more complex picture of aboriginal site distribution than previous researchers had suggested.

Methodology

Three basic forms of methodology were employed during the East Chacon project: field, laboratory, and analytical. Each will be briefly discussed below.

Field methodology was designed to systematically and effectively identify and assess newly recorded sites. Actual survey work was accomplished by either individuals working in groups or teams of two, depending upon the terrain and size of area to be covered. Transects along simple north-south or east-west azimuths were employed whenever possible with survey personnel spaced at 100-175 m intervals, again dependent upon topography and ground cover. Each individual, in addition to assorted personal equipment, was required to carry a compass, a one-quart canteen, a walkie-talkie, machete, topographic map with daily survey location and transects accurately plotted, a snake bite kit, and various common survey items including collection bags, flagging tape, field forms, etc. All sites were recorded in the field and plotted on a base map at the field headquarters. Located sites were revisited at least once to review the accuracy of the site description, dimensions, and location. For convenience in the field, site information was recorded on 6 x 4-inch ruled and spirally bound index cards using the same format as the standard CAR survey form. As site information was later reviewed, this data was transferred to these latter forms. Research methodology generally followed the guidelines presented in Hester, Heizer, and Graham's *Field Methods in Archaeology* (1975); the *Council of Texas Archaeologists Newsletter* (Eaton, ed. 1981); and the Texas Historical Commission's (1981) publication *Guidelines for Archaeological Investigations of Mining Areas in Texas*. Collected materials were limited to diagnostic or otherwise significant artifacts. All collected materials, field records, and other survey information are on file at the CAR laboratory.

Laboratory methodology involved the processing of collected materials as well as their tabulations and a detailed description. Because of the scope of the survey project, the uncontrolled method of collection, the biased sample of materials, and the surface context of the same, no attempts at a detailed cultural materials study was considered necessary during this phase of the investigations. Collected artifacts were identified as per a descriptive typological system and are discussed in some detail in the Cultural Materials section.

Analytical methodology, again, was a cumulative process that originated in the interpretation of background data and was flexibly adjusted by empirical information. Efforts were made to synthesize environmental as well as cultural data throughout the project operations to understand the value and occurrence of prehistoric sites in specific locations.

In summary, the research strategy and methodology of the 1982 East Chacon project were directed not only toward the identification of archaeological sites, but also toward recognizing their cultural and environmental relationships. It is believed that this approach would more accurately reflect the character and importance of individual sites as well as provide a more substantive assessment of their significance in the light of National Register criteria.

SITE DESCRIPTIONS

A total of 66 sites was recorded in the 1982 East Chacon survey. The sites range in size from small scatters of chipped stone debris, apparently the remains of single activities, to large occupation sites with features and artifacts indicating repeated occupation over long periods of time.

In order to present a maximum amount of information in a limited space, the site descriptions which follow are presented as a tabulation of data pertinent to the description of specific loci as archaeological sites, and is, therefore, designed for ease of reference. To facilitate synthesis with the 1981 report (Kelly *et al.* 1983), the same descriptive format has been adopted, with only minor changes intended to enhance readability and data access. A brief summary of the format follows:

Location: For the purpose of orientation, the position of the site is indicated within a general physiographic context, i.e., with respect to topography or natural and man-made landmarks. Descriptions of location are related to permanent features which may be readily identified by future investigators.

Elevation: The elevation is estimated from USGS topographic maps (scale 1:24,000) and expressed in feet above Mean Sea Level (msl).

Description: This section includes the following: (1) site dimensions, i.e., recording the observable extent of the site as determined from surface indications; (2) archaeological evidence, detailing the nature of cultural materials observed at the site--normally this includes a brief listing of the types of artifacts and culturally significant nonartifactual materials observed or collected; and (3) the present condition of the site, giving information as to recent alterations to the site due to natural processes (erosion) or human activity (land clearing, roads, construction, etc.).

Type of Site: A tentative, generalized classification is based on the variety and distribution of cultural materials observed at the site. The site types employed mark a slight departure from the 1981 report. It was felt that a more useful typology might be derived using a combination of variables, including functional groupings, proposed in part by Hester (1980:57-66), and physiographic location, particularly with respect to sources of water. Functional variables are determined from the form and intensity of cultural debris

at the site: a dense assortment of lithic debris and burned rock, for example, would imply a moderate to heavy occupation site; a thin scatter of lithic debris might indicate an auxiliary or expediency site. The site type is then refined by the addition of physiographic variables. The differentiating of sites on the basis of physiography evidenced a qualitative difference in site function between sites directly associated with sources of water and those located some distance from water. Since different resources would have been available in these microenvironmental zones, different cultural activities would be expected. Following the predictive model outlined in an earlier section of this report, occupation sites are generally thought to be associated with watercourses, and single-use, auxiliary or expediency sites associated with upland areas. A further distinction is made between riverine and tributary locations. Riverine sites are those located on floodplains adjacent to, or terraces overlooking, present or abandoned channels of major streams. Tributary locations are those found adjacent to subsidiary or tributary drainages into a major watercourse. The distinction, again, is that resources available in the two microenvironmental zones would have varied somewhat, producing a qualitative difference in site function. As a final note on site types, it should be observed that just as no quantitative method was used in defining the site and its boundaries, the determination of intensity of occupation at a site is the result of intuitive judgment and should be regarded as such.

Remarks: In this section, miscellaneous observations or comments which may be useful in evaluating the site are included. The comments may note relationships to nearby sites, the possible effects of land modification on cultural deposits, preliminary interpretations of site function, or comments on the likelihood of buried deposits.

Recommendations: This section forms a brief summary of the recommendations for any further work at individual site locations. Site quality is judged by measuring the site against criteria set forth for assessing eligibility to the National Register of Historic Places. These criteria are designed to encompass a wide range of cultural resources, both historical and prehistorical, and focus on the preservation of information significant to the determination of past cultural patterns. A further discussion of National Register criteria and how they relate to specific sites in the East Chacon area is found in Appendix I.

For the purpose of identification, archaeological sites in Texas are designated using a trinomial system implemented by the Smithsonian Institution (Hester 1980:19). The three positions in the site designation represent state, county, and site. For example, 41 UV 79 indicates the State of Texas (number 41 in an alphabetical listing of states), Uvalde County (UV in a state-wide, two letter code), and the 79th site officially recorded in that county. The sequence of site numbers is arbitrary and does not necessarily reflect associations between sites.

The 1982 Survey Area

The sites from the 1982 survey are grouped according to the major physiographic features with which they are associated. Site descriptions are grouped according to their associations with Turkey or Windmill Creek, the Nueces River, or uplands. Site numbers, although not necessarily sequential, generally represent site locations from north to south along the drainage. Two extensive areas of occupation were recorded along the west bank of the Nueces River and within the drainage of Windmill Creek. A third group consists of sites in the Turkey Creek drainage. The Turkey Creek sites are relatively few in number, because this area was not in the 1982 survey area. However, the 1981 survey covered much of Turkey Creek south of the Uvalde-Zavala County line, and a large number of sites were recorded during that season's work. It is with the 1981 sites that the group of Turkey Creek sites described below should ultimately be viewed (see the Interpretations section of this report). A few sites were recorded along Mustang Creek, both in the northern and southern sectors of the survey, and they are grouped together. Miscellaneous isolated upland sites, seemingly unassociated with watercourses, compose a fifth group. Isolated artifact finds are noted along with the area in which they were recovered. Subareas of the East Chacon survey area, as discussed in this section, are illustrated in Figure 5.

Nueces River Occupation Zone

The most heavily concentrated group of occupations in the survey area lies along the west bank of the Nueces River, south of Highway 481. In this zone, cultural materials occurred almost continuously along the Nueces River throughout its length, as the eastern limit of the survey area (see Fig. 1).

Occupation was heaviest in the north half of this zone, and it was often difficult to discern site boundaries within the general scatter of cultural debris. The sites in this area were located on upper terraces overlooking the westernmost dry channel of the Nueces River. This abandoned channel is now a pecan tree bottom, with tall, shady, pecan and oak trees along its course. The channel truncates the terraces in a cutbank a meter or more high in places, and cultural materials were observed to the margins of the bank. Soils in the north half of the zone were of two major types. The first and most widespread type is a recent alluvium of the Uvalde Series (Stevens and Richmond 1976:43-44), a fine, gray brown silt subject to aeolian redeposition, which covers most of the pasturage to the west of the Nueces River. These deposits, when driven over by vehicle, produce massive clouds of fine, thick dust, which cover vehicles, equipment, and personnel. The other major soil type, the Olmos Series, was confined to large patches in slightly higher elevations. These soils are somewhat more coarse and rocky, and are older than the surrounding Uvalde silts, resting directly on a layer of caliche (*ibid.*:32-33).

The sites in the lower half of the Nueces River zone were slightly more dispersed, especially westward, away from the river. The westernmost sites generally occurred on higher terraces, overlooking what may have been a continuation of the paleo-channel along which the sites to the north are located (see Environmental Background and Interpretations sections for a

discussion of presumed channel migrations of the Nueces River). A second series of sites runs along the terraces overlooking the modern channel of the river. Soils were of the same type and distribution found to the north.

The Soil Conservation Service (SCS Office, Zavala County, unpublished papers) reports that throughout this locality, soils are of great depth, particularly the alluvia of the Uvalde Series. Thus, buried cultural layers may be expected. Unfortunately, fairly extensive brush clearing activities appear to have been carried out along the terraces, so that topsoils may be highly distributed.

The area around the airstrip east of Lyles Ranch headquarters presented a problem in site definition. The airstrip cuts five to ten centimeters into the silty topsoil and has revealed a scatter of lithic materials, which were recorded as a site, 41 ZV 322. Just north of this site, an isolated projectile point (Specimen #7) was recovered, and less than 100 m east of this find, isolated scatters of chert debris and burned rock were observed in the road running north from the ranch headquarters. Thus, there appears to be a larger area of aboriginal activity in this part of the Nueces River zone than is apparent from defined site boundaries. Much of the cultural evidence is apparently buried, exposed only by disturbances in the topsoil.

The descriptions of the sites that follow are arranged in a more or less north-south progression. Refer to Figure 1 for approximate locations of sites.

41 UV 116

Location: The site is adjacent to old Highway 481, 900 m west of Smyth Crossing at the Nueces River. The site is on an intermediate terrace, below a gravelly, cenizo-covered upper terrace to the west, and above the pecan bottoms of the westernmost dry channel of the river to the east.

Elevation: 825 feet msl.

Description: The site is oval, measuring 60 m by 75 m as surveyed (the site continued north, beyond the limits of survey access). Lithic debris, in the form of chert flakes, chips, and cores, was observed. Scattered burned rock was also present. The area has been disturbed by land modification during highway construction and subsequent brush clearing activities.

Type of Site: Light riverine occupation.

Remarks: As noted, the full extent of the site was not determined due to limited survey access.

Recommendations: No further work is recommended at this particular location.

41 UV 117

Location: The site occupies a low terrace above the pecan tree bottoms in the westernmost abandoned channel of the Nueces River, 700 m southwest of Smyth Crossing on old Highway 481.

Elevation: 825 feet msl.

Description: The site is round, approximately 200 m in diameter. Archaeological evidence at the site was in the form of a moderate distribution of lithic debris, characterized by the relative absence of cores and primary and secondary flakes, and by a high percentage of thin interior flakes and blades. Scattered burned rock was also noted. The area has been mechanically cleared of brush in the past. Erosion was severe along the bank of the old river channel and near the margins of an arroyo cut at the south end of the site.

Type of Site: Light to moderate riverine occupation.

Remarks: A definite gap in cultural materials was observed between 41 UV 117 and 41 UV 95, situated on a distinct upper terrace 50 m to the west. Soils changed from silty gray Montell Series alluvia, at 41 UV 117, to the brownish gray silt mixed with small gravels of the Olmos Series, at 41 UV 95. Lithic debris also changed, from small flakes and blades below, to larger and more patinated materials above.

Recommendations: While some erosion of cultural materials is occurring along the site margins, site deposits generally appear buried, and an accurate estimate of possible National Register eligibility cannot be made. Limited testing is recommended for a clearer assessment of eligibility.

41 UV 95

Location: The site is located on the highest terrace above the westernmost abandoned channel of the Nueces River, on a point formed by shallow drainages leading eastward toward the old river channel. The site lies 150 m north of 41 UV 94 separated from it by a small gully, and slopes gently eastward toward a lower terrace which lies alongside the abandoned channel.

Elevation: 840 feet msl.

Description: The site is oval and measured 100 m north-south and 150 m east-west. Scattered chert debris (much of it patinated) and burned rock fragments were observed. A straight-stemmed dart point was collected from the east end of the site on the downward slope. The ground surface across the site was disturbed by land clearing and erosion.

Type of Site: Light riverine occupation.

Remarks: Similarities with 41 UV 94 (topography, cultural materials) may point to a direct relationship between the two sites.

Recommendations: No further work is recommended at the site.

41 UV 94

Location: The site is located on the highest terrace above the westernmost abandoned channel of the Nueces River. The site lies on a slight promontory produced by two shallow drainages into the old channel and is situated about 500 m south of Highway 481.

Elevation: 835 feet msl.

Description: The site is roughly oval in shape, covering an area at least 50 m by 100 m (major axis oriented northeast-southwest). A scatter of patinated chipped stone debris and burned rock (including burned chert) was observed. Two thick bifaces and three thick biface fragments were collected. Two irregular clusters of burned rock, perhaps representing hearths, were also noted. Land clearing activities have been carried out in the area, and natural erosion was observed, in particular, along the drainage margins.

Type of Site: Light riverine occupation.

Remarks: Similarity of topographic position and type of lithic debris indicate a possible relation to site 41 UV 95, less than 100m to the north across a shallow gully.

Recommendations: No further work is recommended at this site.

41 UV 102

Location: The site lies between two shallow gullies leading into the westernmost dry channel of the Nueces River, on the lowest terrace adjacent to the stream bed. These gullies separate site 41 UV 102 from site 41 UV 101 to the southeast and site 41 UV 117 to the northwest.

Elevation: 825 feet msl.

Description: The site is roughly circular, 175 m in diameter. Cultural materials observed include chert tools, chipping debris, fire-cracked rock, fire-reddened chert, and ground stone. An expanding stemmed projectile point base, a small lead ball (resembling a musket ball), and a fragment of incised limestone were recovered. Materials were noted both throughout the surface area of the site and within cutbanks along the dry channel and side gullies. As in most of the zone along the river, extensive land clearing has been carried out. Natural erosion was severe along the dry river bank and the slopes leading down to the side gullies.

Type of Site: Moderate riverine occupation.

Remarks: The site may be closely associated with site 41 UV 101 to the southeast along the dry channel. Association with site 41 UV 94 on the highest terrace above (to the west) is less likely, because of the wide physical gap between the sites and the difference in cultural materials noted at each site.

Recommendations: The occurrence of chronologically diagnostic materials and the probability of intact buried deposits precludes a current assessment of National Register eligibility. Limited testing is recommended for a more accurate appraisal of eligibility.

41 UV 101

Location: The site is located along the edge of the lowest terrace of the westernmost dry bed of the Nueces River. The site lies between 41 UV 99 and 41 UV 100 and the dry channel, but is apparently distinct from them.

Elevation: 815 feet msl.

Description: The site follows the dry river bed for approximately 500 m, extending westward (away from the bank) roughly 100 m. Archaeological evidence consisted of scattered burned rock and chipped stone materials. Several biface fragments were noted, and a patinated, straight-stemmed projectile point base was collected. The historical materials observed were shattered fragments of purple glass, rusted iron fragments, broken brick, and ironstone transferware sherds. These materials were widely dispersed; no concentrations were evident; and there were no traces of structures. Huge piles of mesquite and tangled one-inch steel cable observed at the site indicate recent land modification (bulldozing and chaining). Erosion was severe along the margins of the dry channel.

Type of Site: Light to moderate riverine occupation with possible historical component.

Remarks: While the site appears to be distinct from 41 UV 99 and 41 UV 100, the gap between them may be created by vegetation patterns and intensive land clearing activities. The depth of soil disturbance will determine the possibility of locating the foundations of any historical structures which may remain. The likelihood of deeply buried prehistoric materials is indicated by the presence of artifacts along the eroding slope of the dry channel bank.

Recommendations: Further work, in the form of systematic mechanical and hand test excavations, is recommended in order to determine the extent and integrity of buried deposits and to assess the possibility of locating historical structures. Eligibility for nomination to the National Register could thereby be determined.

41 UV 100

Location: The site is on an upper terrace above the westernmost dry channel of the Nueces River, approximately 800 m south of Highway 481 and 100 m northwest of 41 UV 99.

Elevation: 825 feet msl.

Description: The site is oval, roughly 120 m by 180 m in extent (major axis oriented northeast-southwest). Fire-cracked rock, chert tools, debris, and burned chert were found concentrated within the site. At least two hearthlike burned rock clusters were identified. Chert materials included both patinated and unpatinated specimens. The following chipped stone tools were collected: the basal fragment of a projectile point tentatively identified as *Golondrina*; a highly patinated *Guadalupe* tool; and points conforming to the *Marshall*, *Castroville*, and *Enson* types. Land clearing has been carried out across the area in which the site lies, although tall mesquite trees within the site itself indicate less disturbance there recently.

Type of Site: Moderate riverine occupation.

Remarks: The apparent time span indicated by chronologically diagnostic artifacts recovered suggests repeated occupation through time. Thus, the site could be one of the more significant sites along the Nueces River survey area in terms of defining a regional chronological sequence.

Recommendations: Considering the potential significance of the site in terms of regional chronology, systematic hand and mechanical test excavations are recommended in order to determine the vertical extent and stratigraphic integrity of buried deposits. A preliminary assessment suggests this site may be potentially eligible to the National Register of Historic Places.

41 UV 99

Location: Site 41 UV 99 is located adjacent to 41 UV 98 on an upper terrace overlooking the westernmost dry channel of the Nueces River, about 1250 m south of Highway 481.

Elevation: 825 feet msl.

Description: The site is roughly oval in shape, 75 m east-west and 150 m north-south. Within this area, a moderate concentration of chipped stone debris, burned rock fragments, and heat-reddened chert was observed. A thick biface and a number of biface fragments were recovered. Most of the chert materials observed showed a high degree of patination. The area in which the site lies has been subjected to recent bulldozing, but the locus of highest concentration of cultural materials within the site is near a cluster of tall mesquite trees and, thus, may be somewhat less disturbed.

Type of Site: Light to moderate riverine occupation.

Remarks: Associations with sites nearby in the Nueces River occupation zone, 41 UV 98 or 41 UV 101, for example, are unclear, because of the lack of diagnostic artifacts and disturbed soils.

Recommendations: Apparent buried deposits preclude an accurate assessment of potential National Register eligibility. Limited testing is recommended for a final determination of National Register eligibility.

41 UV 98

Location: The site is located along a dirt road running northeast from New Windmill in Lyles' North River Pasture, down to the pecan tree bottoms in the westernmost abandoned channel of the Nueces River. The site is located 1250 m from the windmill and 1500 m south of Highway 481.

Elevation: 810-840 feet msl.

Description: The site follows the road for at least 450 m and extends on either side approximately 40-50 m. A moderate scatter of lithic debris and burned rock was observed in the roadcut and in the silty dirt thrown up alongside. Cultural materials were most evident around a small cement stock tank just above the pecan tree bottoms, where livestock have churned up the soil. On a higher elevation approximately 300 m to the southwest, a round, hearthlike burned rock cluster was observed in the roadbed. A *Clear Fork* tool and a small thin biface were collected along the road, and a *Tortugas* point was found about 30 m north of the road. Surface soils across the area have been badly disturbed by recent bulldozing for land clearing.

Type of Site: Light riverine occupation.

Remarks: This site may represent the best indication, at present, of the horizontal extent of cultural deposits in the northern section of the occupation zone along the Nueces River. While extensive bulldozing throughout the area has greatly disturbed topsoils, the presence of materials in the roadcut at this site suggests that buried deposits may exist more or less continuously from the old river channel westward to the uppermost terraces, a distance of from 300-500 m.

Recommendations: Based on the discovery of chronologically diagnostic materials and the possibility of intact buried deposits, it is recommended that systematic mechanical and hand test excavations be undertaken to confirm the site's potential for National Register nomination.

41 UV 106

Location: The site is located on a high terrace overlooking the westernmost abandoned channel of the Nueces River, approximately 1500 m northeast of New Windmill in Lyles' North River Pasture. The site rises slightly to the east before dropping off sharply into the pecan tree bottoms of the old channel.

Elevation: 825 feet msl.

Description: The site follows natural contours in an irregular oval about 200 m by 350 m in extent. Chipped stone debris and fire-cracked rock were noted unevenly distributed across the site and washing down the slope toward the pecan tree bottom. Moderate patina was observed on some chert. Mechanical brush clearing activities were evident away from the river channel, while erosion appeared severe along the terrace margin.

Type of Site: Light riverine occupation.

Remarks: Topographically and with regard to chert debris observed, the site closely resembles 41 UV 79, which is separated from 41 UV 106 by a gully less than 100 m wide.

Recommendations: Because of apparent buried deposits across much of the site area, an assessment of the site's eligibility to National Register status could be more accurately determined following limited testing.

41 UV 79

Location: The site is located on a series of cenizo-covered upper terraces above the westernmost abandoned channel of the Nueces River, 1700 m north-east of New Windmill in Lyles' North River Pasture.

Elevation: 820-835 feet msl.

Description: The site forms an irregular oval, following natural topographic contours and measured approximately 200 m by 400 m. A moderate to intense concentration of lithic debris and burned rock was observed on the lower terraces at the site. A lighter scatter covered the slopes and surface of the uppermost terrace. The site was originally recorded during the 1981 survey, at which time a number of diagnostic artifacts were collected. The total collection from the site during two seasons includes the following points: four *Pedernales*, one *Langtry*, one *Shumla*, and one *Enzor*. The north and south margins of the site are marked by deep gullies running into the old river channel. Erosion was severe into these cuts and along the edge of the dry channel. The western limits of the site may have been obscured by past brush clearing activities.

Type of Site: Moderate to intensive riverine occupation.

Remarks: During the present survey, the boundaries of the site were redefined to encompass a larger area. The extensive amount of debris on the surface indicates repeated multifunctional occupation, and diagnostic artifacts suggest that these occupations may have spanned the whole of the Archaic period.

Recommendations: Due to the richness of surface deposits and the possibility of buried materials, as indicated by examination of surrounding cutbanks, the site is recommended for further work in the form of systematic hand and mechanical test excavations in order to confirm eligibility for nomination to the National Register.

41 UV 103

Location: Located on the west bank of the Nueces River, the site covers a gently sloping terrace which ends in a high bluff overlooking the modern river channel, approximately 2500 m north of Lyles Ranch headquarters.

Elevation: 800-820 feet msl.

Description: The site is linear, but somewhat irregular in width, running along the river for about 1100 m and extending in (west) from the bank at least 100 m, and in places 200 m. Cultural materials were found scattered across the entire length of the site, with concentrations apparent throughout the area. Noted were unifacial and bifacial tool forms (fragmentary and complete), several arrow points, cores, chipping debris, blades, burned chert, and fire-cracked rock (both scattered and clustered in hearthlike and small middenlike concentrations). Little patination was observed in the chert at this site. Two small test excavations (1 m² and 0.5 X 1 m²) showed the presence of buried deposits (see Table 4), while profiles taken of natural cuts in the bluff face indicated the presence of buried cultural layers as deep as two meters or more.

Type of Site: Moderate to heavy riverine occupation.

Remarks: Considering the amount of cultural materials observed, in particular the number of hearthlike burned rock clusters eroding out near the terrace margin, it seems likely that the site had repeated multifunctional occupation.

Recommendations: Buried cultural materials, including chronologically diagnostic artifacts, appear to exist intact below the surface. Further testing in the form of hand and mechanical excavations are recommended to confirm National Register eligibility, in view of the apparent depth of some deposits.

41 UV 82

Location: The site is located on a high terrace in the southeast corner of Lyles' North River Pasture, overlooking 41 UV 103 and the Nueces River, approximately 2000 m north of the Ranch headquarters.

Elevation: 830 feet msl.

Description: The site covers a small knoll, extending approximately 60 m by 120 m (major axis oriented northwest-southeast). A thin scatter of lithic debris--flakes, chips, cores--was observed, as well as a few isolated fire-cracked limestone cobbles. The hilltop was eroded, especially near the eastern end where the land slopes down to a lower terrace.

Type of Site: Light riverine occupation.

Remarks: The site was recorded during the 1981 survey. The boundaries have been extended, but no previously unrecorded cultural materials were observed.

Recommendations: No further work is recommended.

41 UV 104

Location: The site is located on a knoll on the edge of the modern floodplain of the Nueces River, approximately 200 m south of the southern end of 41 UV 103.

TABLE 4. TABULATION OF EXCAVATED MATERIALS FROM SITE 41 UV 103

Test Pit 1

Dimensions: 1 m². Matrix: Tan gray silt, compact but friable.

Level 1: 0-20 cm

Burned rock weight	526.7 g
Charcoal weight	0.4 g
Limestone weight	59.6 g
<i>Rabdotus</i> count	20
Primary flake count	8
Secondary flake count	4
Tertiary flake count	2
Chip count	8
Burned chert count	8

Level 2: 20-30 cm

Burned rock weight	0.0 g
Charcoal weight	0.9 g
<i>Rabdotus</i> count	7
Primary flake count	0
Secondary flake count	1
Tertiary flake count	2
Chip count	1
Burned chert count	2

Note: Cultural materials continued below 30 cm; test excavations were abandoned due to the sudden appearance of numerous voracious red ants.

Test Pit 2

Dimensions: 0.5 m X 1 m. Matrix: Gray silt, compact but friable. A single level, approximately 5 cm, was excavated in order to expose half of a hearth-like burned rock cluster.

Level 1:

Burned rock weight (fragments only*)	12.8 g
Charcoal weight	0.3 g
Primary flake count	0
Secondary flake count	3
Tertiary flake count	1
Chip count	3

* Most burned rock left *in situ*.

Elevation: 800 feet msl.

Description: Although high grass made precise measurements impossible, the site is estimated to be oval in shape, extending at least 25 m east-west and 75 m north-south. Cultural materials consisted of a light scatter of chipped stone debris and burned rock. No diagnostic artifacts were recovered. The area was covered with tall, dense grass and criss-crossed by trails from numerous large ant beds. The eastern boundary of the site was well defined by a steep slope leading down to a wide gravel bar and the river. Large hackberry, oak, and pecan trees surrounded the site, probably helping to control erosion on the eastern slope.

Type of Site: Light riverine occupation.

Remarks: The site is well-situated topographically, overlooking the modern river channel to the east. It is conceivable that the site extends beyond the boundaries recorded in the present survey, especially southward into an area of dense vegetation.

Recommendations: No further work is recommended at this time.

41 UV 81

Location: The site is located on the gently sloping edge of a wide and shallow arroyo cut leading into the old floodplain and channel of the Nueces River. The site is approximately 1500 m north of Lyles Ranch headquarters.

Elevation: 805 feet msl.

Description: Oval in shape, the site extends at least 100 m northeast-southwest and 150 m northwest-southeast. Chipped stone debitage and burned rock were seen scattered across the area, concentrated most heavily in the bed of a road running through the site. The site was previously identified during the 1981 survey, at which time a number of unifacial and bifacial tools were collected, including several projectile points identified as types from the Late Archaic and Late Prehistoric periods. The area has been partially cleared, although heavy brush was encountered near the arroyo edge. Erosion appeared minimal.

Type of Site: Light riverine occupation.

Remarks: Perhaps due to drier conditions and less grass cover, this season's reconnaissance resulted in a redefinition of this site's boundaries to include considerably more area. The appearance of diagnostic artifacts from cultural periods known to span as much as 3000 years indicates repeated occupation over time.

Recommendations: This site appears to be potentially eligible to the National Register, and further testing is recommended to determine the extent and significance of cultural deposits.

41 UV 105

Location: The site is on the edge of a dry tributary drainage to an abandoned channel of the Nueces River, about 750 m west of the modern river and 1250 m north of Lyles Ranch headquarters.

Elevation: 800 feet msl.

Description: The site forms a crescent at least 50 m wide and almost 300 m along the dry gully. A light scatter of chipped stone debris, including flakes and chips and an occasional biface fragment, were observed along with a few isolated burned rock fragments. The greatest concentration of materials was noted along a road cut near the south end of the site. A lanceolate-shaped biface fragment was observed, and two points resembling Late Archaic types were recovered. Land clearing has been carried out in the area in the past, disturbing topsoils. Moderate erosion has been stabilized somewhat near the margins of the dry tributary by vegetation, but a recent arroyo cut appeared to be encroaching on the south end of the site.

Type of Site: Light to moderate riverine occupation.

Remarks: The site follows the same natural contour southward along the dry channel as 41 ZV 290, and is only separated from it by a recent arroyo cut, indicating a possible relationship between the sites.

Recommendations: Because of the presence of chronologically diagnostic materials, testing by systematic hand and mechanical excavations is recommended to confirm eligibility for National Register nomination.

41 ZV 290

Location: The site is located on a terrace bank directly above an old meander of the Nueces River, approximately 500 m west of the modern river and 800-900 m north of Lyles Ranch headquarters. The bank is punctuated by a series of small arroyo cuts.

Elevation: 805 feet msl.

Description: The area with cultural materials follows the curve of the river bank in a crescent shape for about 175 m and extends in from it at least 50 m. The site contains both historical and prehistorical components.

The prehistorical materials consisted of a moderate scatter of burned rock, heat-reddened chert, and other chipped stone debris, including a patinated unifacial tool, several biface fragments, cores, numerous flakes, and chips.

The historical component consisted of two seemingly unrelated sets of materials. At the south end of the site, a collapsed wooden structure, apparently a small frame house, was observed, along with the remains of a wire fence. The foreman at Lyles Ranch reported a dipping tank for livestock near the collapsed house, but it was not discovered. Scattered across the southern half of the site was a number of creosote logs resembling railroad ties, various pieces of rotted board, some with round, machine-made

nails, and several sections of 1-1½ inch iron pipe, up to 20 feet in length. At the northern end of the site, two deep arroyo cuts have cut out a low point of land overlooking the old river channel. Two gravestones were discovered on the end of the point, surrounded by recently deposited cattle bones and a rusty lantern. Half of one gravestone was missing, the half remaining bore no visible markings. The second stone recorded the death, in 1867, of W. T. Cook, son of David and Salona Cook, born in Franklin County, Alabama.

The entire site was overgrown with tall trees and dense secondary brush. Natural erosion was extensive along the slopes into the old channel.

Type of Site: Light to moderate riverine occupation and a historical burial and occupation site.

Remarks: Although no chronologically diagnostic prehistorical materials were recovered, the density of lithic debris observed suggests long-term or repeated multifunctional occupation. Examination of an arroyo cut near the south end of the site showed silty alluvial deposits to a depth of at least one meter. The presence of historical structures within the boundaries of the prehistoric site may indicate a degree of disturbance in the upper level deposits. Site limits are imprecise as recorded because of the density of secondary brush throughout the area.

The historical structures appear to be fairly recent, since much of the wood is still in good condition. According to the ranch foreman, the house was still standing in the late 1940s.

At present, no record has been found of any of the property along the river occupied by 1867. The present landowners, Mr. and Mrs. Reagan Houston, reported that the markers have been at this location since at least 1948 when they purchased the land. The possibility exists that the burial(s) are secondary, i.e., moved from an earlier gravesite and re-interred at this location well after the date on the marker.

Recommendations: The lack of archival data precludes an accurate assessment of the site's historical potential, although preliminary indications suggest a potentially significant prehistoric component. Limited testing is recommended for the prehistoric component to confirm National Register eligibility, and additionally, further archival research as well as limited testing is recommended to evaluate the historical materials.

41 UV 115

Location: This site is located along a ranch road running north from Lyles Ranch headquarters. The site lies on terrain sloping gently eastward toward the Nueces River, which is approximately 700-800 m distant.

Elevation: 815 feet msl.

Description: The site is oval, 100 m by 225 m (major axis north-south). Archaeological evidence consisted of scattered chipped stone debris, thin

biface fragments, and burned rock. One apparent arrow point preform, made on heat-treated chert, was recovered. The area was largely free of low brush, having been mechanically cleared in the recent past. Low grasses were thick and obscured ground visibility. A ranch road bisected the site.

Type of Site: Light upland occupation.

Remarks: The surface extent of the site may exceed the dimensions recorded, the density of grasses in the area made the survey difficult. The highest concentrations of cultural materials were observed in dirt thrown up along the margins of the roadbed, suggesting the presence of buried deposits. Dense brush prohibited an accurate survey eastward to determine possible association with sites recorded along the Nueces River (in particular, 41 ZV 290, 41 UV 105). The site may also be associated with 41 ZV 322.

Recommendations: No further work is recommended.

41 ZV 291

Location: The site is located on a terrace promontory 500 m north of Lyles Ranch headquarters. Deep arroyo cuts to the north and south are formed by runoff into the Nueces River channel 300-400 m to the east. The terrace slopes gradually eastward until it drops off onto the Nueces River floodplain.

Elevation: 805 feet msl.

Description: The terrace averages about 50 m in width and extends at least 200 m westward from the point. A high concentration of lithic materials was observed at the site, including chert tools, cores, flakes, and chips. Numerous examples of patinated and heat-treated chert were noted, as well as clusters of burned rock. Diagnostic artifacts spanning periods from the Early Archaic to the Late Prehistoric were recovered, including eight projectile points (complete or fragmentary), five arrow point preforms, and two *Guadalupe* tools. Various unifaces and thick bifaces were also collected. Although the surface of the site appeared eroded, cutbanks below the terrace margin indicate the presence of alluvial soils to a considerable depth. Thus, buried deposits are likely.

Type of Site: Moderate to heavy riverine occupation.

Remarks: The site shows indications of repeated occupation throughout a wide span of prehistory. Should a sequence of intact buried deposits exist, they could be highly significant in terms of regional chronology. The western limits of the site are ill-defined because accumulated aeolian deposits may cover additional cultural materials.

Recommendations: The potential significance of the site is such that mechanical and hand test excavations are recommended in order to determine the vertical extent and stratigraphic integrity of buried cultural deposits. National Register eligibility could thus be confirmed.

41 UV 287

Location: The site is located on a gently sloping point formed by deep arroyo cuts running toward the northeast to the modern river channel less than 100 m away. Lyles Ranch headquarters lies 400 m southwest of the site.

Elevation: 805 feet msl.

Description: The site covers the promontory for a minimum of 100 m from the point and averages at least 30 m in width. Extensive amounts of lithic debris were observed scattered throughout the length of the site. At least five burned rock clusters were identified eroding from the southeast margin of the terrace. Although few bifacially worked artifacts were noted, one complete *Perdiz* point was collected. Erosion, particularly at the terrace edges, was severe.

Type of Site: Moderate riverine occupation.

Remarks: Because of the amount of debris observed at the site, repeated, multifunctional occupation is probable. The relative lack of chronological markers made possible associations with other sites nearby (e.g., 41 ZV 291) difficult to assess.

Recommendations: Despite the apparently eroded surface of the site, hearth-like burned rock features appearing at the terrace edges may indicate the presence of buried deposits. Thus, further work in the form of systematic mechanical and hand testing is recommended to determine eligibility for National Register nomination.

41 ZV 288

Location: The site covers a series of small promontories formed by recent arroyo cuts produced by runoff into the Nueces River. The site is 200-300 m northeast of Lyles Ranch headquarters and less than 100 m from the west bank of the modern river.

Elevation: 800-810 feet msl.

Description: The site has an irregular shape, conforming to the margins of the channel. It parallels the river for about 400 m and extends as much as 150 m in from the drop-off to the channel. Cultural materials consisted of chipped stone debris--cores, flakes, chips, and a scatter of burned rock. No features or diagnostic artifacts were observed. Near the arroyo cuts, erosion was extensive. Farther in (southwest) from these steep cuts, thick grasses have stabilized the soils (and consequently obscured the ground surface). Mechanical brush clearance may have disturbed the high ground nearest the ranch headquarters.

Type of Site: Light riverine occupation.

Remarks: The large, irregular dimensions given for this site and the thin scatter of cultural materials observed may be a result of ground visibility.

Recommendations: No further work is recommended at this time due to extensive erosion and modern land clearing.

41 ZV 289

Location: The site lies less than 50 m west of the highway and railroad bridges over the river, washed-out during a flood in the early 1930s, situated on a ridgelike promontory between steep arroyo cuts overlooking the modern Nueces River channel.

Elevation: 815 feet msl.

Description: Oval in shape, the site is approximately 50 m by 75 m (major axis oriented northwest-southeast). Chipped stone debris and fire-cracked rock were observed within the site area. There were no apparent concentrations of cultural materials. The site appeared badly deflated, and the soils rocky, with little indication of depth.

Type of Site: Light riverine occupation.

Remarks: The site is well situated as an overlook, with a view northeast across the floodplain of the river. Nevertheless, indications are that it was not heavily occupied in prehistoric times.

Recommendations: Because of the eroded condition of the soils, no further work is recommended.

41 ZV 322

Location: The site lies within and alongside a dirt airstrip 500 m west of Lyles Ranch headquarters. The airstrip is currently in use.

Elevation: 830 feet msl.

Description: The site's boundaries were ill-defined, the dimensions recorded were at least 75 m by 450 m (oriented northwest-southeast along the airstrip). The site consisted of a widely dispersed scatter of chert flakes, cores, and biface fragments along with isolated fragments of burned rock. The airstrip is kept free of vegetation by periodic grading, which has disturbed the topsoils.

Type of Site: Light riverine occupation.

Remarks: Cultural materials were found exposed by topsoil disturbances throughout a wide area north of this site and, thus, may be part of a zone of aboriginal activity, much of which now lies buried.

Recommendations: Further work is recommended in the form of limited testing to more accurately determine possible eligibility to the National Register of Historic Places.

Windmill Creek Occupation Zone

The Windmill Creek drainage system is dendritic, composed of many small tributaries draining runoff from the higher ground west of the Nueces River. Sites associated with this system were more widely dispersed than those along the Nueces River. There is no zone of occupation along the creek comparable to that along the Nueces River, except perhaps the area around Smyth Tank.

The soils in the Windmill Creek drainage are more complex than those in the occupation zone by the Nueces River. The creek appears to have laid a series of recent alluvial deposits between older upland formations. The most prevalent soil types in the drainage are the Uvalde and Montell Series alluvial silts which occur in the immediate vicinity of the creek channel throughout its length. A large stretch of Valco Series clay loam, generally associated with outwash plains and old stream terraces, occurs east of the major channel of the creek, just north of Clear Tank. South of the tank, on the same side of the channel, Olmos Series gravelly loam and Duval Series sandy loam are found. The high terraces above Linney Tanks and east of Smyth Tank are also composed of Olmos Series soils. To the west of the major creek channel, Tonio Series calcareous sandy clays, derived from Eocene sandstone, are interspersed with patches of Olmos Series gravels, to form the upland slope between Windmill and Turkey Creeks. The Valco, Olmos, Duval, and Tonio Series are all older soils relative to the alluvia of the Uvalde and Montell Series. Thus, the creek appears to have cut into early deposits, laying down comparatively later silts along its most recent course.

All three of the creeks running through the survey area, Windmill, Turkey, and Mustang Creeks, are ephemeral, flowing only with storm runoff and only holding water when dammed up, either naturally, as at several points along Turkey Creek, or artificially, as in the numerous stock tanks located throughout the area. For a number of reasons connected with localized climate variation and modern land usage (summarized in Hester 1980:34-35), groundwater resources in south Texas have decreased markedly in the last few hundred years. Thus, a basic assumption in the analysis and description of sites in this report has been that these watercourses were, if not permanently flowing, at least subject to less frequent periods without flow. Site 41 ZV 320 presented a particular instance in which this assumption aided in the site interpretation. This site was deemed somewhat anomalous in that while it is located in the uplands between Mustang and Windmill Creeks, it also appears to have seen repeated occupation since the Early Archaic period. Such a combination of function and location does not fit the predictive model of settlement pattern developed for the study area, since even moderately intensive occupations are not expected in areas away from the resource rich microenvironment of the riverine zones. Either the predictive model was incorrect or environmental factors have changed in recent times, influencing the availability of groundwater. The latter seems to be the case. On topographic maps, a small subsidiary drainage which eventually runs westward to Windmill Creek can be traced to just below 41 ZV 320. In aerial photographs, the drainage stands out clearly

as a line of dark, dense vegetation growing in silty, moisture retentive soils. Thus, the hypothesis can be made that this drainage was at one time more important than it appears today (in fact, it may be the remnant of a major stream course, where Mustang Creek flowed west around an obstructing hill and into Windmill Creek, rather than east as it does today).

The site descriptions that follow are arranged in a north-south progression along the drainage.

41 UV 113

Location: The site is situated on the eastern slopes of a low hill overlooking the Windmill Creek drainage. The site lies adjacent to Highway 481, 50 m west of its intersection with the creek, and appears to continue across the highway, out of the area of access to the present survey.

Elevation: 840-860 feet msl.

Description: The site forms an irregular oval, at least 300 m by 400 m in extent. Evidence for prehistoric activity consisted of scattered lithic debris and burned rock. A thin, patinated biface medial section and two thick biface fragments, also patinated, were recovered. The hillside soils appeared eroded.

Type of Site: Light riverine occupation.

Remarks: The full extent of the site is undetermined, because of the apparent extension beyond the limits of access to the survey. The degree of erosion along the hillside suggests that the cultural materials observed may, in fact, be in secondary deposition, having washed down from the hilltop above.

Recommendations: Because of extensive erosion, no further work is recommended at this site.

41 UV 111

Location: The site is located adjacent to the northwest corner of Smyth Tank, on a ridged terrace above the confluence of two channels of Windmill Creek.

Elevation: 845 feet msl.

Description: The site is oval in shape, 50 m by 75 m. The terrace surface is littered with small gravels among which a scatter of chert flakes and chips was observed. Fire-cracked rock was also evident. Two projectile points, one resembling the *Carrizo* type and one untyped, were recovered. The terrace appeared eroded. The northeast end of the site has been destroyed by a bulldozed earthen bank.

Type of Site: Light riverine occupation.

Remarks: The site is situated with a view west and south across the Windmill Creek drainage and may have served as a lookout and chipping station as well as an intermittent occupation site.

Recommendations: No further work is recommended because of extensive site disturbance.

41 UV 108

Location: The site is located on a gently sloping terrace overlooking the drainage of Windmill Creek. The creek has been dammed at this point to produce Smyth Tank: the site lies 100 m east of the tank.

Elevation: 855 feet msl.

Description: The site is oval, 125 m by 250 m (major axis oriented northeast-southwest). Among the naturally occurring small gravels on the eroded terrace, chipped stone debris--flakes, chips, and cores--was noted. Scattered burned rock and fire-reddened chert were also observed. Two projectile points were recovered: a basal fragment resembling the *Langtry* type and an untyped point made of petrified wood. The terrace soils appeared eroded.

Type of Site: Light riverine occupation.

Remarks: A high bank of clay with shale (Maverick clay loam) along the north-east margin of Smyth Tank indicates that extensive bulldozing has disturbed the ground. The disturbance seems confined to the lowest ground near the tank itself and has not affected the higher terrace where 41 UV 108 is located. Nevertheless, the gap observed between 41 UV 108 and 41 UV 112, which lies to the southwest along the same contour, may be the result of land clearing activities.

Recommendations: Buried deposits preclude an assessment of National Register eligibility. Limited testing is recommended to determine potential for nomination.

41 UV 112

Location: The site is located on a low terrace above Windmill Creek on the southeast corner of Smyth Tank. The site slopes moderately to the west, in the direction of the creek. A ranch road cuts across its southern end.

Elevation: 850 feet msl.

Description: The site forms an oval, 75 m by 175 m (major axis oriented northeast-southwest along the terrace). Various types of lithic manufacturing debris were noted--cores, flakes, and chips--some displaying a moderate degree of patination. Burned rock was in evidence, both scattered and in the form of a poorly consolidated hearthlike cluster eroding from the roadbed near the south end of the site. The terrace soils appeared eroded.

Type of Site: Light riverine occupation.

Remarks: Nearby land modification (northeastward along the tank margins) and erosion may have combined to produce an artificial gap between 41 UV 112 and 41 UV 108, on the same terrace less than 100 m to the northeast. The lack of diagnostic materials from 41 UV 112 renders any conclusions from surface evidence alone speculative.

Recommendations: The possibility of buried deposits in a large portion of the site area makes it impossible to determine potential National Register eligibility from current work. Limited testing to determine potential eligibility is recommended.

41 UV 109

Location: The site is located on the east bank of the main channel of Windmill Creek, just below (south-southwest of) Smyth Tank.

Elevation: 835 feet msl.

Description: The site forms an irregular oval, 150 m by 300 m (major axis oriented northeast-southwest). On the terrace along the creek bed, an extensive concentration of lithic materials was observed. Chipped stone debitage, burned rock, chert, and numerous stone tools were present, as well as several hearth-like burned rock clusters. Among the materials recovered were thick and thin bifaces, a number of thin, finely worked biface medial sections, and the following projectile points: two *Plainview* basal fragments, a large *Pedernales* base, a basal fragment which appears to be from a *Montell*, a complete but unidentified expanding stem point, and a long-bladed, straight-stemmed point. The chert from this site varied from unpatinated to densely patinated. The site was observed to be overgrown with thick secondary vegetation. Erosion was severe along the creek bank.

Type of Site: Moderate to intensive riparian occupation.

Remarks: This site was previously recorded as a small lithic procurement site (Kelly *et al.* 1983). Dense brush undoubtedly hindered earlier survey efforts. Drier conditions allowed a redefinition of site boundaries and a reevaluation of its functional type. Repeated, multiple activity occupation is indicated by the amount and type of cultural material present. The time range demonstrated by point types from the site indicates occupations over a long period and suggests that, should intact buried deposits exist, the site could prove important in establishing regional chronology.

Recommendations: Site 41 UV 109 shows good potential for National Register nomination. The presence of Late Paleo-Indian artifacts alone is significant. This, in combination with a series of point types from later periods, makes the site especially important in terms of regional chronological perspective. Further work in the form of systematic mechanical and hand test excavations should be carried out to confirm the presence and integrity of buried deposits.

41 UV 110

Location: The site is located on an upper terrace, along the east bank of Windmill Creek, 200 m south of Smyth Tank.

Elevation: 840 feet msl.

Description: The site is round, approximately 75 m in diameter. Scattered lithic debris, much of it densely patinated, was noted at the site. Little burned rock was in evidence. The terrace appeared moderately eroded.

Type of Site: Light riverine occupation.

Remarks: The relative lack of burned rock may be an indication of only temporary occupation at the site. The possibility of association with 41 UV 109 is raised by the proximity of that site, less than 100 m to the southeast along the same topographic contour above the creek.

Recommendations: Limited testing is needed as an adjunct to testing at 41 UV 109 to determine if a possible association exists between the two sites and for a more accurate assessment of National Register potential.

41 UV 97

Location: The site extends outward from the east side of Linney Tanks, in Lyles' Smyth Pasture, incorporating a low, flat area which appears to be a dried swamp created by storm drainage off the rocky terraces to the north and northeast.

Elevation: 845 feet msl.

Description: The site represents an area of multiple activity, and covers a circular region at least 500 m in diameter. The black soils of the dried swamp were found to contain numerous split and tested cobbles and large primary flakes. A light scatter of burned rock and chipping debris, along with a few biface fragments, were found in the gray silty clay which extends east and south of the swamp area. Concentrations of debris were noted in this area and along a ranch road which runs east-west through the southern portion of the site. Two biface fragments and a *Montell* base were found on the rocky slopes just north of the swampy area. The rocky terraces were almost completely deflated, while the area east of the tank showed evidence of past land clearing activities.

Type of Site: Light tributary occupation and/or a quarry site.

Remarks: Surface evidence suggests a series of small campsites, perhaps around a natural watering hole (the tanks are modern, but placed in a natural depression). Cultural materials noted in the road, which cuts two to four centimeters into the topsoil, indicate the possibility of buried deposits. The occurrence of isolated tool fragments on the lower slopes of the rocky terraces is noteworthy, as no cultural materials were discovered higher up, indicating that the tools did not wash down from a site or sites above.

Recommendations: Because of the multiple nature of activities apparent at the site and the likelihood of buried deposits, further work in the form of systematic mechanical and hand test excavations is recommended in order to properly assess the potential for National Register nomination.

41 ZV 303

Location: The site follows a ranch road and fenceline paralleling the west bank of Windmill Creek, approximately 800 m south of Highway 481.

Elevation: 825 feet msl.

Description: The site is linear, less than 100 m wide, and follows a fence-line for at least 900 m. A thin scatter of cultural materials--chipped stone debitage, two projectile point fragments, and burned rock--was noted along and to the west of the road. The area is a relatively narrow terrace between upland slopes to the west and the creek to the east. Extensive clearing and land modification, in the form of an abandoned canal and an earthen dam across a tributary drainage from the western slopes, have greatly disturbed the area. Thick grasses covered much of the ground.

Type of Site: Light riverine occupation.

Remarks: The site has been extensively disturbed by land clearing and modification.

Recommendations: In view of the small amount of cultural materials observed at the site and the disturbed condition of the soils, no further work is recommended.

41 ZV 304

Location: The site is located on the upland slopes west of Windmill Creek, 900 m northwest of Clear Tank in Lyles' Smyth Pasture.

Elevation: 820 feet msl.

Description: The site forms a large oval, 200 m by 475 m (major axis oriented northeast-southwest). Archaeological evidence consisted of a light scatter of chipped stone debris and burned rock. A thin, patinated biface and a unifacial *Clear Fork* tool were collected. Land clearing may have been carried out in the area in the past. Erosion appeared moderate.

Type of Site: Light riverine occupation.

Remarks: Because of the resemblances in topographic position and the nature of cultural materials observed, an association between 41 ZV 304 and 41 ZV 305, which are immediately to the southeast, is likely.

Recommendations: Intact subsurface deposits suggest that an assessment of National Register eligibility would be more accurately determined following limited testing.

41 ZV 305

Location: The site is located on the slopes west of Windmill Creek, 200-300 m northwest of Little Tank.

Elevation: 815 feet msl.

Description: The site forms an irregular oval, from 150-250 m wide and 550 m in length. Cultural materials consisted of scattered flakes and chips, several cores, and a few isolated fire-cracked rock fragments. Land clearing and erosion have disturbed topsoils throughout the area.

Type of Site: Light riverine occupation.

Remarks: This site may be associated with 41 ZV 304, to the immediate northwest.

Recommendations: No further work is recommended because of extensive site disturbance.

41 ZV 302

Location: The site is situated astride an ill-defined, wide, and shallow drainage sloping eastward into Windmill Creek. The site lies immediately south of Little Tank.

Elevation: 805-815 feet msl.

Description: The site covers a large area of at least 400 m by 800 m. The drainage is most readily identified by a change in soil color, from the light gray brown of the surrounding area to dark brown and black. In this darker soil, numerous tested chert cobbles were noted, along with lithic debris, the majority of which consisted of primary and secondary flakes. In addition, several large, thick bifaces, probably representing quarry blanks, were noted. Near the eastern end of the site on a horseshoe bend of Windmill Creek, a circular burned rock cluster, approximately 75 cm in diameter, was observed eroding from a small cut along the creek bank. Nearby, two thin biface fragments and a projectile point resembling the *Frio* type were recovered. The land west of the creek may have been mechanically cleared in the past. The area along the creek bank was severely eroded.

Type of Site: Quarry site, light riverine occupation.

Remarks: The western limits of the site are indistinct, and may, in fact, overlap the eastern boundary of 41 ZV 301. Topography was the main consideration in dividing the area into two separate sites. The hearthlike burned rock cluster and associated concentration of artifacts represent a separate activity locus within the larger quarry area. Unfortunately, the lack of diagnostic artifacts in the quarry area makes it impossible, at this time, to establish a chronological link between the two activity areas.

Recommendations: Portions of the site area indicate a potential for buried cultural deposits. Because of this condition, no current assessment of National Register eligibility is given, and further work in the form of limited testing is recommended for determination of eligibility.

41 ZV 321

Location: The site is exposed by a ranch road running north-south alongside Clear Tank in Lyles' Smyth Pasture. The area is part of a slight depression carrying storm drainage into the tank and, eventually, Windmill Creek.

Elevation: 815 feet msl.

Description: The site is oval, approximately 75 m east-west and 125 m north-south. The site was initially revealed by the discovery of a hearthlike burned rock cluster eroding from the roadbed. Around this feature, flakes and other chipped stone debris were found widely scattered. Scattered burned rock fragments were also observed across the site. A single chronologically diagnostic artifact was recovered from the site, an asymmetrical arrow point, closely resembling the *Perdiz* type. Land clearing activities were evident in the pasture.

Type of Site: Light riverine occupation.

Remarks: The exposure of the site within a road cut suggests the possibility of buried deposits.

Recommendations: Possible buried site deposits preclude a current determination of potential National Register eligibility. Limited testing is recommended to more accurately assess eligibility potential.

41 ZV 308

Location: The site is located astride a slight ridge between Windmill Creek and a tributary drainage, about 300 m southwest of Clear Tank. The site is exposed by a ranch road which runs along the fenceline dividing two pastures.

Elevation: 820 feet msl.

Description: The site is oval, 125 m by 300 m (major axis oriented northeast-southwest). Lithic debitage, mostly flakes and chips, was observed in the highest concentration within the roadbed. Burned rock was also noted. The soils appeared eroded in and near the road cut. Although the area was clear of brush, there was no apparent evidence of recent land clearing activities.

Type of Site: Light riverine occupation.

Remarks: Buried deposits are indicated by the presence of materials within the road cut.

Recommendations: Because of the absence of identifiable diagnostic artifacts and the recommendation of limited testing at a similar and possibly associated site along the fenceline to the east, 41 ZV 311, no further work is recommended at 41 ZV 308.

41 ZV 311

Location: The site lies along a road cut and fenceline marking the boundary between two pastures of Lyles' Ranch, approximately 500 m southeast of Clear Tank. The site lies between two indistinct tributaries of Windmill Creek.

Elevation: 825 feet msl.

Description: The site runs for 400 m along the road cut and extends southward from it for less than 100 m. A light scatter of chipped stone debris was observed, along with a few fragments of fire-cracked rock. A basal arrow point fragment, resembling a straight-stemmed *Perdiz* point, was recovered. The pasture showed no evidence of recent land clearing activity. Erosion was observed along the road cut.

Type of Site: Light tributary occupation.

Remarks: Cultural materials eroding from the roadbed suggest the presence of buried deposits. The possibility of a Late Prehistoric campsite (as indicated by the occurrence of an arrow point) on the higher ground above Windmill Creek could have important implications for defining settlement patterns in the area.

Recommendations: Because of the possibility of undisturbed buried deposits and the presence of chronologically diagnostic artifacts at the site, limited testing is recommended to determine eligibility potential to the National Register.

41 ZV 306

Location: The site is located on a high, gently sloping terrace between tributary drainages of Windmill Creek, in Lyles' North Anderson Pasture, approximately 700 m south of Clear Tank. The site wraps around a low promontory and has a clear view south over the creek drainage.

Elevation: 815 feet msl.

Description: Irregularly oval in shape, the site measures approximately 200 m by 350 m. Chipped stone debris and burned rock fragments were observed scattered among naturally occurring small gravels. At least seven burned rock clusters were identified eroding from the surface. Numerous thick and thin bifaces and various unifacial and flake tools were recovered. Other recovered materials included a fragment of ground stone (basalt), several medial sections of projectile points resembling the Late Paleo-Indian *Angostura*

type, a reworked dart point base, and several projectile points resembling later Archaic types. A large portion of the chipped stone materials observed were moderately to highly patinated. Soils on the terrace appeared eroded.

Type of Site: Moderate riverine occupation.

Remarks: The site has apparently been used at least intermittently as a multi-functional occupation site since the Late Paleo-Indian period. Despite the eroded appearance of the ground surface, shovel tests indicate the presence of buried deposits.

Recommendations: In view of the presence of Late Paleo-Indian materials, the large number of hearths observed, and the probability of intact buried deposits, the site is recommended for systematic mechanical and hand test excavations to confirm eligibility for National Register nomination.

41 ZV 307

Location: The site is located on the edge of a broad, flat terrace on the west bank of the main channel of Windmill Creek, in Lyles' North Anderson Pasture, approximately 1000 m south of Clear Tank.

Elevation: 800 feet msl.

Description: The site is circular, probably less than 100 m in diameter. Cultural materials consisted of a light distribution of chipping debris and a thin triangular biface, which conforms to the *Tortugas* type. There was no apparent evidence of recent brush clearing in the pasture. Natural erosion along the creek bank was encroaching on the site from the east.

Type of Site: Because of the absence of burned rock, the site is classified as an auxiliary or expediency site in a riverine context.

Remarks: The site may represent the remains of a single activity, such as the butchering of game or the processing of a localized plant resource.

Recommendations: No further work is recommended at this site.

41 ZV 323

Location: The site is along a fenceline dividing two pastures of Lyles Ranch. The site is situated on a gentle slope on the east side of an indistinct drainage into Windmill Creek, about 1400 m northeast of Kiefer Windmill.

Elevation: 800 feet msl.

Description: The site covers an area less than 50 m by 200 m, and was indicated by a light scatter of chert flakes, chips, and burned rock. A reworked biface fragment was collected. There was evidence of clearing for an old road running along the fenceline, and erosion was moderate near the drainage.

Type of Site: Light tributary occupation.

Remarks: The sparse nature of the lithic scatter at the site indicates only occasional, probably short-term, occupation.

Recommendations: No further work is recommended at this location.

41 ZV 319

Location: The site is on a low, flat terrace between two subsidiary drainages of Windmill Creek, approximately 1400 m northwest of Kiefer Windmill.

Elevation: 800 feet msl.

Description: The site forms an oval, 75 m by 150 m (major axis northeast-southwest). A widely dispersed scatter of chert debris was observed at the site, including cores, flakes, and chips. Burned rock was noted, as was heat-treated chert. A small burned rock cluster was seen eroding from the subsurface. A thin biface fragment and a projectile point resembling the *Pedernales* type were recovered. Cultural materials in the form of flakes and chips were observed throughout the area in dirt thrown up by rodent burrows. No evidence of recent land clearing was noted. Erosion on the flat terrace was minimal.

Type of Site: Light tributary occupation.

Remarks: Examination of cutbanks in the nearby drainages indicated the presence of recent alluvial deposits, raising the possibility of buried cultural materials. Such a suggestion is supported by the presence of lithic debris in the backdirt from rodent burrows.

Recommendations: Potential buried deposits preclude a current assessment of National Register eligibility. Limited testing is recommended for a more accurate evaluation.

41 ZV 320

Location: The site is atop a low, cenizo-covered rise in Lyles' North Anderson Pasture, approximately 1000 m southwest of Round Tank. The site overlooks parts of the drainages of Mustang Creek (to the northeast) and Windmill Creek (to the southwest).

Elevation: 840 feet msl.

Description: The site is oval, 100 m by 250 m (major axis oriented northeast-southwest). Chert flakes and chips, many appearing patinated, were observed across the site, along with scattered fragments of fire-cracked rock. The following tools were recovered: a patinated uniface; the distal tip of a long, thin, finely chipped biface; and two projectile points, one resembling the *Frio* type, and one fragment resembling a *Bell or Shumla* type.

Type of Site: Light to moderate riverine occupation.

Remarks: The chronological associations of the diagnostic artifacts found at the site indicate that the site was used, at least intermittently, over a long period of time. The intensity of occupation suggested by the amount of cultural debris noted is unusual for an upland site. But, as noted earlier, changes in soils and vegetation just beyond the southern edge of the site suggest that, at some time in the past, Mustang Creek may have drained into Windmill Creek, flowing by 41 ZV 320. Thus, the site is considered a riverine occupation site.

Recommendations: Possible buried materials preclude an assessment of National Register eligibility. Limited testing is recommended for a clearer appraisal of eligibility potential.

Turkey Creek Occupation Zone

As noted earlier, little of the drainage of Turkey Creek was surveyed in the 1982 season. The soils in the drainage of Turkey Creek are the most complex in the East Chacon area. In contrast, the composition of soils in the section surveyed this season is relatively simple.

The floodplain deposits of the creek are composed of Uvalde Series silts, and as such are assumed to be relatively deep (Stevens and Richmond 1976:43). The five sites recorded on the floodplain were notably similar in appearance: they consisted of thin scatters of unpatinated chert debris and burned rock fragments, the limits of which were difficult to detect. Most showed evidence of buried cultural deposits. A ranch road cuts across the floodplain north of these sites, and in it isolated pieces of chert debris and a unifacial tool (collected as Specimen #185) were noted. Although thick low grasses obscured the ground surface, isolated chert flakes were also observed across much of the area between the road and creek, and between the individual sites.

The uplands which form the watershed between Turkey and Windmill Creeks are composed of Eocene derived Tonio Series sandy loams, with a large outcrop of Olmos Series gravelly loam overlooking the major eastward bend of the creek. The drainage in which a large quarry site, 41 ZV 301, was recorded, represents an intrusion of Uvalde silty clay into the older Tonio sandy loam.

41 ZV 301

Location: The site is located approximately 2500 m northwest of Kiefer Windmill along either side of a wide, shallow drainage sloping westward into Turkey Creek.

Elevation: 795-820 feet msl.

Description: The site covers a very large area, at least 500 m by 900 m. In the dark brown and black silty clay within the drainage, numerous large and small chert cobbles were noted. Many of the cobbles had been tested, possibly split open to assess the quality of material. Primary and secondary flakes were observed in abundance along with occasional thick, roughed-out bifaces, probably representing discarded quarry blanks. Light to moderate erosion was observed along the slopes of the drainage.

Type of Site: Quarry site.

Remarks: The eastern boundary of the site is ill-defined. There may be a direct association between this site and 41 ZV 302 to the east. At present, a topographic feature is the main criterion for separating the sites: a low ridge runs between the sites, with 41 ZV 301 sloping westward and 41 ZV 302 eastward. Site 41 ZV 301 almost certainly extends westward to the margin of Turkey Creek, another 400-500 m beyond the boundaries defined, an area outside the limits of access to the present survey. Westward from the fenceline marking the delineated boundary of 41 ZV 301, the land was under cultivation.

Recommendations: The site function suggests a significant aspect of prehistoric activities in the local study area. Limited testing is recommended to determine the extent of this significance and to more accurately determine potential National Register eligibility.

41 ZV 299

Location: The site is located near the crest of a low ridge overlooking a wide section of the Turkey Creek drainage to the south and west.

Elevation: 800 feet msl.

Description: The site is oval, 125 m by 200 m (major axis oriented north-south). Cultural materials consisted of chert core fragments, flakes, chips, blades, and scattered burned rock. One badly damaged corner-notched projectile point was recovered. Materials were observed washing downslope (to the south-east) from the eroded ridge. In general, the site was massively disturbed: recent land clearing was evident, a large borrow pit for caliche has been dug near the north end of the site, a well-used ranch road traversed the site, and the western end of the site disappeared into a freshly plowed field.

Type of Site: Upland auxiliary or light occupation site.

Remarks: The site is well situated as a lookout over the drainage of Windmill Creek to the west and south, and is within a few hundred meters of a major branch of the creek. It may have served as a hunting camp or a specialized resource procurement area. The soils appeared deflated almost to the underlying caliche layer. Unfortunately, recent farming and ranching activities have so disturbed the area that the actual nature and extent of prehistoric activity may be impossible to assess.

Recommendations: Considering the present disturbed condition of the area, no further work is recommended.

41 ZV 300

Location: The site is located on a low, wide promontory overlooking Turkey Creek to the south and Windmill Creek to the east, approximately 1500 m northwest of Kiefer Windmill.

Elevation: 800 feet msl.

Description: The site follows the point of the promontory in an irregular oval for a maximum of 300 m. A thin scatter of lithic debris was noted among the rocks and gravels on the promontory. Chert cobbles and primary and secondary flakes were also noted. The fragmented corner of an unidentifiable projectile point was recovered. The entire hilltop appeared highly eroded.

Type of Site: Upland auxiliary or expediency site.

Remarks: The location of the site on a high overlook, the relatively small amount of cultural materials, and the lack of burned rock observed, suggest that the site was used as a hunters' lookout or for short-term, intermittent occupation.

Recommendations: Because of the comparative lack of cultural materials and the deflated nature of the soils, no further work is recommended.

41 ZV 309

Location: The site is located on the east side of a low ridge approximately 1500 m northwest of Kiefer Windmill. The site is situated with a view south of the drainages of Windmill and Turkey Creeks.

Elevation: 800 feet msl.

Description: The site is round, 100 m in diameter. A very light scatter of lithic debris and burned rock were observed at the site. One untyped lanceolate point was recovered. The soils in the area appeared deflated.

Type of Site: Upland auxiliary or light occupation site.

Remarks: The location of the site as a lookout and the small amount of cultural materials observed may indicate use as a temporary hunting camp.

Recommendations: No further work is recommended, because of the limited amount of cultural materials observed and the eroded nature of the soils.

41 ZV 297

Location: The site is located on the east bank of a tributary drainage into Turkey Creek, 2500 m southwest of Kiefer Windmill. The site slopes southward to the stream bed near the intersection of the stream and a well-used ranch road.

Elevation: 775 feet msl.

Description: The site is oval, approximately 75 m by 150 m. Chipped stone materials and heat-reddened chert flakes were observed. Burned rock was noted eroding from the silty soils in places.

Type of Site: A light occupation.

Remarks: The site is similar in appearance to 41 ZV 296, which lies 100-200 m to the southeast along the same watercourse. Buried deposits are evident.

Recommendations: Possible buried deposits make it impossible to assess potential National Register eligibility. Limited testing is recommended for evaluation of potential eligibility.

41 ZV 296

Location: The site is located on the east bank of a tributary drainage into Turkey Creek, west of 41 ZV 294 and 41 ZV 295, 2100 m southwest of Kiefer Windmill.

Elevation: 775 feet msl.

Description: The site is oval in shape, 75 m by 100 m. Lithic debris was observed lightly scattered over the area. Some burned rock appeared to be eroding from recent cuts near the creek drainage. Land clearing, in the form of *sendero* cuts, has been carried out in the area, although no recent cuts traversed the site. Erosion along the terrace margin was extensive.

Type of Site: Light occupation along a tributary drainage.

Remarks: Similarities with other sites along the same tributary, e.g., 41 ZV 297, 41 ZV 295, are notable. Gaps between these sites may be caused by land clearing or vegetation patterns. Burned rock eroding from along the terrace edge may be significant in terms of the presence of buried cultural deposits.

Recommendations: The unknown significance of buried materials makes it impossible to assess potential National Register eligibility. Limited testing is recommended for an appraisal of eligibility.

41 ZV 295

Location: The site is located along the east bank of a tributary drainage into Turkey Creek, approximately 1900 m southwest of Kiefer Windmill.

Elevation: 775 feet msl.

Description: The site follows the stream course for at least 250 m, extending in from the bank less than 20 m. Cultural materials observed included a light, irregular scatter of lithic debris, burned rock, and a few chert tools. The site was densely overgrown with secondary brush. Erosion was severe along the stream bank.

Type of Site: Light occupation along a tributary drainage.

Remarks: The dense undergrowth, including a wide assortment of prickly, thorny brush, made surveying difficult, therefore the site dimensions as given may be conservative. As with 41 ZV 294, soils and cutbanks indicate the presence of deep alluvial deposits.

Recommendations: Buried deposits preclude an evaluation of potential National Register eligibility. Limited testing is recommended for a more accurate appraisal of eligibility.

41 ZV 294

Location: Site 41 ZV 294 parallels the north bank of the westernmost of the two easternmost tributary drainages into Turkey Creek, about 1700 m southwest of Kiefer Windmill.

Elevation: 775 feet msl.

Description: The site is linear, following the stream course for about 500 m north and west from the confluence of the two streams, and extends in from the bank less than 30 m. An uneven distribution of chipped stone debitage was observed throughout the length of the site. Burned rock and mussel shell fragments were also evident. Thick low grasses covered a large portion of the site, and some erosion was occurring along the terrace margins.

Type of Site: Light occupation along a Turkey Creek tributary.

Remarks: This site is one of a number of long, narrow sites along Turkey Creek and its tributaries. These sites appear to be occupation sites of varying intensity. The relatively light scatter of cultural materials observed at this site may have been, in part, a function of obscured ground visibility. Examination of cutbanks along the drainage revealed the presence of deep alluvial deposits, suggesting that periodic flooding has buried much of the existing archaeological evidence.

Recommendations: The occurrence of buried cultural materials suggests a determination of potential eligibility to the National Register could be more accurately made following limited testing.

41 ZV 298

Location: The site is located on the flat west bank of the easternmost tributary drainage into Turkey Creek, below (i.e., west of) 41 ZV 292 and 41 ZV 293. The site is approximately 1500 m southwest of Kiefer Windmill.

Elevation: 775 feet msl.

Description: The site is linear, following the watercourse for 350 m and extending in from it for an average of 20 m. Cultural materials included a light scatter of lithic debris, thick and thin bifaces, and isolated burned rock fragments. A small, unconsolidated burned rock cluster was observed eroding from the silty soil near the cutbank produced by the drainage.

Type of Site: Light occupation.

Remarks: The site resembles 41 ZV 294, which lies to the west on the same terrace, and may in fact merge with it at the south end where the two eastern tributaries of Turkey Creek converge (see Fig. 1). The gap observed between the sites at this point may be the result of thick vegetation, rather than an actual break in the distribution of cultural materials.

Recommendations: The unknown significance of buried cultural materials precludes a current assessment of National Register eligibility. Limited testing is recommended to evaluate eligibility potential.

41 ZV 292

Location: The site is situated atop a knoll above a rolling plain which slopes to the southwest toward Turkey Creek. The site lies just west of a fenceline, approximately 1250 m southwest of Kiefer Windmill.

Elevation: 790 feet msl.

Description: The site is oval, 100 m by 175 m (major axis oriented northwest-southeast). Unifacial tools, small biface preforms, utilized blades, and other chipped stone debris were noted in the rocky soils on top of the knoll and washing down into a wide, shallow gully to the southwest. Worked quartzite was also observed. Much of the chert was patinated. The soils on the hilltop appeared moderately eroded.

Type of Site: Light occupation.

Remarks: Site 41 ZV 293 lies 50 m to the southwest of 41 ZV 292 across a shallow gully; both sites have unobstructed views across Turkey Creek. Site 41 ZV 292 is the only site in the immediate area at which quartzite was observed.

Recommendations: No further work is recommended due to site erosion.

41 ZV 293

Location: The site covers a distinct knoll overlooking the east bank of Turkey Creek, about 1500 m southwest of Kiefer Windmill.

Elevation: 770-785 feet msl.

Description: The site is round, with a diameter of approximately 250 m. Isolated burned rock was noted along with heavily patinated chert including cores, flakes, and other debitage. Various tools were collected: thick and thin biface fragments, a *Guadalupe* tool, a broken perforatorlike implement, and a projectile point with an expanding stem. Scattered mussel shell fragments were also observed. The soils on the hilltop appeared eroded.

Type of Site: Light occupation.

Remarks: The south and west limits of the site were difficult to assess. Much of the material found downslope from the knoll on the bank of the creek drainage may have washed down from above, collecting on the relatively narrow terrace paralleling the stream. The site is near 41 ZV 292 and is topographically similar, with a view over the creek. No quartzite materials were observed at this site (cf. 41 ZV 292).

Recommendations: Limited testing is suggested to determine the significance of possible buried deposits and an accurate assessment of potential National Register eligibility.

Mustang Creek Occupation Zone

Mustang Creek runs through the survey area parallel to the Nueces River, cutting through the middle of the Late Pleistocene floodplain of the river. The soils associated with sites on the creek are, for the most part, Uvalde or Montell Series alluvia. North of the survey area where the creek intersects Highway 481, a low terrace of Olmos Series gravelly loam overlooks the west bank of the creek. Small outcrops of Olmos Series soils also occur along the creek in the southern section of the survey area.

Mustang Creek may have been the most recent creek in the survey area, and may have once flowed into Windmill Creek just below the present Uvalde-Zavala County line, but unfortunately, no chronologically diagnostic artifacts are known from the few sites along the creek to provide archaeological support for such a theory. The prehistoric occupational pattern along Mustang Creek is further complicated by the discovery of Early Archaic materials in the vicinity of Green Lake, near Mustang Creek (see Appendix II). Preliminary interpretations suggest the intermittent playalike Green Lake may have once been located along a paleo-mainstream channel of the creek (see also High Potential Archaeological Localities in the Recommendations section).

41 UV 114

Location: The site is located on a low cenozo-covered ridge overlooking the west bank of Mustang Creek, approximately 100 m south of the intersection of the creek and Highway 481.

Elevation: 860 feet msl.

Description: The site forms an irregular crescent shape, following natural topographic contours, and measures 250 m by 450 m. Scattered chert debris and burned rock fragments were observed across the area, and several patinated biface fragments were collected. Soils were gravelly and eroded.

Type of Site: Light occupation.

Remarks: Although the site covers a large surface area, the dispersed nature of cultural materials indicates relatively short-term occupation.

Recommendations: Because of a lack of significant archaeological evidence, no further work is recommended.

41 UV 96

Location: The site is located along the north rim of one of a number of small stock tanks produced by the placement of earthen dams across Mustang Creek. The site lies on the Uvalde-Zavala County line, in the upland area midway between the Nueces River and Windmill Creek.

Elevation: 835 feet msl.

Description: The site is oval, not more than 30 m by 60 m in extent (major axis oriented northeast-southwest). Archaeological evidence consisted of a thin scatter of chipped stone debitage, fire-cracked rock, and burned chert. No diagnostic materials were observed. Land clearing and erosion have disturbed topsoils.

Type of Site: Light occupation.

Remarks: Judging from the amount of cultural materials observed, the site may represent a short-term, possibly multifunctional activity site.

Recommendations: Because of the small amount of cultural materials present and the degree of recent soil disturbance, no further work is recommended at this site.

41 ZV 286

Location: The site is located on both banks of Mustang Creek, midway between two stock tanks on the creek, Mud Tank and Round Tank. The banks form low terraces which are flat and clear of brush.

Elevation: 830 feet msl.

Description: The site runs along the creek for at least 200 m and extends out from the bank about 50 m on either side. Scattered burned rock and chipping debris were observed unevenly distributed across the site. No diagnostics were recovered. Soils have been disturbed by past land clearing.

Type of Site: Light occupation.

Remarks: The small amount of cultural materials at the site suggests a temporary campsite.

Recommendations: No further work is recommended at this site.

41 ZV 316

Location: The site is located on the east bank of Mustang Creek, 200 m east of Horseshoe Tank in Lyles' Dunn Trap Pasture.

Elevation: 775 feet msl.

Description: Cultural materials consisted of a thin biface fragment, chert flakes and chips, and scattered burned rock. Portions of the site were eroding into the creek bed. Site dimensions are ca. 75 by 100 m.

Type of Site: Light occupation.

Remarks: The amount and distribution of artifacts at the site indicate short-term occupation.

Recommendations: No further work is recommended at this site.

41 ZV 315

Location: The site is located on the east bank of Mustang Creek in Lyles' Dunn Trap Pasture, approximately 600 m east of Horseshoe Tank.

Elevation: 780 feet msl.

Description: The site is circular, less than 75 m in diameter. Evidence of cultural activity consisted of a light scatter of chipped stone debris and burned rock. A small, hearthlike cluster of burned rock was observed eroding from the creek bank where erosion was severe.

Type of Site: Light occupation.

Remarks: Short-term occupation is indicated by the amount of cultural materials at the site.

Recommendations: The possibility of buried deposits precludes an estimate of National Register eligibility. Limited testing is recommended for a more accurate determination of eligibility potential.

41 ZV 314

Location: The site is situated along a ranch road and fenceline on an upper terrace looking southward across Mustang Creek and the uplands beyond. The terrace is above the north bank of a tributary drainage of the creek, approximately 1100 m north of the intersection of the creek and Highway 83.

Elevation: 795 feet msl.

Description: The site is linear, following the fenceline for about 150 m and extending westward from it for less than 30 m. Scattered chipped stone debris and burned rock were observed. Portions of the site may have been destroyed by construction of a railroad right-of-way and Highway 83 immediately to the east.

Type of Site: Light occupation.

Remarks: As with site 41 ZV 312, which lies less than 100 m to the south, the full extent of the site may not have been determined, due to limited access.

Recommendations: No further work is recommended at this location.

41 ZV 312

Location: The site is along a ranch road and fenceline paralleling the Missouri-Pacific Railroad right-of-way and Highway 83, approximately 100 m north of their intersection with Mustang Creek. The site slopes both southward towards Mustang Creek and northward towards a tributary of the creek.

Elevation: 770-785 feet msl.

Description: The site extends along the fenceline for almost 800 m, and extends westward from it for less than 100 m along most of its length. Cultural materials observed included a scatter of patinated and unpatinated chert cores, flakes, chips, scattered burned rock, and at least one distinct hearthlike burned rock cluster. The soils appeared eroded. The site ends abruptly at the fenceline although the dimensions may once have exceeded those observed because construction of the railroad and highway to the east appears to have truncated the site.

Type of Site: Light occupation.

Remarks: Lack of access prevented survey beyond the railroad right-of-way to determine possible continuance of cultural materials.

Recommendations: Because of the disturbed nature of the site and the lack of diagnostically significant cultural materials, no further work is recommended.

41 ZV 313

Location: The site is located on a gently sloping rocky terrace on the east bank of Mustang Creek, 400 m northwest of the intersection of the creek and Highway 83.

Elevation: 765 feet msl.

Description: The site forms an oval, 75 m by 250 m (major axis oriented northwest-southeast). Scattered chipped stone debris and burned rock were observed. Most of the chert materials appeared densely patinated. The soils on the slope were highly eroded.

Type of Site: Light occupation.

Remarks: Association with 41 ZV 312 less than 50 m to the southeast, is likely. The apparent gap between the sites may be due to erosion and vegetation patterns.

Recommendations: The site is badly deflated, and no chronologically diagnostic artifacts were found, therefore no further work is recommended.

41 ZV 310

Location: The site is located on a rocky sandstone outcrop along the western bank of Mustang Creek, 50 m west of the intersection of the creek and Highway 83.

Elevation: 790 feet msl.

Description: The site is oval, 100 m by 125 m. Lithic debris was observed unevenly distributed over the area. Some chert flakes and burned rock were noted around the base of the outcrop and in the gray silt along the creek. On top of the outcrop, where soils were thin and sandy, small chert flakes and several thin biface fragments were found.

Type of Site: Light occupation.

Remarks: The occurrence of chipping debris and tool fragments on top of the outcrop suggests that the site was used in part as a hunters' overlook.

Recommendations: In view of the small amount of cultural materials observed, no further work is recommended.

Isolated Upland Sites

The comparatively few sites in this group can be characterized as thin, localized scatters of chert debris, occasionally associated with scattered burned rock fragments. Three isolated artifacts were recovered from the uplands in the southern portion of the survey area: a densely patinated biface, which appears to be a dart point preform (Specimen #60); the base and half the blade of a well-made *Langtry* point (Specimen #44); and a complete point which conforms to the *Kinney* type (Specimen #58).

In both the northern and southern portions of the survey area, upland soils were of the Uvalde Series. That alluvial soils are associated with upland areas is to a certain extent incongruous, and can only be explained by noting that these sites are in upland locations relative to the sites along major stream courses. It could conceivably be argued that use of the term upland is, strictly speaking, inappropriate.

Remnants of brush and dirt in high piles and windrows indicated extensive bulldozing in the pastures for brush clearance, rendering surface contents unreliable across most of the area.

41 UV 93

Location: The site is located on the upland plain between the Nueces River and Mustang Creek, approximately 1500 m north of New Windmill in Lyles' North River Pasture.

Elevation: 855 feet msl.

Description: An ill-defined scatter of utilized flakes, waste flakes, and isolated burned rock fragments was observed covering an area at least 30 m in diameter. The pasture in which the site lies has been bulldozed so that, while the area is reasonably clear of low brush, the topsoil has been disturbed. There is little evidence of natural erosion.

Type of Site: Upland auxiliary or expediency site.

Remarks: The site may represent a temporary resource procurement area, after noting the distance from nearby water sources (as much as two kilometers from the Nueces River and 700-800 m from Mustang Creek).

Recommendations: Considering the thin and scattered distribution of cultural materials present, no further work is recommended at this site.

41 UV 107

Location: The site is located on the flat, upland plain between the Nueces River and Mustang Creek, about 1000 m northeast of New Windmill in Lyles' North River Pasture.

Elevation: 850 feet msl.

Description: The site is round, with a diameter of 30-40 m. Archaeological evidence consisted of a thin lithic scatter, including unifaces, a biface fragment, and flakes, along with isolated fragments of burned rock. The topsoil in the pasture has been disturbed by previous land clearing activities.

Type of Site: Upland auxiliary or expediency site.

Remarks: The site is identical in nature to 41 UV 93, which lies just to the north, and was probably used as a temporary campsite or resource procurement location.

Recommendations: Because of the small amount of cultural materials observed at the site and the disturbed condition of the area, no further work is recommended.

41 ZV 317

Location: The site is located on the flat and featureless upland plain which today forms Lyles' West Mill Pasture. The site lies 1400 m south of Horseshoe Tank and 400 m west of the fenceline which divides Dunn Trap and West Mill pastures.

Elevation: 795 feet msl.

Description: The site is circular, less than 40 m in diameter. Archaeological evidence consisted of a very thin scatter of chert flakes and chips. The pasture showed signs of recent mechanical land-clearing activities.

Type of Site: Upland expediency site.

Remarks: The small amount of cultural materials at the site and its location away from any source of groundwater (at least 1400 m) suggest that the site may have served as a temporary lithic workshop, or chipping station, or may have been the site of a specialized resource procurement activity.

Recommendations: No further work is recommended.

CULTURAL MATERIALS

Introduction

The 1982 East Chacon collection contains 198 prehistoric artifacts. As is almost always the case in archaeological survey, the vast majority of the artifacts are of chipped stone. Therefore, the major thrust of this analysis is directed towards the description of lithic tool types.

Sampling Bias

The artifacts discussed are only a sample of elements taken from a more complete statistical population. The value of inferences made from this sample to the general population depends on the degree of representativeness of the sample. In order to avoid possible misinterpretations, the major biases in the sample should be recognized and described.

Initially, the present sample is intentionally biased towards chronologically diagnostic artifacts, i.e., those which readily conform to known and dated types. In practice, most diagnostic artifacts are what are commonly termed projectile points, since these objects tend to display the widest variety of intentional stylistic differentiation of any artifact type. As a consequence, the number of thick bifaces, biface fragments, and the amount of chert debitage in the collection is quite small in comparison to the number of projectile points and formal tools. The 1982 collection from East Chacon differs noticeably from the 1981 collection in its bias towards diagnostic artifacts. After careful review of the previous report, it was decided that the effort expended in collecting and processing large amounts of debitage was unproductive. The current research design included a survey strategy focused on the identification of areas of cultural activity, determining from surface indications the approximate horizontal extent of these areas and, if possible, assessing chronological affiliations. The first two goals could be accomplished by field observation alone, noting the occurrence and distribution of artifacts irrespective of type. But the determination of chronological association requires recognition of time indicators, in the form of artifact types, known in the existing archaeological record to be associated with particular time periods. Such recognition is most effectively accomplished

in the laboratory setting, where comparative data are more readily available. Thus, the 1982 survey strategy included the surface collection of recognizable and potentially recognizable artifact types. Debitage and partially completed artifacts were considered, for the most part, useless and were normally left in place. (It should be noted that certain other nondiagnostic artifacts were collected on the strength of unusual form, workmanship, or raw material to be analyzed as much for their potential for the general archaeological record as for their ability to provide site-specific information.)

The collections which were made during the survey were uncontrolled. It was felt that sufficient data could be obtained from unprovenienced collecting without the added recordkeeping time factor involved in proveniencing each find would have required. There were two main reasons for adopting this procedure. The first involves biases inherent in the statistical population. Any *in situ* archaeological assemblage is but a sample of an even larger meta-population (Doran and Hodson 1975:43). Thus, the artifacts at any site in the East Chacon survey are only a sample of those originally left behind or discarded at that site--they represent what has survived through time. Natural processes, such as erosion, the rotting of organic materials, bioturbation, and so on, have all served to alter the make-up of the assemblage, and thus to bias the sample. Recently, another bias has been introduced by local relic-collectors. The ground along the Nueces River and its tributary drainages, i.e., Turkey, Windmill, and Mustang Creeks, is easily accessible to the public and has been heavily collected in recent years (collecting continues apace today--geological surveyors anonymously reported that they had recovered well over 100 "arrowheads" along Turkey Creek). Project members informally observed several extensive private collections in Uvalde and La Pryor. Not all of these artifacts derive from the East Chacon survey area, of course, but the terraces and uplands along the Nueces River and its tributary creeks have contributed significant amounts of material to local collections. At many sites, the field crew noted an unusually low incidence of bifacially worked artifacts relative to the amount of chipped stone debris present. While relic-collecting is obviously not the single cause of such a phenomenon, it is definitely a major contributing factor.

A second reason uncontrolled collecting was considered sufficient for maximum possible data recovery involves the extensive amount of brush clearance in evidence throughout the survey area. Large piles and windrows of dirt, ash, and unburned roots and brush indicated the widespread use of bulldozing to clear pastures. This technique entails scraping the ground surface with a large metal blade, pushing or pulling larger trees and brush out by the roots. At the same time, topsoils are massively disturbed and consequently, the surface provenience of any existing artifacts disrupted (Dusek 1982:533). Considering the amount of clearing apparent over most of the survey area, the original integrity of a surface provenience was assumed to be lost, and the current provenience to be of little real value.

In summary, the biases in the sample of artifacts collected from East Chacon this season are considerable. Thus, potential generalizations inferred from their analysis are necessarily minimized. It is with this in mind that classification of the artifacts was approached.

Typological Considerations

After reviewing many of the arguments concerning the significance and utility of various available typological schemes (see Willey and Sabloff 1980:140-143 for a summary), the following observations were made. It is generally agreed that the purpose of creating a typology is the ordering and systematizing of data (artifacts) in a consistent manner in order to describe and facilitate their comparison with other similar data (cf. Deetz 1967:51-52). This is accomplished by selecting recognizable attributes and determining their non-random distributions among the data, thereby establishing forms or types. The choice of specific attributes is necessarily judgemental. Therefore, it is the task of the analyst to examine the choices carefully in order to provide the greatest degree of validity and utility in the resulting types. Ideally, types should be clear-cut, well-defined (explicitly so), comprehensive, universally applicable, meaningful, and reliable enough to ensure replicability by independent analysis. In many instances, types are based on the correlation of physical attributes. Krieger (1944) has indicated the additional need for incorporating a historical aspect into classification, to incorporate the temporal and spatial attributes of artifacts, i.e., their chronological associations and geographic distributions. Thus, we would argue, similarly shaped artifacts from the northern High Plains and south Texas do not necessarily represent a single archaeological type (cf. Nunley 1971 and Skelton 1977 for recent attempts at strictly morphological and technological analysis).

With these considerations in mind, the typology for the East Chacon collection was generated. It is based on gross morphological characteristics, but, where feasible, aligned with accepted historical schemes (the point typology developed in Suhm, Krieger, and Jelks 1954, later revised by Suhm and Jelks 1962, is widely considered the basic source in Texas archaeology). Prewitt (1981) and Weir (1976), because of their significant updates, have also been consulted. Because of the small size of the sample and the biases it is subject to, and because of a desire to retain enough flexibility for ease of synthesis with any subsequent work in the Chacon Creek area, the types developed are, for the most part, very broad (notable exceptions are, of course, historical point types). In addition, functional types have been avoided. Certain commonly accepted functional terms, projectile point for instance, have been adopted because of their common usage in the literature. But unless specifically stated, function is not implied. Functional types cannot be securely developed without extensive wear-pattern analysis, including microscopic examination and replicative experimentation. Due to constraints of time and finances, such work was not undertaken in this analysis.

Chipped Stone Materials

Unless otherwise indicated, raw materials consist of locally available chert, ranging in color from light gray and beige to dark brown, and in quality from coarse-grained to a very fine-grained, glasslike consistency. Generalized provenience data follows each description. More detailed provenience along with detailed measurements are found in Tables 5-9.

TABLE 5. PROVENIENCE AND METRIC DATA FOR THIN STEMMED BIFACES

Specimen Number	Type	Site Number	Length	Width	Thickness	Stem Length	Stem Width	Weight
1 **	<i>Travis</i>	41 UV 101	31*	23	8	16	17	6.7
2 **		IF	40*	25	7	11	13	7.1
3 **	<i>Pedernales</i>	41 UV 109	43*	39*	11	17	24	14.8
4 **	<i>Pedernales</i>	41 ZV 319	61	32	8	20	22	15.5
5 **	<i>Pedernales</i>	41 UV 79	35*	35*	9	17	22	9.2
6 **	<i>Shumla</i>	41 UV 103	32*	26*	5	10	11	3.5
7 **	<i>Marshall</i>	41 UV 101	66*	49	18	16	21	23.4
8 **	<i>Marshall</i>	41 UV 100	61*	45*	7	12	22*	18.1
9 **		41 UV 109	93	41	9	12	20	27.6
10 **		41 UV 95	51*	37*	6	16	20	12.5
11		41 UV 103	20	16*	4	5	7	1.1
12 **		41 ZV 291	29	19	7	14	16	3.5
13	<i>Bell</i>	41 UV 102	33*	28*	6	13	19	5.6
14 **	<i>Shumla?</i>	41 ZV 320	47	35*	7	12	17	7.1
15	<i>Castroville</i>	41 UV 100	51*	37	8	14	25	12.9
16	<i>Castroville</i>	41 ZV 291	75	41*	9	14	27	20.8
17 **	<i>Montell</i>	41 UV 97	48*	*	7	22	*	11.5

TABLE 5. (continued)

Specimen Number	Type	Site Number	Length	Width	Thickness	Stem Length	Stem Width	Weight
18**	<i>Montell</i>	41 UV 109	*	*	5	10	19*	*
19**	<i>Frio</i>	41 ZV 320	39	25	7	9	21*	5.2
20**	<i>Frio</i>	41 ZV 302	45*	33	8	14	34	9.5
21**	<i>Frio</i>	41 ZV 299	48*	27*	6	9	20*	7.1
22**	<i>Frio</i>	41 ZV 291	28*	19*	6	8	19*	3.5
23	<i>Enson</i>	41 UV 103	21*	21*	14	9	19*	3.1
24	<i>Enson</i>	41 UV 105	23*	20*	7	9	18	2.8
25	<i>Enson</i>	41 UV 105	21*	21*	5	8	19*	2.4
26**	<i>Enson</i>	41 ZV 291	52*	27	8	11	23*	10.2
27	<i>Edgewood?</i>	41 UV 100	31*	23	6	9	22	4.2
28**		41 ZV 293	48	25	7	10	16	8.0
29**		41 UV 108	49	25	8	10	19	8.6
30**		41 UV 109	38*	31*	6	12	18	6.3
31**		41 ZV 293	42	23	8	9	23	5.7
32		41 ZV 306	36*	17*	6	10	17*	3.3
33**		41 ZV 306	50	23*	7	7	15	7.2
34		41 UV 111	40*	20*	5	9	13*	4.2

TABLE 5. (continued)

Specimen Number	Type	Site Number	Length	Width	Thickness	Stem Length	Stem Width	Weight
35		41 UV 108	50	28	11	12	22	12.4
36**		41 UV 103	41*	32*	9	10	23	8.8
37**		41 UV 109	50	28	11	12	22	12.4
38		41 UV 79	58*	37	7	15	30	16.0
39**		41 ZV 291	28*	16	4	10	12	2.2
40**	<i>Edwards</i>	41 ZV 291	21*	14*	3	5*	9*	1.1
41**	<i>Edwards</i>	41 ZV 291	19*	13*	4	6	12*	1.0
42	<i>Sabinal</i>	41 UV 103	31	21	3	5	8	1.3
43	<i>Sabinal</i>	41 UV 103	28*	23	3	2*	8*	1.4
44**	<i>Langtry</i>	IF	42*	35	6	22	20	6.9
45**	<i>Langtry</i>	41 UV 108	31*	34*	5	13*	15	5.4
46**	<i>Langtry</i>	41 UV 79	56	33*	6	18*	17	9.1
47		41 ZV 306	25*	23	6	14*	15	3.1
48	<i>Perdiz</i>	41 UV 103	23*	16*	4	6*	6	1.3
49**	<i>Perdiz</i>	41 ZV 287	45	21	4	17	7	2.2
50		41 UV 103	26*	17	3	*	*	1.1
51**		41 ZV 291	26*	15*	3	*	*	0.9

TABLE 5. (continued)

Specimen Number	Type	Site Number	Length	Width	Thickness	Stem Length	Stem Width	Weight
52 **		41 ZV 291	13*	15*	3	*	*	0.6
53		41 ZV 320	24*	16*	3	*	*	1.1
54 **		41 ZV 321	24*	21*	3	4*	7*	1.0

*measurements taken from fragmentary artifacts

**illustrated; see text

IF: isolated find

TABLE 6. PROVENIENCE AND METRIC DATA FOR THIN UNSTEMMED BIFACES:
COMPLETE SPECIMENS

Specimen Number	Type	Site Number	Length	Width	Thickness	Weight
55**		41 ZV 307	44	37	6	9.3
56**		41 UV 103	59	30	7	10.5
57**		41 UV 98	43*	35	8	9.0
58**	<i>Kinney</i>	IF	67	30	9	16.6
59**	<i>Carrizo</i>	41 UV 111	46	25	6	6.0
60		IF	62	37	10	25.6
61		41 UV 103	37	26	8	4.4
62		41 UV 105	50	27	11	13.1
63		41 ZV 291	42	27	6	8.2
64		41 ZV 293	62	35	12	25.0
65		41 UV 109	39	23	10	8.9
66**		41 ZV 306	43	19	8	6.6
67**		41 ZV 306	40	26	7	8.0
68**		41 ZV 291	27	22	5	3.2
69**		41 ZV 291	31	16	4	1.8
70**		41 ZV 291	37	20	4	2.5
71**		41 ZV 291	25	17	5	2.3
72**		41 ZV 291	31	21	6	3.4
73**		41 UV 115	29	21	5	1.9

*measurements taken from fragmentary artifacts

**illustrated; see text

IF: isolated find

TABLE 7. PROVENIENCE AND METRIC DATA FOR THIN UNSTEMMED BIFACES: PROXIMAL FRAGMENTS

Specimen Number	Type	Site Number	Length	Width	Thickness	Weight
74**	<i>Plainview</i>	41 UV 109	36*	23*	7	7.1
75**	<i>Plainview</i>	41 UV 109	28*	21*	7	3.5
76**	<i>Golondrina?</i>	41 UV 100	*	*	6	8.4
77**		41 ZV 309	53*	19*	8*	9.3
78**	<i>Kinney</i>	41 ZV 303	44*	34*	7	11.7
79**		41 UV 98	27*	22	6	5.1
80		41 UV 100	35*	28	7	8.8
81		41 UV 101	26*	21	6	3.6
82**		41 ZV 291	51*	37*	9	21.6
83**		41 ZV 292	40*	30	7	9.4
84		41 UV 113	29*	22	9	6.4
85		41 UV 109	36*	31*	7*	9.4
86		41 UV 99	59*	42*	11	30.7
87		41 UV 100	45*	35	11	20.6
88		41 ZV 291	57*	39	11	28.2
89		41 UV 114	41*	36*	11	21.3
90		41 UV 100	45*	35	11	20.6
91		41 UV 103	32*	33	9	11.0
92		41 ZV 292	43*	31	9	14.3
93		41 ZV 306	35*	36	8	13.2
94		41 ZV 306	*	34	8	8.9
95		41 UV 99	45*	52*	9	24.2
96		41 ZV 291	31*	16	4	1.8
97**		41 ZV 298	40*	35	7	11.1
98		41 ZV 295	29*	32	7	7.8
99		41 ZV 313	*	52*	9	17.6
100**		41 ZV 319	23*	29	6	4.9
101**		41 ZV 291	41*	19	7	5.4
102		41 ZV 291	48*	22	10	10.9
103		41 UV 114	51*	26	7	11.8
104**		41 ZV 291	50*	35	10	16.3
105**		41 ZV 295	37*	32	9	10.3
106**		41 ZV 101	48*	25	8	10.1

TABLE 8. PROVENIENCE AND METRIC DATA FOR DISTALLY BEVELED TOOLS

Specimen Number	Type	Site Number	Length	Width	Thickness	Weight	Bit Dimensions		
							Width	Height	Angle**
177***	<i>Clear Fork</i>	41 UV 98	62*	41	12	39.4	41	11	55.0
178***	<i>Clear Fork</i>	41 UV 109	61*	40	19	47.9	39	14	60.1
179***	<i>Clear Fork</i>	41 ZV 304	66	47	18	45.7	44	15	61.4
180	<i>Clear Fork</i>	41 ZV 306	62	47	20	47.3	44	20	44.5
181	<i>Guadalupe</i>	41 UV 100	110	35	37	163.2	30	38	78.0
182	<i>Guadalupe</i>	41 ZV 291	65*	34*	24	57.7	*	*	*
183***	<i>Guadalupe</i>	41 ZV 291	97	30	29	91.2	24	30	65.7
184	<i>Guadalupe</i>	41 ZV 293	77	39	32	102.5	34	29	61.2

* incomplete measure

** mean spine-plane angle

*** illustrated; see text

TABLE 9. PROVENIENCE OF LITHIC TOOLS AND DEBITAGE*

	Site Numbers	41 UV 94	41 UV 97	41 UV 98	41 UV 99	41 UV 100	41 UV 101	41 UV 102	41 UV 103	41 ZV 290	41 UV 105	41 ZV 291	41 ZV 298	41 ZV 300	41 ZV 302	41 UV 109	41 ZV 303	41 ZV 304	41 UV 111	41 UV 112	41 ZV 306	41 ZV 310	41 UV 113	41 UV 114	41 ZV 320	41 ZV 323	IF	TOTAL
<u>Thin Unstemmed Bifaces</u>																												
Distal Fragments						1	1		1		1	1			1	3					1	1		2	1	1		15
Lateral/Medial Fragments		1	2		2	2						1	2	1		8	2			1	6	2	1	2	1			34
<u>Thick Bifaces</u>																												
Complete		2			1							2						1	1					1				8
Proximal Fragments		1					1					1																3
Distal Fragments		1				1									1	1								1				5
Miscellaneous Fragments			1			1										2							1					5
<u>Flint Bifaces</u>																												
Triangular								1													1						1	3
Irregular															1										1			2
<u>Utilized Flakes</u>																												
Trimmed								1	3	1		1																6
Untrimmed									1												1							2
<u>Ground Stone</u>																												
Flat																					1							1
Incised								1																				1

*except projectile points

Bifaces

Thin Bifaces

Thin bifaces are defined as having a thickness of 13 mm or less, with straight or only slightly sinuous edges as seen in lateral profile. Most are finely flaked and retain no traces of cortex. The quantitative distinction in thickness between thick and thin bifaces is essentially arbitrary, chosen mainly in accord with the analysis in the 1981 Chacon Creek report (Kelly *et al.* 1983). Thin bifaces are subdivided into "Stemmed" and "Unstemmed" categories. Those specimens that conform to accepted historical types are presented first within each group in approximate chronological order.

Thin Stemmed Bifaces

Although functional analysis has not been carried out, most of these artifacts are assumed to have been used primarily as projectile points. It is interesting to note in this regard, that wear-pattern analyses, such as those conducted by Ahler (1970), Zier (1978), and Brown *et al.* (1982) tend to indicate that a large percentage of projectile points may in fact have served more than a single function. Casual use of projectile points as cutting implements must have been common, as well as re-use of damaged points. Whether or not such tools were made with the intent of multifunctional use is a matter beyond the scope of this analysis.

Proximal fragments have not been separated from complete specimens (in fact, most specimens are fragmentary). Since the stem, base, and shoulders of a projectile point are normally the most important morphologically diagnostic features, it was felt that no purpose would be served by further divisions. For convenience, Thin Stemmed Bifaces are divided according to stem morphology: straight, expanding, and contracting.

Straight Stem

Specimen #1 (Fig. 6,A): Basal fragment. Blade appears to have been straight, although one edge is damaged. The base is convex, and the shoulders are weak. Patina is very dense on one face. The specimen conforms to specifications for the *Travis* type, a rather vague central Texas point type that tends to overlap with *Bulverde* and *Nolan* types (Johnson, Suhm, and Tunnell 1962:65). The *Travis* type is thought to be associated with the Early Archaic period (Suhm and Jelks (1962:251). More recently, Prewitt (1981:76) places *Travis* in the Middle Archaic, and Weir (1976:29) suggests rough contemporaneity with *Nolan* types.

Provenience: Nueces River terrace, 41 UV 101.

Specimen #2 (Fig. 6,B): The blade is triangular with reworked edges. The base is partially damaged, but appears to have been straight. Shoulders are strong. Some attempt at alternate beveling has been made on the stem. If beveling was

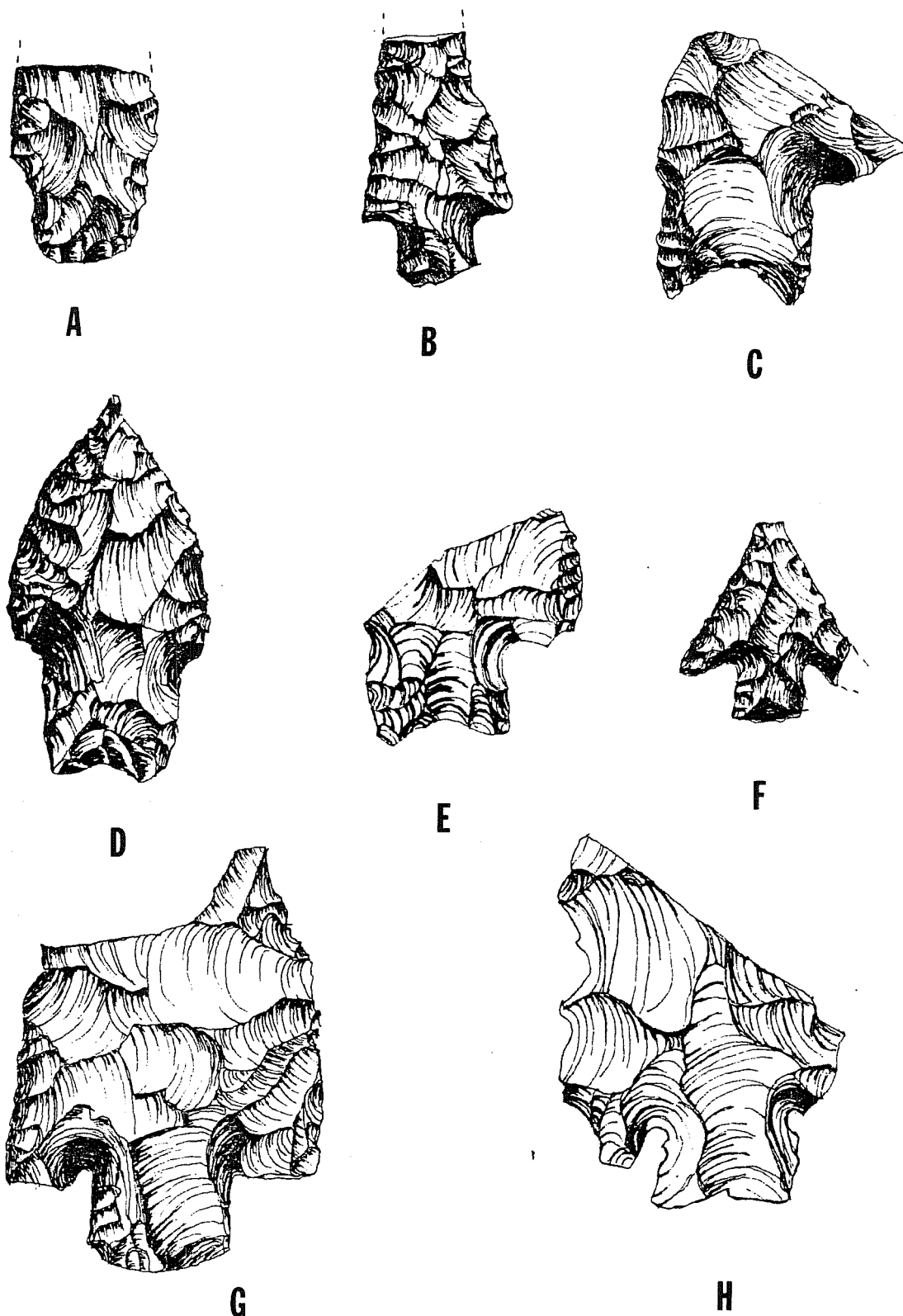


Figure 6. *Thin Stemmed Bifaces, Straight Stem.* A, Specimen #1, 41 UV 101; B, Specimen #2, isolated find near 41 ZV 322; C, Specimen #3, 41 UV 109; D, Specimen #4, 41 ZV 319; E, Specimen #5, 41 UV 79; F, Specimen #6, 41 UV 103; G, Specimen #7, 41 UV 101; H, Specimen #8, 41 UV 100. All artifacts illustrated actual size

more pronounced, the point would conform to the *Nolan* type, characteristic of the Early Archaic period in central Texas (Johnson, Suhm, and Tunne11 1962:25).

Provenience: Nueces River terrace, isolated find north of 41 ZV 322.

Specimens #3-5 (Fig. 6,C-E): All three specimens conform to the broad *Pedernales* type as defined by Suhm and Jelks (1962:235-237). Two are fragments with the base and part of one barb remaining. The basal indentation on both fragments is relatively shallow. Both specimens show moderate to dense patina formation. The third example is complete: it has no barbs and only moderate shoulders. The blade edges are recurved and come to a fine point at the distal tip, possibly indicating resharpening. *Pedernales* is the most common point type in central Texas (Weir 1976:110), indicative of the Round Rock phase of the Middle Archaic. Although much less frequent in southwest Texas (Johnson 1964:101-102), it is not uncommon close to the Balcones Escarpment, which forms the southern boundary of the central Texas cultural area. *Pedernales* points also form the predominant projectile point type at the La Jita site, 41 UV 21 (Hester 1971:77-79).

Provenience: 41 UV 109, 41 ZV 319, 41 UV 79.

Specimen #6 (Fig. 6,F): The blade is triangular and strongly barbed. The base is damaged, but seems to have been straight to slightly convex. The chert from which this specimen was manufactured is rather grainy: the material was subjected to heat treatment, presumably to enhance knapping characteristics. The specimen resembles the small, heat-treated *Shumla* points, described by Hester and Collins (1974), common in south Texas and associated with the Middle Archaic period (Johnson 1964:101).

Provenience: Nueces River terrace, 41 UV 103.

Specimens #7-8 (Fig. 6,G,H): Both specimens are fragments with the base and at least half of the blade remaining. The blades are wide and appear to have been convex. Specimen #7 has a slightly convex base with small thinning flakes removed from the basal edge; while the base of Specimen #8 is slightly concave and thinned by the removal of large channel flakes which follow up the stem and into the blade. These points resemble certain examples of the *Marshall* type, a broad-bladed central Texas point associated with the Late Archaic period (Suhm and Jelks 1962:211; Johnson, Suhm, and Tunne11 1962:121).

Provenience: Nueces River terrace, 41 UV 100, 41 UV 101.

Specimen #9 (Fig. 7,A): The blade is very long with convex edges which appear slightly recurved near the distal end. The edges are sinuous in lateral profile, the result of wide, shallow flakes removed during blade thinning. While there is no sign of beveling on the blade, the distal tip shows much finer flaking, and also, the recurve suggests resharpening. The stem is short and

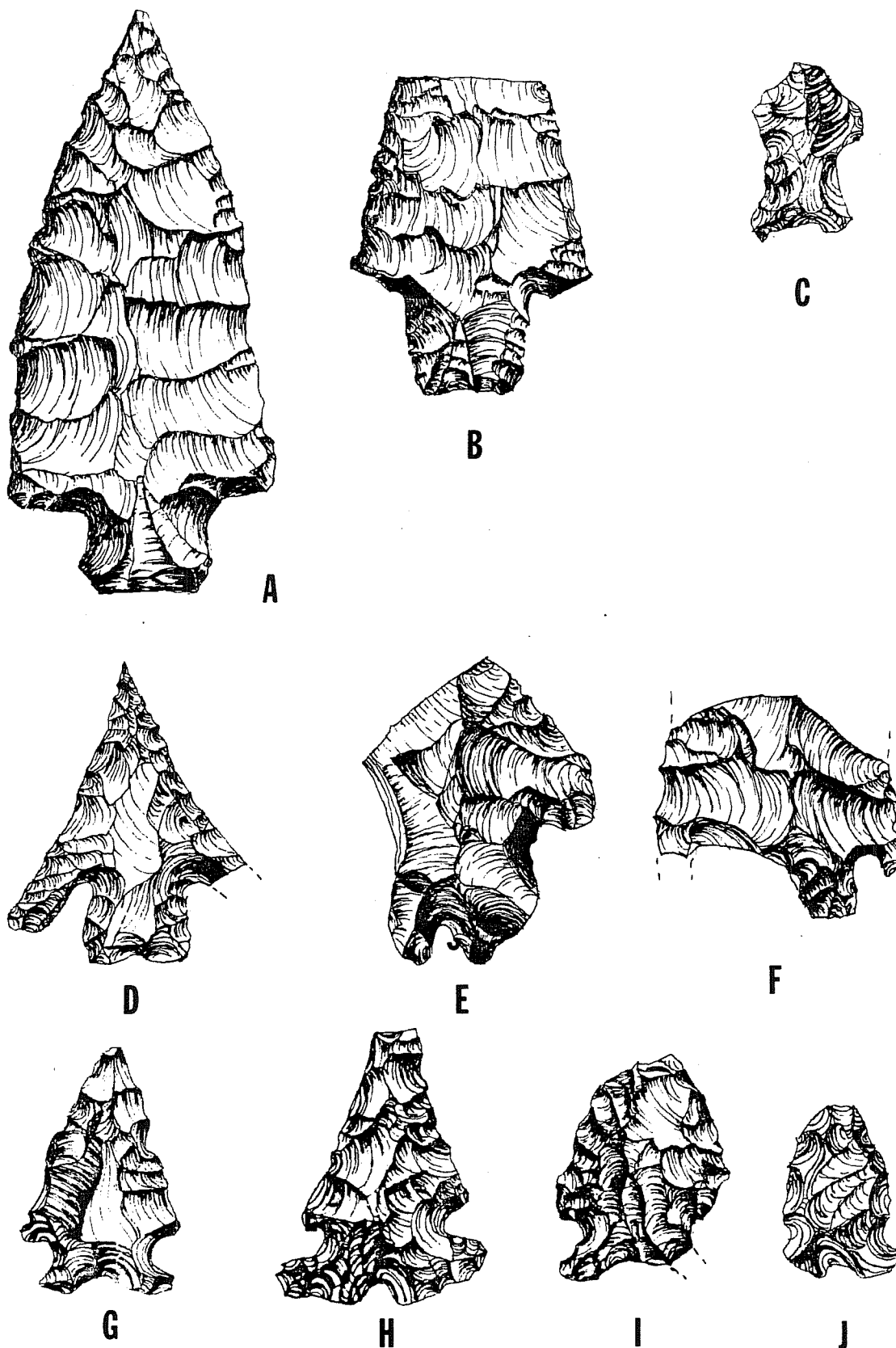


Figure 7. *Thin Stemmed Bifaces, Straight and Expanding Stem.* A, Specimen #9, 41 UV 109; B, Specimen #10, 41 UV 95; C, Specimen #12, 41 ZV 291; D, Specimen #14, 41 ZV 320; E, Specimen #17, 41 UV 97; F, Specimen #18, 41 UV 109; G, Specimen #19, 41 ZV 320; H, Specimen #20, 41 ZV 303; I, Specimen #21, 41 ZV 299; J, Specimen #22, 41 ZV 291. All artifacts are illustrated actual size.

the base slightly concave. Stem edges appear to have been ground. Judging from size alone, it is possible that this specimen was used as a knife.

Provenience: Windmill Creek, 41 UV 109.

Specimen #10 (Fig. 7,B): The blade edges are straight. A transverse snap fracture has removed the distal end of the blade. The base is slightly concave. Barbs were present at one time, but are broken off at the shoulders. The specimen is quite thin in cross section. Dense patina is apparent on both faces.

Provenience: Nueces River terrace, 41 UV 95.

Specimen #11 (not illustrated): The blade is convex, with a slight recurve near the distal tip, perhaps indicating resharpener. One barb is missing, the other extends almost as far as the base and is formed by a deep corner notch. The base appears vaguely convex. The specimen conforms to no known point type, but its size indicates probable use as an arrow point.

Provenience: Nueces River terrace, 41 UV 103.

Expanding Stem

Specimen #12 (Fig. 7,C): The blade of this specimen appears to have been damaged; large, irregular step fractures run across one face near the distal end. Moderate dense patination occurred after damage to the blade. The stem is long in comparison with the blade, and the base is concave. The shoulders are pronounced. Hester (1971:73, Fig. 10) has classified similar points as *Early Corner Notched*, although damage to this specimen is severe enough to discourage any attempt at definitive classification.

Provenience: Nueces River terrace, 41 ZV 291.

Specimen #13 (not illustrated): The blade of this specimen has been badly damaged. The stem is wide, relative to the apparent blade width, and expands only slightly. The base is straight and carefully thinned. Large barbs are indicated by snap fractures at the shoulders. Moderately dense patina is visible on both faces. The distal end shows nibbling, which apparently occurred after patination, suggesting re-use of the artifact well after its original discard. The specimen conforms to specifications for the *Bell* type diagnostic of the Early Archaic period in central Texas (Sorrow, Shafer, and Ross 1967: 12-14).

Provenience: Nueces River terrace, 41 UV 102.

Specimen #14 (Fig. 7,D): The most striking aspect of this specimen is the marked recurve of the blade edges, which produce a fine, sharp distal point. One barb is missing; the other is thin with a rounded end extending to the line of the base. The base has been thinned and is distinctly concave. A light patina covers most of the specimen, and there is evidence of heat treatment. The specimen is similar in appearance to the *Bell* type associated with the Early Archaic (Sorrow, Shafer, and Ross 1967:12-14), except that most *Bell* types do not display such a deep basal indentation and generally have thicker barbs. The specimen also resembles the *Shumla* type (Johnson, Suhm, and Tunnell 1962:63, Fig. 23). Hester and Collins (1974) have noted the high incidence of heat treatment to *Shumla* points in south Texas. *Shumla* points are generally associated with the Trans-Pecos area of southwest Texas, where it is indicative of the Middle Archaic period (Johnson 1964:43, 101).

Provenience: Windmill Creek, 41 ZV 320.

Specimens #15-16 (not illustrated): Both specimens are nearly complete with triangular blades; wide, convex bases; and deep corner notches producing prominent barbs. Neither specimen is patinated. Both conform to the *Castroville* type, a broad-bladed point characteristic of the Late Archaic in central Texas (Johnson, Suhm, and Tunnell 1962:121), but not uncommon in south and southwest Texas (e.g., Dibble and Lorrain 1968:51).

Provenience: Nueces River terrace, 41 UV 100, 41 ZV 291.

Specimens #17-18 (Fig. 7,E,F): Both specimens are fragmentary with little remaining of the blades. Several snap fractures have removed portions of the blade, stem, and barbs from each specimen. One specimen shows evidence of heat treatment. Both are classified as *Montell* on the strength of a deep basal notch. *Montell* is associated with the Late Archaic in central Texas (Johnson, Suhm, and Tunnell 1962:121). *Montell* and *Castroville* points were found associated with a bison bone concentration in Bone Bed 3 at Bonfire Shelter in Val Verde County, dated ca. 2650 B.P. (Dibble and Lorrain 1968:51).

Provenience: Windmill Creek, 41 UV 97, 41 UV 109.

Specimens #19-22 (Fig. 7,G-J): These four specimens vary markedly in appearance, but are placed under the rubric *Frio* type on the strength of a pronounced flared stem and recurved base. Specimen #20 is relatively thick with wide, asymmetrical stem tips. Specimen #21 is badly damaged; the blade appears to have been extensively reworked, and one stem tip is missing. Patination is dense on one face. This specimen bears some resemblance to the *Early Corner Notched* type (Hester 1971:71-73; Sollberger and Hester 1972:329-331), but surface provenience alone makes such classification difficult to support. The final two specimens show evidence of heat treatment. Specimen #22 is almost unifacial with a plano-convex cross section; additionally it is perhaps the most colorful point in the collection, a two-tone deep blue and brown.

There has been some debate over the distinction between the *Frio* and *Enson* types. For example, Specimen #19 fits Variety 2 described by Sorrow, Shafer, and Ross (1967:65, Fig. 38). Black (Black and McGraw 1982:165-166) has reviewed the confusion over these types and recommends using the shape of the basal edge as the distinguishing criterion: a recurved base indicates *Frio*, a straight base *Enson*. Black's procedure is followed here. Chronologically, the *Frio* type spans the Late Archaic period in central and southwest Texas (Suhm and Jelks 1962:195; Johnson 1964:84-85), and is reported along the southwest margin of the Edwards Plateau at the La Jita site as late as A.D. 950 (Hester 1971:121).

Provenience: Nueces River terrace, 41 ZV 291; Windmill Creek, 41 ZV 303, 41 ZV 320; Turkey Creek, 41 ZV 299.

Specimens #23-26 (Specimens #23-25 not illustrated; Specimen #26, Fig. 8,A): Only Specimen #26 is complete. Its blade is triangular and rather thick, and it is the only patinated specimen in this group. All specimens have straight bases with side notches angled slightly toward the base. The shoulders of Specimen #23 are very weak. Specimens #24 and #26 show evidence of heat treatment. These points conform to the *Enson* type, considered diagnostic of the Late Archaic period across much of central and southern Texas (Johnson, Suhm, and Tunnell 1962:121; Hester 1971:118). Hester (1978:10-11) has also noted the occurrence of *Enson* projectile points at the Chaparrosa Ranch in Zavala County.

Provenience: Nueces River terrace, 41 UV 103, 41 UV 105, 41 ZV 291.

Specimen #27 (not illustrated): The blade is triangular, shoulders are small and slightly barbed, and the base is gently concave, extending almost to shoulder width. This specimen conforms to the physical characteristics of the *Edgewood* type. *Edgewood* types are normally associated with the Late Archaic period in eastern and north-central Texas (Suhm and Jelks 1962:183). Similar specimens were recovered at the La Jita site (Hester 1971:118) nearby on the Sabinal River in Middle Archaic contexts.

Provenience: Nueces River terrace, 41 UV 100.

Specimen #28 (Fig. 8,B): Judging from the one remaining undamaged edge, the blade of this specimen appears to have had convex edges. The shoulders are slightly barbed, and the stem expands faintly near the base, which has been marginally thinned.

Provenience: Turkey Creek, 41 ZV 293.

Specimen #29 (Fig. 8,C): The blade edges are faintly convex, the shoulders are weak, and the base convex. The stem tips are squared off and do not reach shoulder width. The specimen is made of petrified wood. A large number of hinge and step fractures are visible across both faces, possibly a factor

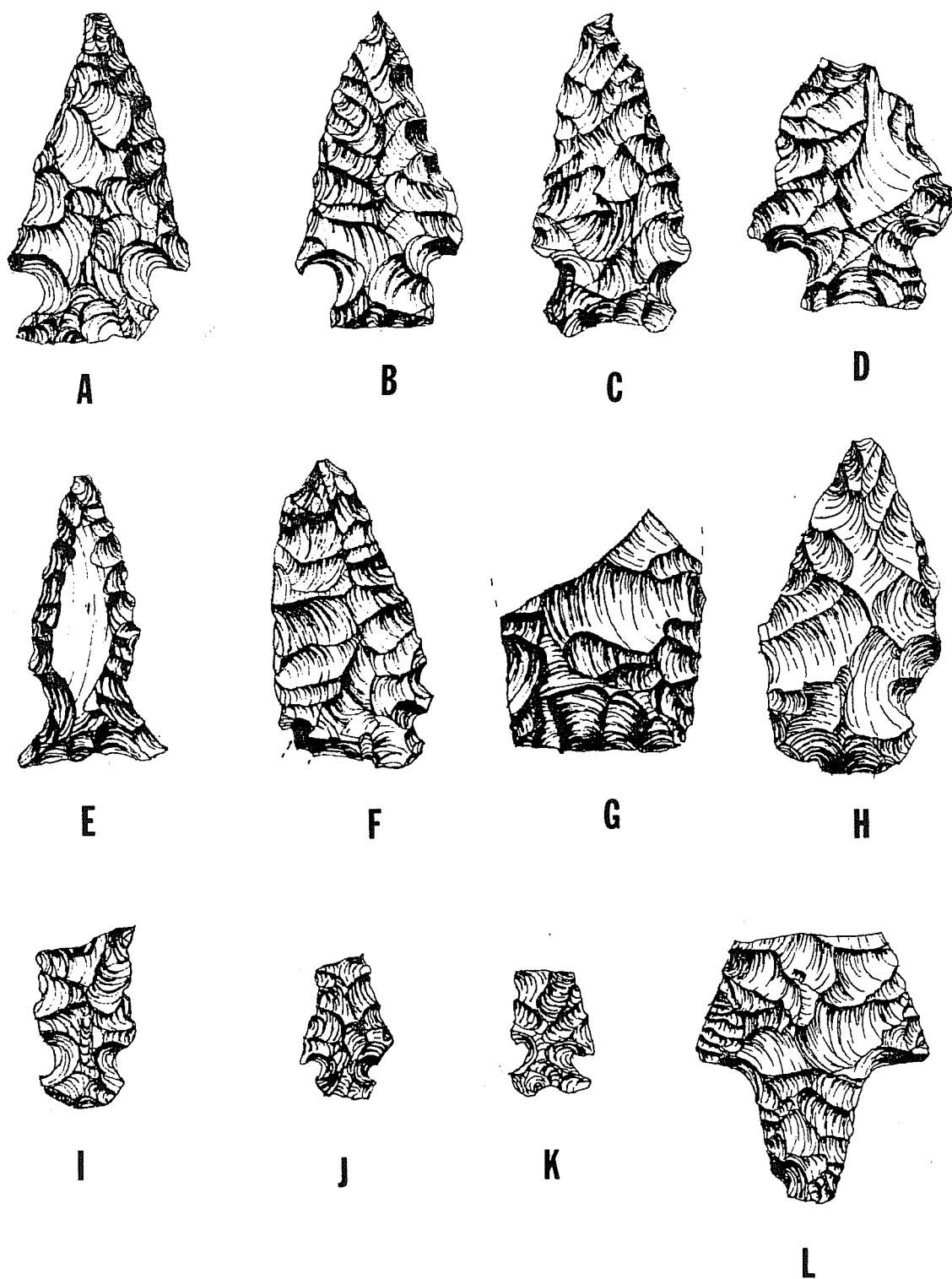


Figure 8. *Thin Stemmed Bifaces, Expanding Stem.* A, Specimen #26, 41 ZV 291; B, Specimen #28, 41 ZV 293; C, Specimen #29, 41 UV 108; D, Specimen #30, 41 UV 109; E, Specimen #31, 41 ZV 293; F, Specimen #33, 41 ZV 306; G, Specimen #36, 41 UV 109; H, Specimen #37, 41 UV 109; I, Specimen #39, 41 ZV 291; J, Specimen #40, 41 ZV 291; K, Specimen #41, 41 ZV 291; L, Specimen #44, isolated find near 41 ZV 318. All artifacts are illustrated actual size.

of the knapping qualities of the raw material (Kenneth M. Brown, personal communication).

Provenience: Windmill Creek, 41 UV 108.

Specimen #30 (Fig. 8,D): The blade of this specimen has been badly damaged, so that its original shape is impossible to assess. The shoulders may have been strongly barbed, but the barbs are missing. The stem flares moderately, and the base is slightly concave and narrower than the shoulder width. The specimen is glossy and a mottled pink and gray color, indicating heat treatment. Patina is dense on both faces.

Provenience: Windmill Creek, 41 UV 109.

Specimen #31 (Fig. 8,E): The blade of this specimen appears reworked: it is long and unusually narrow relative to overall size. A deep hinge fracture runs half the length of one face. Shoulders are all but undetectable, while the stem is widely flared and the base concave. The specimen is thickest at the neck of the stem, the base steeply beveled from that point on both faces.

Provenience: Turkey Creek, 41 ZV 293.

Specimen #32 (not illustrated): A rather eccentric looking specimen, with a long, narrow, straight-edged blade is probably reworked. The stem expands well beyond the width of the blade, shoulders are weak, the base recurved, and the stem tips bulbous. One blade face shows oblique flaking. Patination is dense on both faces.

Provenience: Windmill Creek, 41 ZV 306.

Specimen #33 (Fig. 8,F): Blade is triangular and shoulders weak. Most of the base is missing, although one corner remains showing a shallow corner notch. Fine oblique flaking is apparent on both faces of the blade. The distal tip is truncated: a short hinge fracture extends down one blade face from the snap break, suggesting impact fracture. The artifact appears waxy and is tinged pink, indicating heat treatment.

Provenience: Windmill Creek, 41 ZV 306.

Specimen #34 (not illustrated): The base of this specimen is partially damaged, but one edge appears straight. Irregular oblique flaking is noticeable on one face. The shoulders appear pronounced, but unbarbed. The base is concave, and the stem tips are missing. The specimen has been heat treated and is densely patinated.

Provenience: Windmill Creek, 41 UV 111.

Specimens #36-38 (Fig. 8,G,H; Specimen #38 not illustrated): These three specimens are probably preforms. All are formed by percussion flaking alone and show no obvious signs of wear on any edges. Specimen #38 is wide and thin, the distal end truncated by an irregular step fracture. Only Specimen #37 is patinated.

Provenience: Nueces River terrace, 41 UV 103, 41 UV 99, 41 UV 109.

Specimen #39 (Fig. 8,I): This specimen is small and fragmentary. The blade appears to have been quite long with straight edges. The shoulders appear weak; the stem is expanding, but the stem tips are truncated. A snap break runs obliquely across the distal end of the blade, from which a deep hinge fracture extends down part of the blade face, suggesting damage due to impact. The specimen has been subjected to heat treatment. Although it conforms to no known point type, this specimen is considered to be an arrow point on the basis of overall size.

Provenience: Nueces River terrace, 41 ZV 291.

Specimens #40-41 (Fig. 8,J,K): These two arrow point specimens conform to the *Edwards* type, as defined by Sollberger (1967, 1978). The blades are triangular; the shoulders are slightly barbed; and the bases are recurved. Both specimens are fragments. Hester (1971:115) indicates that the *Edwards* point may be the earliest arrow point type in the southwest Edwards Plateau based on data from an excavated context at the La Jita site.

Provenience: Nueces River terrace, 41 ZV 291.

Specimens #42, 43 (not illustrated): The blades of these arrow point specimens are triangular with slightly recurved and serrated lateral edges. The stem of Specimen #42 is short and expands slightly. Unlike Specimen #42, the stem of Specimen #43 has been truncated, but the specimen is grouped with #42 on the strength of blade shape. Hester (1971:69-70) has described similar points from Late Prehistoric contexts at the La Jita site and has proposed a new type, *Sabinal*. Hall (Hall, Black, and Graves 1982:295-296) reported a specimen similar to #42 at 41 MC 222 from deposits radiocarbon dated ca. A.D. 1275.

Provenience: Nueces River terrace, 41 UV 103.

Contracting Stem

Specimens #44-46 (Fig. 8,L: 9,A,C): These three specimens conform to the *Langtry* type, diagnostic of the Middle Archaic period in the Trans-Pecos region and often coincident with the *Shumla* type (Johnson 1964:38, 101; Word and Douglas 1970:28-29). All three specimens are fragmentary: two have transverse snap fractures truncating the blade, the other is missing one shoulder. On all three specimens the blade is very thin in cross section and

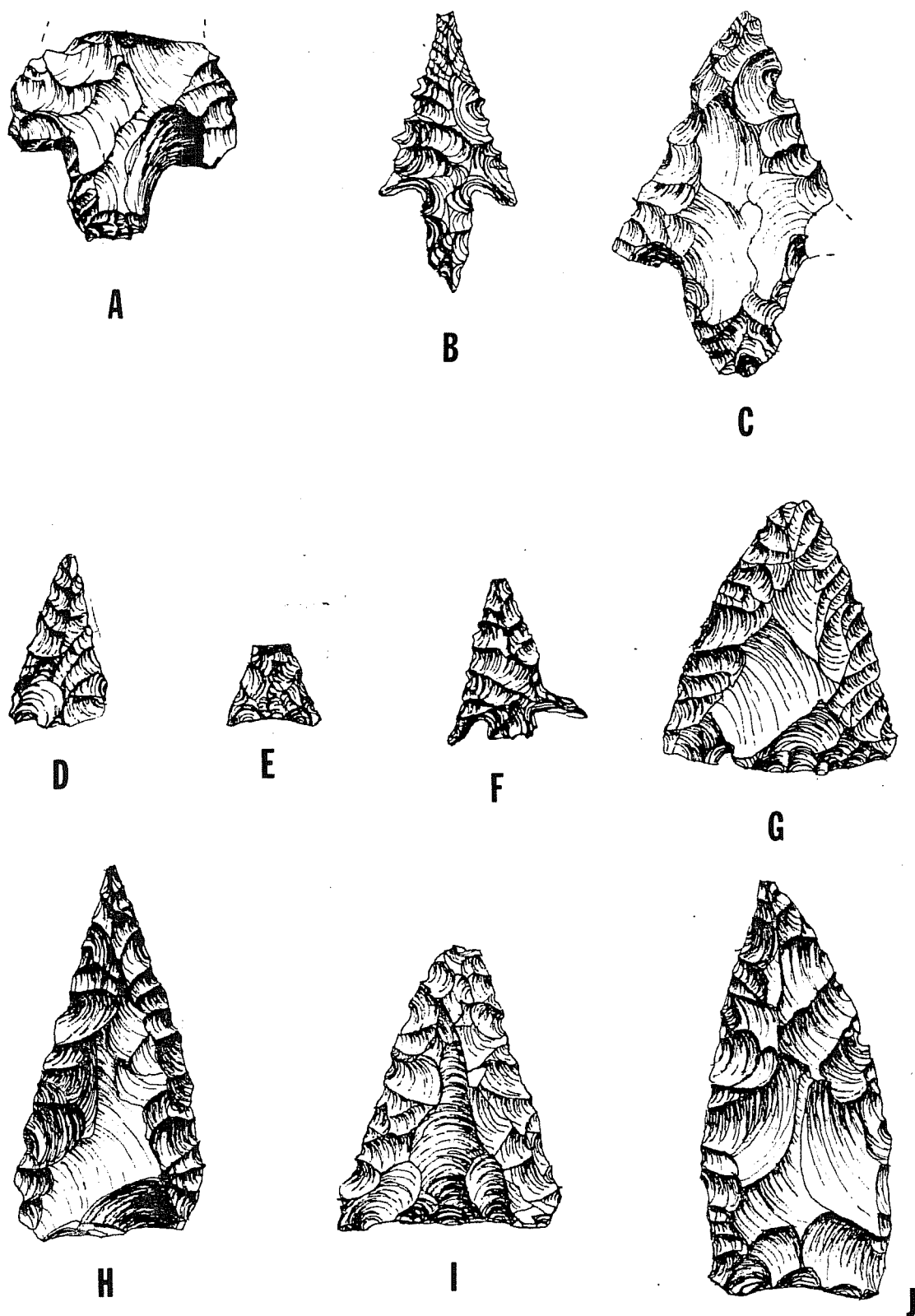


Figure 9. *Thin Stemmed Bifaces, Contracting Stem and Thin Unstemmed Bifaces, Complete Specimens.* A, Specimen #45, 41 UV 108; B, Specimen #49, 41 ZV 287; C, Specimen #46, 41 UV 79; D, Specimen #51, 41 ZV 291; E, Specimen #52, 41 ZV 291; F, Specimen #54, 41 ZV 321; G, Specimen #55, 41 ZV 307; H, Specimen #56, 41 UV 103; I, Specimen #57, 41 UV 98; J, Specimen #58, isolated find near 41 ZV 318. Artifacts are illustrated actual size.

appears to have been straight edged. The shoulders are broad--cut at right angles to the central axis, and stems contract markedly. Specimen #42 has an alternately beveled stem. Specimen #46 has the only undamaged base, and it appears slightly convex. Two of the specimens are patinated.

Provenience: Nueces River terrace, 41 UV 79; Windmill Creek, 41 UV 108; uplands west of Mustang Creek, isolated find.

Specimen #47 (not illustrated): This specimen consists of the stem and the shoulders of an unidentified point. The shoulders are weak, the stem contracts slightly, and the base has been snapped off. A transverse break apparently truncated the blade just above the shoulders. This edge was subsequently beveled to produce a gougelike bit, reminiscent of a miniature *Clear Fork* bit (see page 105). The edge is dulled, possibly indicating heavy use. The lateral edges of the stem are not ground or dulled as would be expected if the tool were used as a hafted gouge of some sort. An alternate explanation could be that the dulled bit end is actually the base, thinned down for hafting; while the apparent stem is in fact the distal portion of a perforator or drill, snapped off during use. Such a theory may be supported, in part, by patina which covers the artifact, including the facet produced by the snap break on the supposed drill bit.

Provenience: Windmill Creek, 41 UV 306.

Specimens #48, 49 (Fig. 9,B; Specimen #48 not illustrated): These specimens conform to the *Perdiz* type, characteristic of the later stages of the Late Prehistoric period across much of central and south Texas (Jelks 1962:24-26). Radiocarbon dates range from A.D. 1300 to A.D. 1650 (Hester 1977:33; Hall, Black, and Graves 1982:293). Montgomery (1978:31) places *Perdiz* points at the Mariposa site on the Chaparrosa Ranch at sometime after A.D. 1430. Both specimens have essentially unifacial blades with straight-edged, serrated blade outlines, pronounced barbed shoulders, and bifacially worked contracting stems. Specimen #48 bears a prominent ridge scar on one face, indicating that the artifact was made on a blade. Specimen #49 shows evidence of heat treatment.

Provenience: Nueces River terrace, 41 UV 103, 41 ZV 287.

Specimens #50-54 (Fig. 9,D-F; Specimens #50 and #53 not illustrated): These five specimens do not retain enough of their bases to allow classification, but are placed in this category due to size and general outline. Most have characteristics reminiscent of the *Perdiz* type. Specimens #50 and #53 have unifacial blades with serrated edges. They display a remarkable economy of effort in manufacture, because very few trimming flakes were removed from the original flake blank to produce the finished artifact. Specimen #50 shows evidence of heat treatment. Specimen #51 is the only specimen that does not have a truncated distal tip.

Provenience: Nueces River terrace, 41 UV 103, 41 ZV 291; Windmill Creek, 41 ZV 320, 41 ZV 321.

Thin Unstemmed Bifaces

This group includes both accepted historical projectile point types and other finished and unfinished tool forms. Complete artifacts are whole, non-fragmented specimens at any stage of manufacture. Completed artifacts are those in finished form. The determination of a completed form is often difficult to make. Callahan (1979:9, Table 1) has suggested a series of manufacturing stages based on a ratio of width to thickness, using data from the northeast United States. A standardized criterion such as this may be quite useful in some cases, but may have universal application only in a very broad sense, as localized or regional raw material types and knapping techniques may vary to produce changes in the demarcation of actual production stages. Ultimately, use may be the major determining factor in judging whether or not an artifact is finished. To make this determination, wear-pattern analysis would be required. In the present artifact analysis, macroscopic examination for edge-wear alone is assessed. If present, edge-wear is noted, but no attempt is made to determine its source. Thus, finished and unfinished artifacts are not classed separately.

Artifacts in the Thin Unstemmed Biface group are subdivided as follows:
Complete Specimens, Proximal Fragments, Distal, Lateral, and Medial Fragments.

Complete Specimens

Specimens #55-57 (Fig. 9,G-I): All three specimens are triangular in outline. Two display alternately beveled blades: Specimen #55 has a slightly convex base with an apparently fortuitous burin spall removed from the basal edge. Specimen #57 has a slightly concave base, and the distal tip has been broken off, leaving a small hinge fracture across one face. The bevel on this specimen occurred after patination, indicating that the artifact was re-used long after its original discard. Specimen #56 has a long blade and rounded basal corners. Artifacts with these general characteristics have been variously labeled *Tortugas* (Suhm and Jelks 1962:249), *Taylor* or *Baird* (Sorrow 1969), and *Early Triangular* (Hester 1971:79-80), but a firm type has yet to be established. Their chronological placement is equally unclear. A survey of the confusion over these "triangulars" is provided by Black (Black and McGraw 1982), who documents examples from the Panther Springs Creek site in Bexar County, 41 BX 228, recovered from Early Archaic contexts.

Provenience: Nueces River terrace, 41 UV 98, 41 UV 103; Windmill Creek, 41 ZV 307.

Specimen #58 (Fig. 9,J): The blade is long and convex with the lower portion contracting toward the base. The base is concave and slightly asymmetrical with thinning flakes removed, presumably to facilitate hafting. This specimen is like the *Kinney* type as described by Suhm and Jelks (1962:201) and is associated with the Middle Archaic period in south central Texas (Hester 1971: 118). Weir and Doran (1980:17-23) have proposed a new point type, *Anthon*, from specimens excavated at the Anthon site, 41 UV 60, which lies on a secondary terrace on the east bank of the Nueces River, about 500 m north of the present

survey area. Somewhat similar to *Kinney*, the *Anthon* type is described as having a fine, sometimes recurved, distal tip and a base "slightly canted to the longitudinal axis. The base is also moderately to extremely thinned" (*ibid.*:21). This type was associated with the Round Rock phase of the Middle Archaic in deposits radiocarbon dated between 3500 and 3000 B.P. Until resolved by further studies, it is unclear whether Specimen #58 represents a *Kinney* variant or is related to the newly proposed *Anthon* type.

Provenience: uplands west of Mustang Creek, isolated find.

Specimen #59 (Fig. 10,A): This specimen has a slightly convex blade, rounded basal corners, and a deep U-shaped basal notch. The blade is relatively thick and finely flaked, and the specimen shows evidence of heat treatment. The specimen conforms to the *Carrizo* type as described by House and Hester (1967), who noted that this type seems limited to a small portion of south and southwest Texas. Although most known examples are from surface collections, the *Carrizo* type is usually associated with Archaic assemblages (*ibid.*).

Provenience: 41 UV 111.

Specimens #60-63, 65-67 (Fig. 10,B,C; Specimens 60-63, 65 not illustrated): These seven specimens appear to be preforms, roughed out by percussion flaking to a general shape for later refinement into finished tool forms. The edges are irregularly sinuous, because of flaking techniques employed. Three are elliptical, three are oval, and one triangular. Two show some evidence of pressure flaking. One has been heat treated, and, judging from its size, may have been a large arrow point preform.

Provenience: Nueces River terrace, 41 UV 103, 41 UV 105, 41 ZV 291; Windmill Creek, 41 UV 109, 41 ZV 306; Turkey Creek, 41 ZV 292; uplands west of Mustang Creek, isolated find.

Specimens #68-73 (Fig. 10,D-I): Six small, thin, unfinished specimens presumed to be arrow point preforms range in shape from teardrop to triangular to rectangular. Bases are straight to convex. Two specimens are missing the extreme distal tip and are therefore technically proximal fragments, but were included in this grouping in consideration of overall appearance. Specimen #70 shows evidence of wear along the basal margin. Specimen #69 is patinated, while Specimen #73 shows signs of heat treatment. Specimens similar to these have in the past been considered finished arrow points and typed as *Granbury* (Jelks 1962:25-36), *Young* (Skinner 1971:182), and *Fresno* (Johnson, Suhm, and Tunnell 1962:27). While some examples of these types may indeed exist, none of the present specimens appear to be in finished form.

Provenience: Nueces River terrace, 41 ZV 291, 41 UV 115.

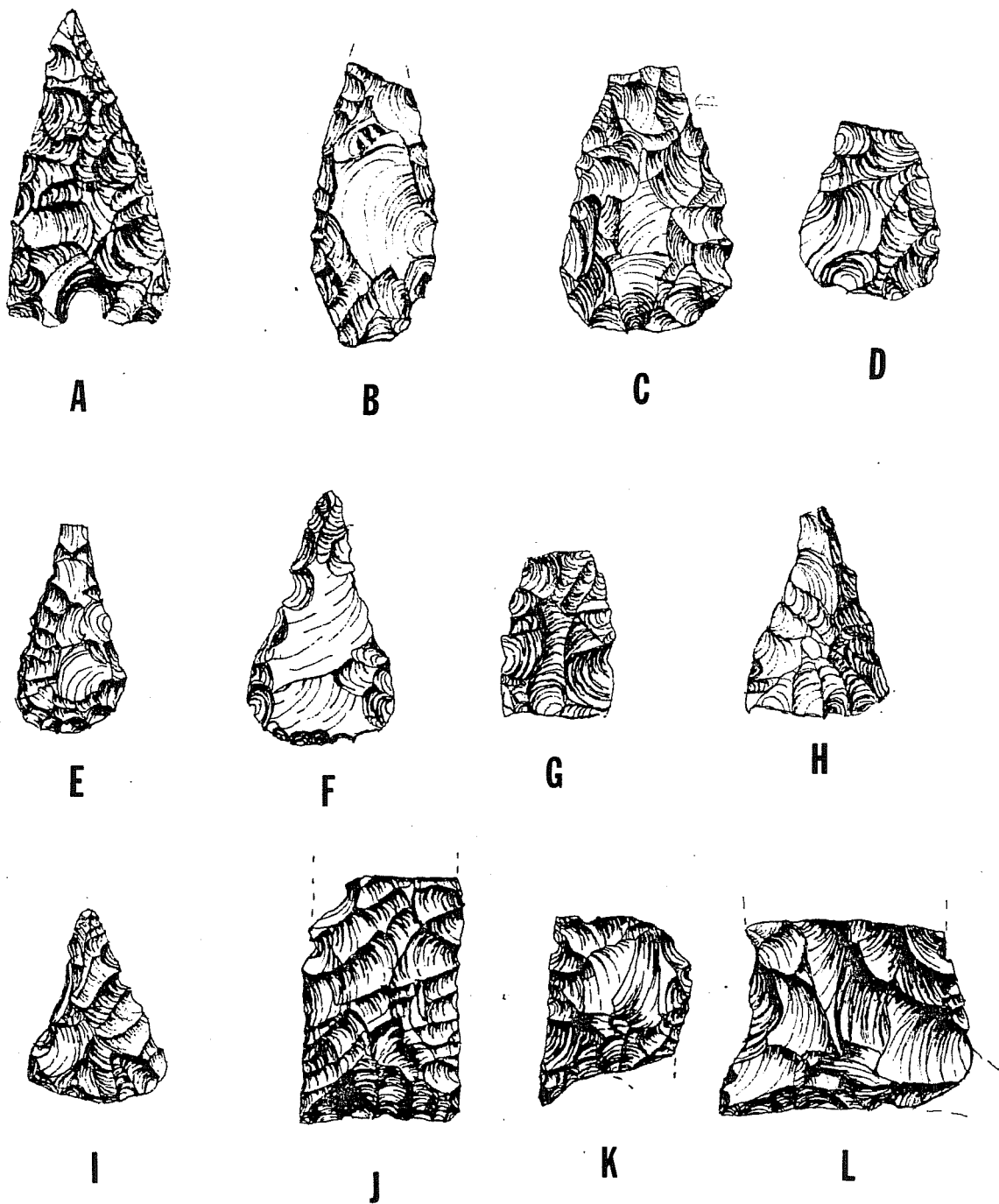


Figure 10. *Thin Unstemmed Bifaces, Complete Specimens and Proximal Fragments.*
 A, Specimen #59, 41 UV 111; B, Specimen #66, 41 ZV 306; C, Specimen #67, 41 ZV 306;
 D, Specimen #68, 41 ZV 291; E, Specimen #69, 41 ZV 291; F, Specimen #70, 41 ZV 291;
 G, Specimen #71, 41 ZV 291; H, Specimen #72, 41 ZV 291; I, Specimen #73, 41 UV 115;
 J, Specimen #74, 41 UV 109; K, Specimen #75, 41 UV 109; L, Specimen #76, 41 UV 100.
 Artifacts are illustrated actual size..

Proximal Fragments

Specimens #74, 75 (Fig. 10,J,K): Both specimens are fragmentary: blades appear to have been straight to slightly convex. The base of Specimen #74 is faintly concave, while that of Specimen #75 is quite deeply indented (at least 6 mm). Basal grinding is apparent on each specimen. Both show thin, lenticular cross sections, parallel transverse to irregular flaking, and dense patina. Both specimens conform to the *Plainview* type, diagnostic of the Paleo-Indian period across the Great Plains from Texas to southern Canada (Suhm and Jelks 1962: 239-240). Dibble (Dibble and Lorrain 1968:33) dates *Plainview* materials as early as 8200 B.C. at Bonfire Shelter in Val Verde County. Specimen #75 is similar to the basally indented *Plainview* specimens from San Isidro, a large surface site in Nuevo Leon, Mexico (Epstein 1969:29-32); while Specimen #74 is similar to the nearly straight-based "classic" type from the type site at Plainview in the Texas Panhandle (Sellards, Evans, and Meade 1947).

Provenience: Windmill Creek, 41 UV 109.

Specimen #76 (Fig. 10,L): This specimen is badly damaged. The one blade edge remaining suggests that the blade was recurved with a slight flare at the base. The base is also damaged, but may have been concave with a slight recurve near the basal corners. The specimen is quite thin, and basal grinding is evident. Although the specimen is damaged, it appears to conform to the *Golondrina* type, associated with the Late Paleo-Indian period in south Texas and northeastern Mexico (Hester 1980:139). Johnson (1964:46-52), who first recognized the type, refers to *Golondrina* as a variety of *Plainview*, differentiated by an expansion of the lateral edges near the middle of the blade, a deep basal indentation, out-flaring basal corners, and distinctive basal thinning. Subsequent work has shown *Golondrina* to be a separate and later type, dated at approximately 7000 B.C. at Baker Cave in Val Verde County (Word and Douglas 1970:101; Hester 1979:4).

Provenience: Nueces River terrace, 41 UV 100.

Specimen #77 (Fig. 11,A): The blade of this specimen is damaged, but the edges appear to have been convex, expanding outward from the base. Long, deep hinge fractures run down the lateral edges of the blade, suggesting that much of the observable damage was due to impact. A crystalline inclusion near the damaged tip may have served to weaken the blade. The base is narrow, slightly concave, and thinned by a steep bevel on both faces. Basal grinding is also evident. The specimen has been subjected to heat treatment. Paleo-Indian attributes, such as basal grinding, are apparent, but identification with recognized Paleo-Indian point types cannot be made. Resemblances (basal shape, thickness) are closest to the *Angostura* type (Suhm and Jelks 1962:167-168; Alexander 1963:513-515).

Provenience: Turkey Creek, 41 ZV 309.



A



B



C



D



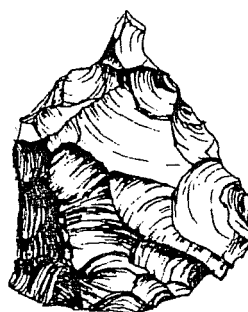
E



F



G



H



I

Figure 11. *Thin Unstemmed Bifaces, Proximal Fragments*. A, Specimen #77, 41 ZV 309; B, Specimen #78, 41 ZV 303; C, Specimen #79, 41 UV 98; D, Specimen #97, 41 ZV 298; E, Specimen #100, 41 ZV 319; F, Specimen #101, 41 ZV 291; G, Specimen #104, 41 ZV 291; H, Specimen #105, 41 ZV 295; I, Specimen #106, 41 ZV 101. Artifacts are illustrated actual size.

Specimen #78 (Fig. 11,B): Blade edges are convex; base is concave. An oblique snap break has truncated the blade. Flaking appears to have been mostly percussion. Nibbling and small step fractures are visible on the blade edges. In most aspects, the specimen fits the description of the *Kinney* type, associated with the Middle Archaic period in south and west Texas (Suhm and Jelks 1962: 201; Weir and Doran 1980:18).

Provenience: Windmill Creek, 41 ZV 303.

Specimens #79-89 (Figs. 11,C; 12,A,B; Specimens #80, 81, and 84-89 not illustrated): These eleven specimens are subrectangular in outline, their lateral edges roughly parallel and their bases straight to slightly convex. Specimens #79, #80, and #85 show evidence of pressure flaking; the rest are percussion flaked. Patina is visible on seven specimens, and five have been heat treated or burned. Eight specimens show wear on at least one worked edge.

Provenience: See Table 7.

Specimens #90-94 (not illustrated): These five specimens are subrectangular in outline. A distinguishing feature of the artifacts is pronounced alternate beveling visible on the blade edges. In all examples, beveling has been done on the left blade edge. All are basal fragments with transverse snap breaks truncating the blade. Wear is evident on all lateral and basal edges. The base of Specimen #93 has been resharpened by steep beveling. (For a full discussion of edge beveling as a resharpening technique, see Brown *et al.* [1982:33-34, 55-74].)

Provenience: See Table 7.

Specimens #95-100 (Fig. 11,D,E; Specimens #95, 96, 98, 99 not illustrated): These six artifacts have rounded bases and straight to convex lateral edges. All, except Specimen #99, show edge-wear. Specimens #97 and #100 are both finely pressure flaked. Three specimens are patinated. The base of Specimen #96 has been reworked after patination into a rough, scooplike shape.

Provenience: See Table 7.

Specimens #101-103 (Fig. 11,F; Specimens #102 and 103 not illustrated): These three specimens are long and narrow with irregular lateral edges and vaguely convex bases. All three are percussion flaked. Two have been heat treated. Specimen #103 shows bifacial lateral and basal edge-wear, and Specimen #102 shows unifacial wear along its base.

Provenience: Nueces River terrace, 41 ZV 291; Mustang Creek, 41 UV 114.

Specimens #64, 104-106 (Fig. 11,G-I; Specimen #64 not illustrated): These four specimens have straight to convex lateral edges and vaguely convex bases. They are distinguished from other thin bifaces in the collection because the

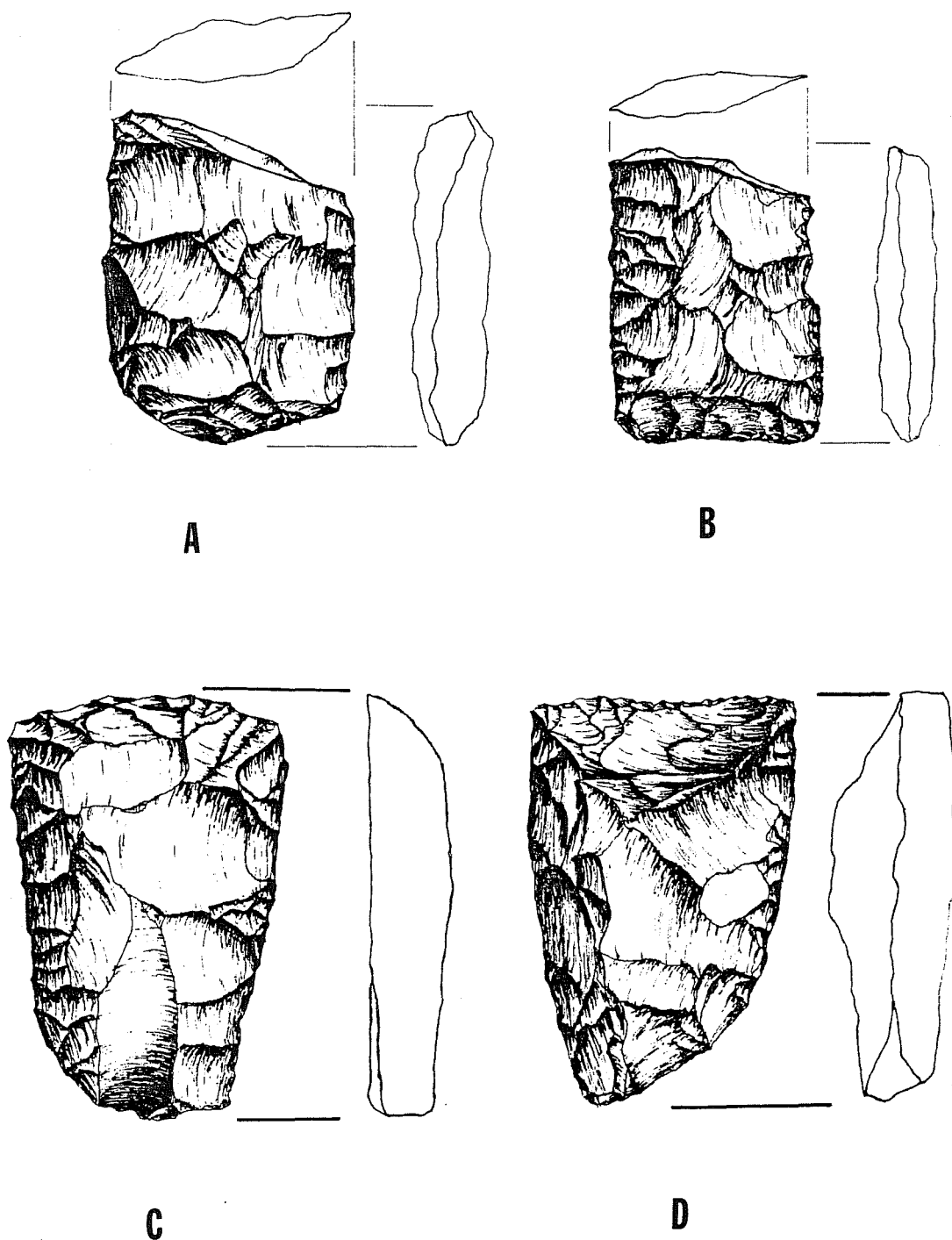


Figure 12. *Thin Unstemmed Bifaces, Proximal Fragments and Thick Bifaces, Distal Fragments.* A, Specimen #82, 41 ZV 291; B, Specimen #83, 41 ZV 292; C, Specimen #177, 41 UV 98; D, Specimen #178, 41 UV 109. Artifacts are illustrated actual size.

end assumed to be the distal end is constricted, therefore, forming a projection which may have functioned as a graver, perforator, or drill. Two of the specimens have been heat treated.

Provenience: Nueces River terrace, 41 UV 101, 41 ZV 291; Turkey Creek, 41 ZV 295.

Distal, Lateral, and Medial Fragments

Specimens #107-121 (see Table 9): Fifteen specimens ranging from long, thin, and finely flaked to wide with relatively rough percussion flaking were all formed by snap breaks at various angles across the original biface. It is impossible at this point to say whether breakage occurred during use, manufacture, or postdepositionally. Specimens #109, #116, #118, and #121 appear to be fragments from finished projectile points. Specimens #114 and #120 have rounded reworked tips, one of which is damaged by a small channel flake running from the distal end. Specimen #115 has lateral edges which appear slightly ground and is of the same general shape and heat-treated material as Specimen #178, a bifacial *Clear Fork* tool (described on page 105). Specimen #115 may represent a proximal fragment of a *Clear Fork* tool. Two specimens show edge-wear along a snap break, possibly indicating reuse. Specimen #113 has been extensively reworked along one lateral edge, thus, forming a new working edge on which considerable wear is visible. Fourteen of the specimens are of chert, one of siliceous quartzite. Two are lightly patinated, and two show signs of heat treatment.

Provenience: 41 UV 100, 41 UV 101, 41 UV 103, 41 UV 105, 41 UV 109, 41 UV 114, 41 ZV 291, 41 ZV 302, 41 ZV 306, 41 ZV 310, 41 ZV 320, and 41 ZV 323.

Specimens #122-155 (see Table 9): Of these 34 specimens, most appear to be from finished artifacts, because they are well flaked, relatively thin in cross section, and display varying amounts of edge-wear. Seven specimens are medial fragments from well-made, straight-edged bifaces. Five others are medials from small, lanceolate bifaces; four of which, Specimens #122, #134, #151, and #154, have flaking and relatively thick biconvex cross sections reminiscent of the Late Paleo-Indian *Angostura* type. Ten specimens are lateral fragments; three of these are apparently the corners from projectile points, retaining a small portion of the blade, barbed shoulder, and stem. On two specimens, one or more of the worked edges are beveled, in one case after patina formation. Two specimens show slight wear along snap breaks, possibly indicating reuse as an expediency tool. The rest of the specimens are irregular medial fragments. Of the total sample, three specimens show evidence of heat treatment, none are densely patinated, and thirteen lightly patinated.

Provenience: 41 UV 94, 41 UV 97, 41 UV 99, 41 UV 100, 41 UV 109, 41 UV 112, 41 UV 113, 41 UV 114, 41 ZV 291, 41 ZV 298, 41 ZV 300, 41 ZV 303, 41 ZV 306, 41 ZV 310, and 41 ZV 320.

Thick Bifaces

Thick bifaces are arbitrarily defined as being over 13 mm thick, shaped by rough percussion flaking, and having edges which vary from slightly to highly sinuous with little or no marginal trimming. The percussion flaking on this type of artifact is often referred to as crude. The relative nature of such a term has been stressed by Crabtree (1972:57), who points out that refinement or lack of refinement should be related to both the raw material of the artifact and the manufacturer's intent. Thus, poor quality raw material can influence the knapper's control during flaking, so that a crude looking artifact may represent actual skill in workmanship. Likewise, initial thinning in biface reduction, such as in the production of quarry blanks or preforms, is often accomplished by heavy percussion blows. While the resulting biface may appear crudely made, it is in fact only in the intermediate stages of production. Most of the specimens in the present Thick Biface category are examples of bifaces discarded in the initial stages of reduction because of flaws in the raw material or mistakes in manufacture. Thick Bifaces have been subdivided as follows: Complete Specimens, Proximal Fragments, Distal Fragments, and Miscellaneous Fragments. Measurements, when available, are given in the text.

Complete Specimens

Specimens #156-163 (Fig. 13,A,B,D): Eight specimens with moderate to grossly sinuous edges vary with the size of percussion flakes taken off in manufacture. None appear to be finished tools, and none show recognizable signs of edge-wear. Two are elliptical, four are irregularly oval, and two subtriangular. Four specimens are densely patinated, and three lightly patinated. Two show evidence of heat treatment. One specimen retains a small amount of cortex on one face. Another is relatively thin, with flat, straight edges: a high-backed knot on one face, preventing further thinning, may have caused it to be discarded. Lengths range from 51 mm to 81 mm (70.3 mm average), widths from 31 mm to 46 mm (36.6 mm average), thickness from 19 mm to 29 mm (19.6 mm average).

Provenience: 41 UV 94, 41 UV 99, 41 UV 111, 41 UV 114, 41 ZV 291, 41 ZV 304.

Proximal Fragments

Specimens #164-166 (Fig. 13,C): Two specimens have convex bases, and the other has an irregular concave base. Edge-wear is not readily apparent on any of the specimens. Two are biconvex and relatively thin in cross section and may have been discarded due to breakage during manufacture. The other is irregularly plano-convex, relatively thick, and made of chert which contains a number of odd-sized inclusions, perhaps hampering the thinning process. Two specimens are patinated, one densely. Measurements are incomplete.

Provenience: 41 UV 94, 41 UV 101, and 41 ZV 291.

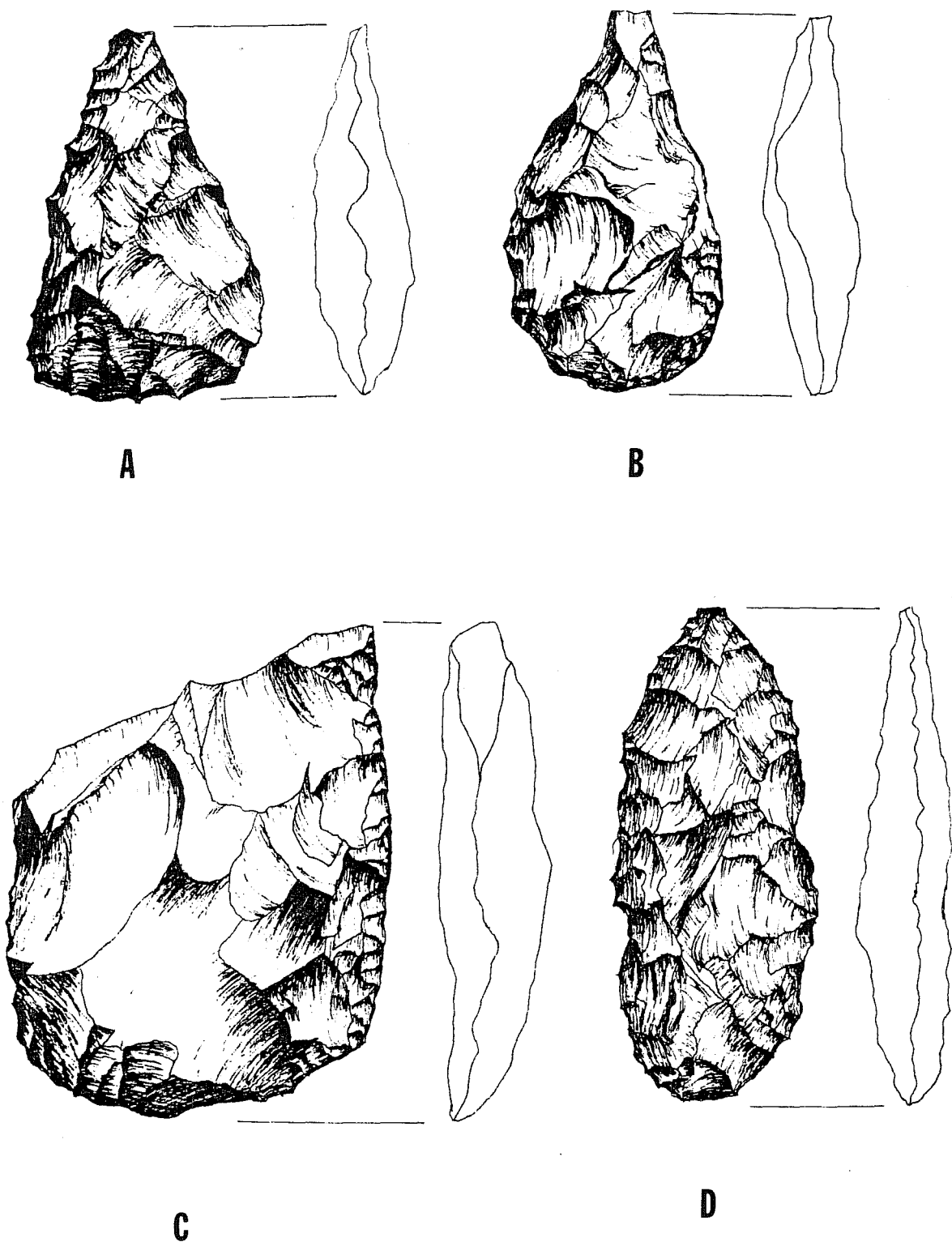


Figure 13. *Thick Bifaces, Complete Specimens, and Proximal Fragments.* A-C, 41 ZV 291; D, 41 ZV 304. See Table 9. All artifacts are illustrated actual size.

Distal Fragments

Specimens #167-171: Three specimens are pointed and show nibbling as evidence of possible wear along at least one edge. Four specimens are densely patinated, and two have been heat treated. One specimen retains a small patch of cortex at the distal end, and one is made of fossiliferous chert. Measurements are incomplete.

Provenience: 41 UV 94, 41 UV 100, 41 UV 109, 41 UV 114, and 41 ZV 302.

Miscellaneous Fragments

Specimens #172-176: Five specimens of irregular shape retain cortex of 10-20% on one face, two are densely patinated, and one has been heat treated. Only one specimen shows evidence of edge-wear. Measurements are incomplete.

Provenience: 41 UV 97, 41 UV 100, 41 UV 109, and 41 UV 113.

Distally Beveled Tools

This artifact type includes a combination of seemingly disparate forms grouped together on the basis of distinctive beveling along the distal or working end of the tool. Both bifacial and unifacial artifacts are included in this category. The placement of these artifacts into a separate group, as opposed to the appropriate existing groups (i.e., thick or thin bifaces or unifaces), follows the procedure in Hall, Black, and Graves (1982:318ff), in which distal beveling is considered the single most important descriptive attribute, overriding other morphological characteristics.

Specimens #177-180 (Figs. 12,C,D; 14,A): These four specimens conform to the tool type commonly known as *Clear Fork*, as described originally by Ray (1941). All have triangular outlines viewed from the dorsal surface. Three are unifacial with markedly flat ventral surfaces. Specimens #179 and #180 are unifacial and roughly trihedral in shape with a triangular cross section as viewed from the bit end. Specimen #177 is much flatter, its cross section appears trapezoidal. Bit angles (spine plane angle as measured with a goniometer) range from approximately 47° to 61°. Specimen #178 is bifacially worked and has a lensatic, biconvex cross section. Unlike the unifacial specimens, this example has a scooplike bit with an edge angle of about 60°. It is made of heat-treated chert and shows extensive lateral edge grinding, probably the result of hafting. Dulling extends only a few millimeters below the bit, suggesting that either the tool was hafted so that very little of the bit end was visible, or that it was resharpened numerous times, and eventually worn down to the haft.

Although a growing body of literature exists on the *Clear Fork* tool, its existence as a distinctive tool type is still somewhat unclear. No statement of typological definition, except the early attempts by Ray (1941), has been

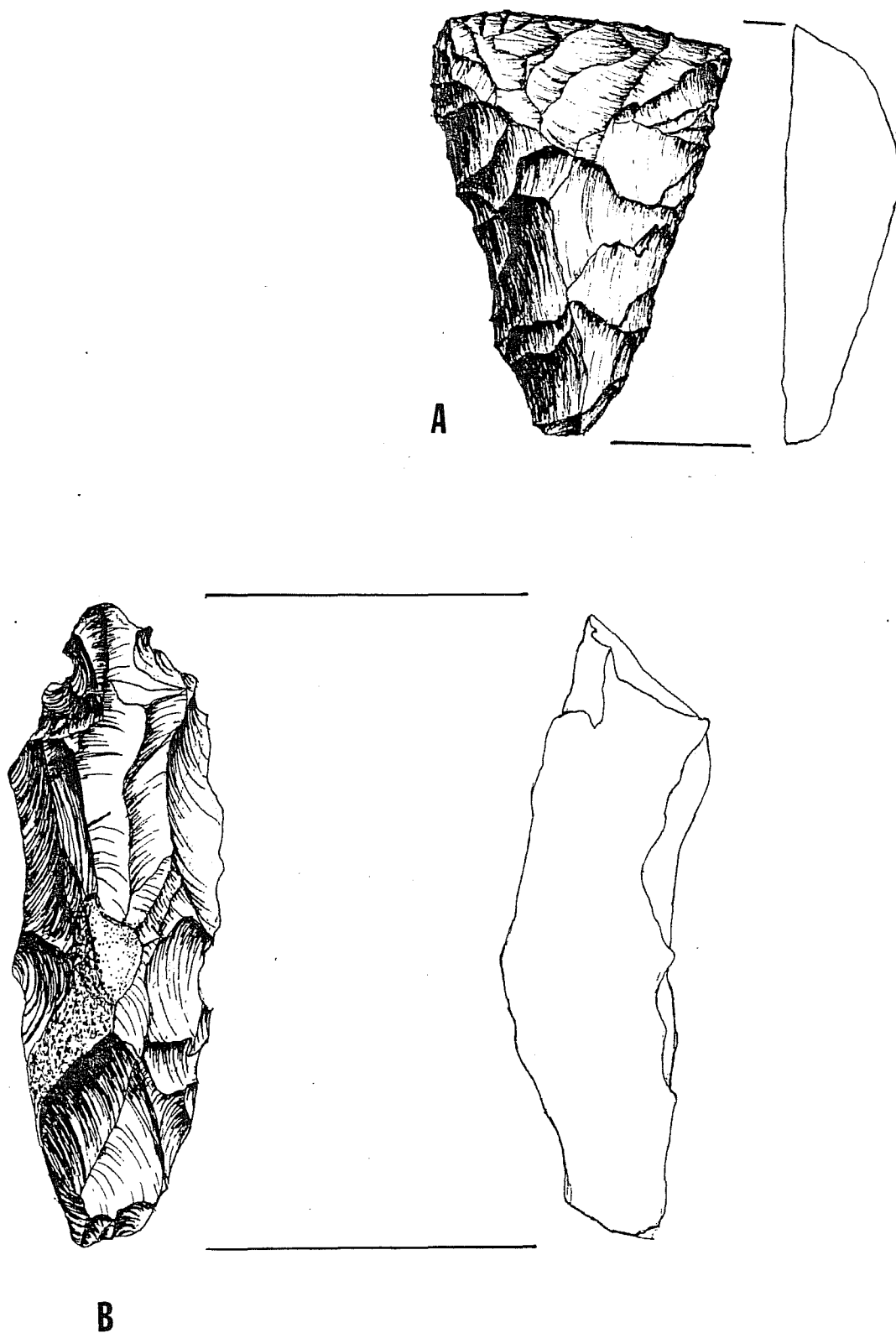


Figure 14. *Distally Beveled Tools*. A, Specimen #179, 41 ZV 304; B, Specimen #183, 41 ZV 291. All artifacts are illustrated actual size.

published. Furthermore, extensive functional analysis, including combined replicative experimentation and low and high power microscopic edge-wear analysis, has not been carried out. Analyses, such as those by Hester, Gilbow, and Albee (1973); Howard (1973); and Chandler (1974), have indicated the probability of use as a woodworking tool.

After reviewing the available literature on the subject, the following observations were made concerning the recognition of the *Clear Fork* as a distinctive tool type. *Clear Fork* tools are distinguished from certain other scraper and gougelike tools in that they represent a more formal tool form. For example, comparison of Specimen #177, a unifacial *Clear Fork* tool, with Specimen #194, a trimmed blade, shows a higher degree of preparation on the lateral and proximal surfaces of the *Clear Fork* tool, presumably as an aid to hafting (cf. Keeley 1982:801). Bit shape is another distinguishable attribute. The *Clear Fork* tool usually displays a straight-edged bit, as seen in dorsal profile. Similar scraperlike tools may have irregular or markedly convex bit outlines. Thus, Specimens #177 and #179 have been classed as *Clear Fork* tools, Specimens #185 and #186 as triangular bifaces.

It seems obvious, even in a small sample such as the present collection from East Chacon, that the designation *Clear Fork* does not represent a single, inclusive functional tool type. The bits of Specimens #177 and #178, for example, are quite different in shape: one is concave (and characteristic of bifacial *Clear Forks*), the other convex (characteristic of the unifacial variety). Although the bits have the same working angle, about 60°, they have different properties of contact with the material being worked. It should be possible to infer from this alone, then, that the two bit varieties were intended for different functions. This is hardly the place to attempt a refinement of the *Clear Fork* type. It is merely an opportunity to note again (cf. Shiner 1975; Hall, Black, and Graves 1982) the vagueness of the type and to indicate the need for a clearer definition based on functional analysis.

Considering the problems in defining the *Clear Fork* as an artifact type, it should not be surprising that cultural associations are still unclear. Similarly shaped tools have been noted in south and central Oklahoma (Bell 1957; Hofman 1977), in scattered locations in the Great Plains (Holder and Wicke 1949; Hughes 1980), and in southern Canada (Buchner 1981:48). Epstein (1969:119-120) reported bifacial *Clear Fork* tools in association with *Plainview* and *Lerma* points, and unifacial varieties with later materials at San Isidro in Nuevo Leon, Mexico. Similarly, in the Trans-Pecos area, bifacial *Clear Forks* are associated with *Plainview* materials and small unifacial *Clear Forks* with Middle Archaic *Shumla* and *Almagre* points (Epstein 1969:63; Johnson 1964:116-117). Black (Black and McGraw 1982) recovered small unifacial types from early levels at Panther Springs Creek, 41 BX 228. Hall (Hall, Black, and Graves 1982:344-346) noted an apparent size-age correlation in *Clear Fork* tools recovered in the Choke Canyon Reservoir in McMullen and Live Oak Counties, with larger unifacial varieties occurring early and smaller unifacial varieties later. Hester (1980:126) reported the occurrence of large unifacial types in early contexts in excavations at the Granberg II site (41 BX 271). Thus, chronological implications are vague at best. Bifacial *Clear Forks* may be indicative of very early, Archaic, or Late Paleo-Indian,

tool kits. The affiliation of unifacial varieties remains unclear (cf. Nunley and Hester 1975).

Provenience: see Table 8.

Specimens #181-184 (Fig. 14,B): These four specimens are examples of artifacts commonly referred to as *Guadalupe* tools, distinguished by their long, narrow outline and fat, triangular cross section. The distal end is beveled in the opposite direction from the bevel of the *Clear Fork* tool, i.e., the bevel angles inward from the dorsal to the ventral edge, so that, seen in lateral profile, the dorsal edge extends beyond the ventral. Small trimming flakes and edge-wear are usually visible on the archlike dorsal edge of the bit. In three of the specimens, the bevel is singly faceted, with a working angle ranging from 61° to 78°. One of these specimens is a distal fragment. The fourth specimen is short, has an irregular bit with no sign of wear, and is considered a proximal fragment. Three specimens retain cortex on the dorsal surface, and two are moderately to densely patinated. All appear to have been manufactured by the detachment of a tool preform from a prepared core; the distal bevel of the tool was formed by the original platform of the core. The tool was then bifacially trimmed and shaped, a process which removed the bulb of percussion (see Black and McGraw 1982 for a discussion of production techniques). Two specimens have relatively flat ventral faces, while two have convex ventral faces, perhaps indicating the shape of the core from which they were struck.

The *Guadalupe* tool is often referred to as a "gouge" or "adze," but as with *Clear Fork* tools, none have been subjected to systematic functional analysis. Until recently, the distribution of *Guadalupe* tools was thought to be rather limited, concentrated along the lower and middle reaches of the Guadalupe and San Antonio Rivers (Hester 1980:114). But in a recent review (Black and McGraw 1982) of the tool type, Black noted a wider distribution throughout much of south Texas. Although chronological placement is not absolutely clear, the *Guadalupe* tool is found in association with Early Archaic assemblages at Granberg II, 41 BX 271 (Hester and Kohnitz 1975; Hester 1980:126), and at Baker Cave in Val Verde County (Hester 1979).

Provenience: see Table 8.

Unifaces

A uniface is defined as exhibiting intentional retouch on one face only. Retouch is described as invasive, as opposed to incidental, because flake scars produced by the manufacturing process extend at least two-thirds of the way across the face of the artifact. Thus, it is possible to distinguish between unifaces, considered to be formal tool forms, and utilized or retouched flakes, considered to be informal or expediency tools produced to meet immediate needs.

Functional labels, such as scraper, are often given to these tool forms. While it cannot be denied that many did indeed serve such purposes, it is inadvisable to assume function from morphology alone. Thus, as noted above, such labels have been avoided.

Univaces are divided into Triangular and Irregular forms. A number of unifacial arrow points were noted in the collection, but because of general morphological similarities were included with the appropriate bifacial groups.

Triangular

Specimens #185-187: Specimen #186 is made of fossiliferous chert, retains a small patch of cortex on the dorsal surface, is densely patinated, and shows little evidence of edge-wear. Specimen #185 has a prominent dorsal ridge and may have been reworked after the formation of a moderate patina on its dorsal face. Specimen #187 is quite large and made of heat-treated chert. There are massive step fractures along its distal end, and nibbling is apparent along the lateral margins.

Provenience: Nueces River terrace, 41 UV 102; Windmill Creek, 41 ZV 306; Turkey Creek, isolated find.

Irregular

Specimens #188, #189: Both specimens are patinated and retain cortex on the dorsal face. Specimen #188 shows wear on approximately 60% of its edge. Specimen #189 has been partially truncated and shows little edge-wear.

Provenience: Windmill Creek, 41 UV 109, 41 ZV 320.

Utilized Flakes

As noted above, utilized flakes represent informal tools, formed by noninvasive marginal retouch. The only distinction made within this tool type is between purposeful flaking partially altering the shape of the original flake or blade, and retouch produced by use alone. While in some cases macroscopic analysis alone may be insufficient to make this distinction conclusively, in the present small sample, no such problem was encountered.

Trimmed Flakes

Specimens #190-195 (Fig. 15,A-C): Five of the six specimens are made on blades or bladelike flakes (a blade is usually defined as having a length at least twice that of its width). Three are complete with platforms and bulbs of percussion remaining. Two specimens are considered blades (notwithstanding, they are too short relative to width) on the basis of parallel flake scars characteristic of blade production (cf. Tunnell 1978). One specimen is a large flake,

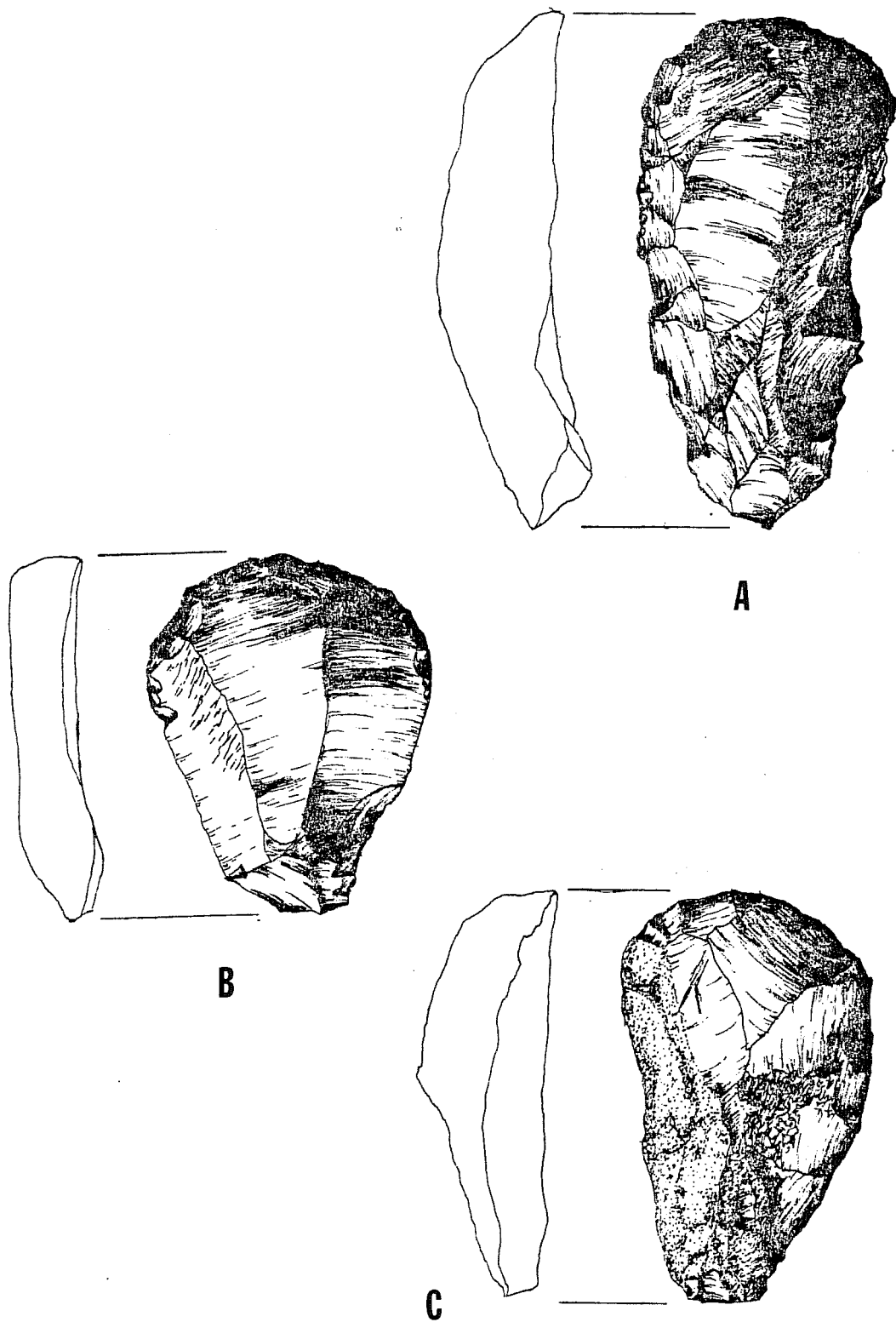


Figure 15. *Utilized/Modified Debitage*. A, 41 ZV 291; B, 41 UV 103; C, 41 ZV 290. All artifacts are illustrated actual size.

trimmed to a beaked projection at the distal end. Wear is evident on this specimen along the full length of both lateral edges. Two of the specimens are moderately to densely patinated, and three show signs of heat treatment.

Provenience: Nueces River terrace, 41 UV 102, 41 UV 103, 41 ZV 290, 41 ZV 291.

Untrimmed Flakes

Specimens #196, #197: One specimen is the proximal fragment of a narrow blade with a small, lipped platform and a single ridge scar on the dorsal face. The lateral edges of this specimen show edge-wear. The other specimen is densely patinated and truncated near the distal end. Edge-wear is present on the lateral edges and along the snap break.

Provenience: Nueces River terrace, 41 UV 103; Windmill Creek, 41 ZV 306.

Ground or Pecked Stone

Flat

Specimen #199 (see Fig. 16): This specimen appears to be a grinding slab made of dark gray to black basalt, fragmentary, and subrectangular. One end has been pecked into a well-rounded edge; the other is truncated by a slightly oblique break. The ventral surface is flat, and a ridge runs along the dorsal surface, giving the artifact an asymmetrically triangular cross section. Length is 109 mm (incomplete measurement), width is 96 mm, and the thickness is 27 mm. The dorsal ridge is heavily ground to an almost smooth surface; the faces planing off this ridge appear less worn. The flat ventral surface is lighter in color, possibly stained by soils in deposition. This surface is highly worn with a faint, oblong depression approximately 30 mm by 40 mm in the center.

The function of the object is not clear, and it is possible that the current identification of dorsal and ventral surfaces is incorrect. Such a hypothesis indicates the flat surface would have been the working surface with the ridge resting on the ground, perhaps worn by a rocking motion of the slab.

Provenience: Windmill Creek, 41 ZV 306.

Incised

Specimen #198 (see Fig. 17): This fragmentary specimen is made of dense gray limestone, oblong in shape, oval in cross section, and truncated across the long axis. Length is 83 mm (incomplete measurement), width is 56 mm, and the thickness is 36 mm.

The rounded end shows considerable battering, as if the artifact had been used as a hammerstone, either before or after its original deposition. The

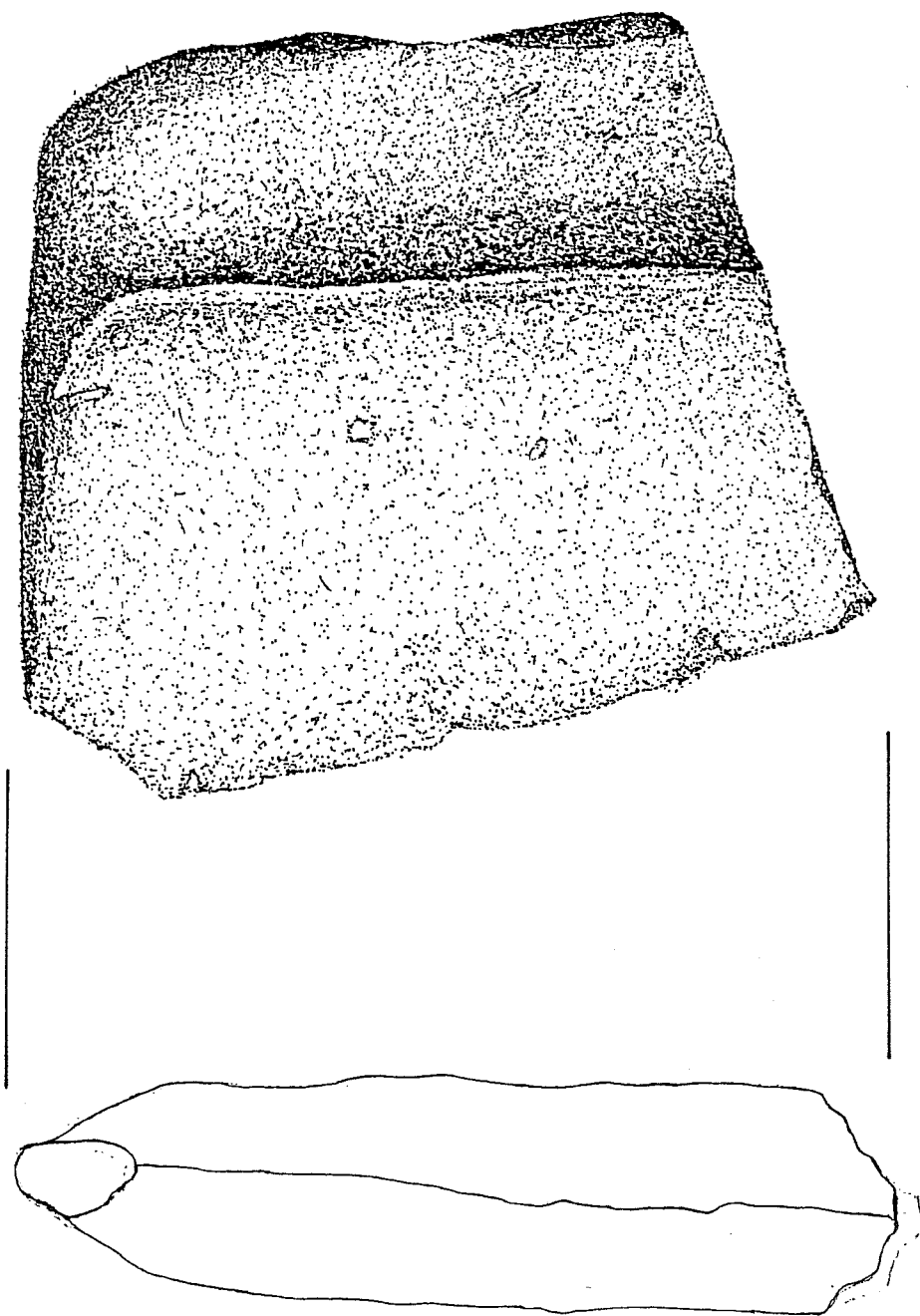


Figure 16. *Ground Stone Fragment, 41 ZV 306.*

truncated edge is rounded and worn on the ventral face, but sharp and unworn on the dorsal face. This effect may be due, at least in part, to uneven post-depositional wear. On the ventral face of the artifact, a series of eight parallel incised lines occur, offset approximately 15° from the long axis and truncated by the break. Their length varies from 24-32 mm (incomplete measurement), their depth is approximately 1 mm, and the width between lines varies from 1 to 2 mm. The lines are fairly regular in spacing and depth along the break, but become irregular as they trail away from the edge.

Similar artifacts from central, west, and south Texas have been described by, among others, Kelley (1948); Hill, House, and Hester (1972); Warren (1975); Beasley (1980); and Black and McGraw (1982). Almost all specimens reported are fragments, but appear to be of roughly similar dimensions. All but one are made of dense limestone--one small specimen of purple quartzite is reported from Webb County (Beasley 1980)--and all have oval to trapezoidal cross sections. The number of incised lines ranges from two to ten (five is a rough average), and they are set at various acute angles to the long axis. Some specimens have a deep groove perpendicular to the long axis on the dorsal, ventral, or lateral faces. This groove prompted Kelley (1948) to refer to some of these artifacts as arrow or dart shaft straighteners. But as yet, functional implications remain uncertain.

Examples from Dimmit, Zavala, and Val Verde Counties, described by Hill, House, and Hester (1972), are oblong with oval cross sections. Contexts for these specimens are ambiguous, ranging from Archaic to Late Prehistoric. Two examples recovered from buried context in the upper levels of a burned rock midden in Kinney County (Beasley 1980), were associated with *Enson*, *Frio*, *Edwards*, and *Scallorn* points. These specimens reported from Bexar County are also from a single site, 41 BX 228. They are plano-convex to trapezoidal in cross section, do not have grooves, appear reddened, and fire cracked. Found in association with burned rock middens, they are assumed to be related to uncertain Archaic assemblages (Black and McGraw 1982). The 1981 Chacon Creek survey (Kelly *et al.* 1983) recovered one example along Turkey Creek in Zavala County. It is trapezoidal in cross section and bears eight incised lines and no groove.

The current specimen adds little new information to what is known of these artifacts. Judging from published measurements, it is of average dimensions, but has more incised lines than most examples (but, notably, the same number as the example from the 1981 survey). It has no groove. The specimen was recovered along the Nueces River in association with mixed materials from the Late Archaic period and earlier.

INTERPRETATIONS

The archaeological and historical survey of the East Chacon project area has identified an extensive collection of materials and sites. Because of the predominance of prehistoric sites within the investigated area (the four recorded historic sites are discussed in the Site Descriptions section and Appendix II), this section will deal exclusively with a discussion of prehistoric data. A summary of site distributions throughout the 1981-1982 survey area in Uvalde and Zavala Counties will be presented from the perspective of major cultural periods. Additionally, inferences related to intersite and subsistence patterns, as well as post-field reinterpretations of postulated geomorphological developments, will be discussed. Following these data, the patterns of site distributions will be compared to the Chaparrosa Ranch, the Leona River drainage sites, and 41 UV 60, the Anthon site. Finally, general regional comparisons will be made to view the site distributions within the scope of a wider and more general scheme of hunting and gathering subsistence patterns.

Aboriginal site locations containing chronologically diagnostic materials along Turkey, Windmill, and Mustang Creeks and along the Nueces River are presented in Figures 18-21 (note that sites which do not contain diagnostic materials are not plotted on these figures). Figures 18-21 show the distinctive distributional variations through time of sites containing diagnostic materials. Paleo-Indian sites (Fig. 18) are the most poorly represented and occur in three distinct ecological locations: (1) along the mainstream channels of Turkey and Windmill Creeks; (2) within upland overlook points; and (3) along the terraces of the Nueces River. At these sites Late Paleo-Indian materials represent most of the artifacts recovered; and only one fluted point fragment, indicating a chronologically earlier site, was collected (at 41 ZV 285; identified by Kelly *et al.* 1983). The presence of this specimen and its associated site indicates at least some emphasis on upland resources or an exploitation of upland areas, possibly as hunting overlooks in conjunction with adjacent low-lying areas. It is believed the more frequent and diverse Late Paleo-Indian site locations within the study area represent an increase in the exploitation of the area as a whole; a diversification in the types of exploited resources compared to earlier times; or a prehistoric population increase possibly associated with the two previous speculations.

While no cultural materials of Paleo-Indian associations were observed in the vicinity of Green Lake, after studying aerial photographs it was thought that the formation of this water source developed during the terminal Pleistocene through a former channel of the modern Mustang Creek. It is thought this channel once flowed southwestward toward a confluence with Windmill Creek. Such an earlier drainage would have supplied a general source of water for the

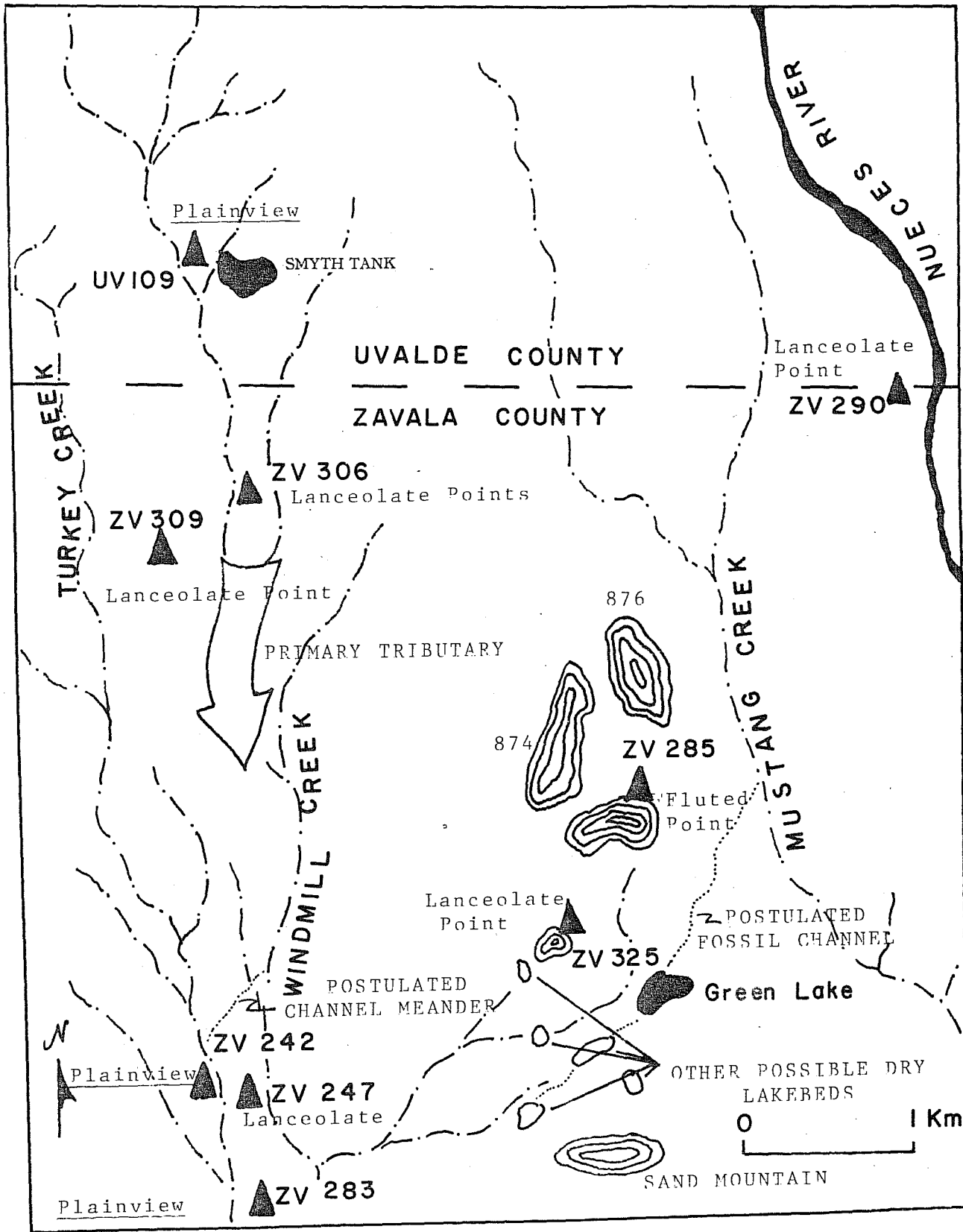


Figure 18. Distribution of Identified Paleo-Indian Materials and Associated Sites.

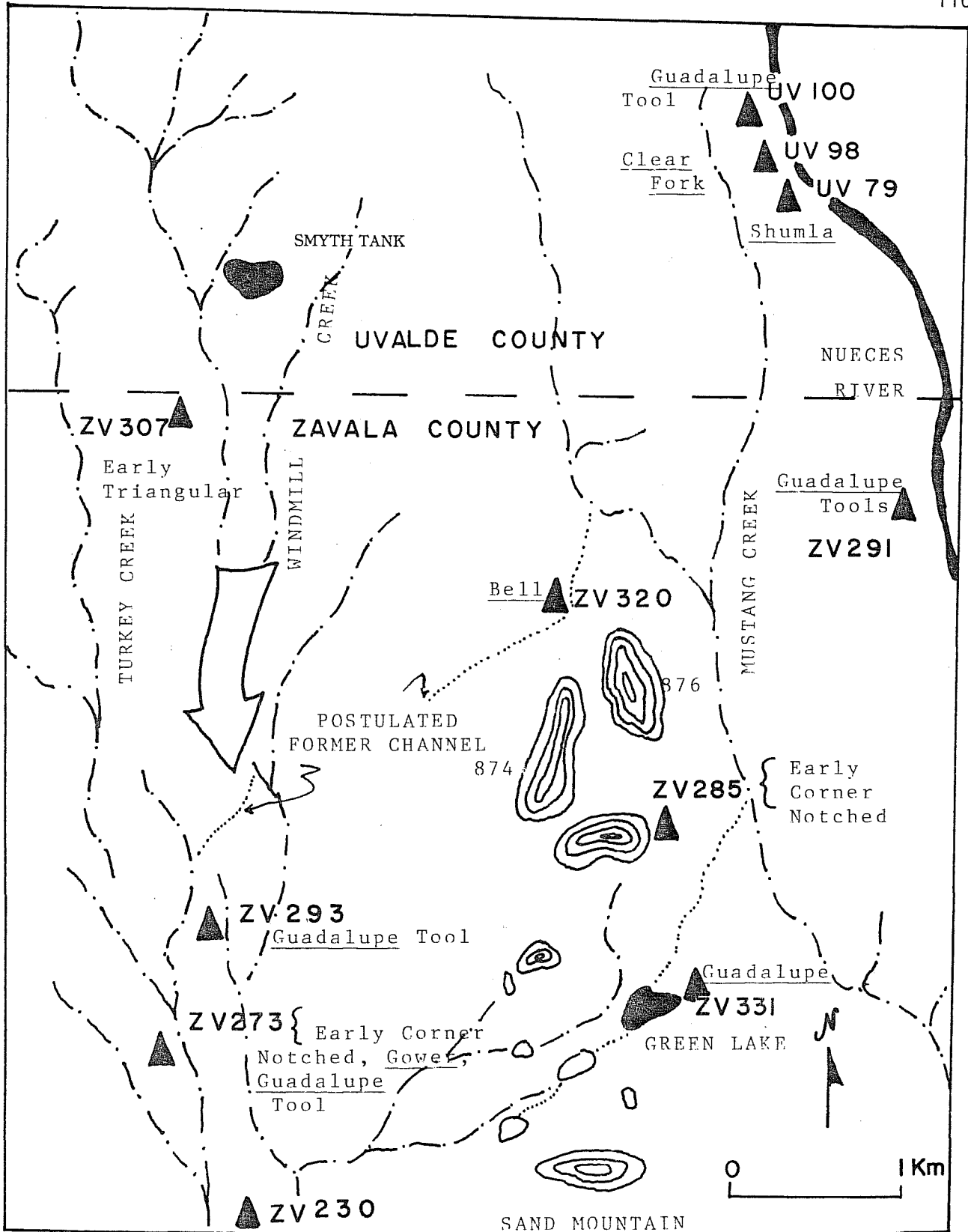


Figure 19. Distribution of Identified Early Archaic Sites in the Study Area.

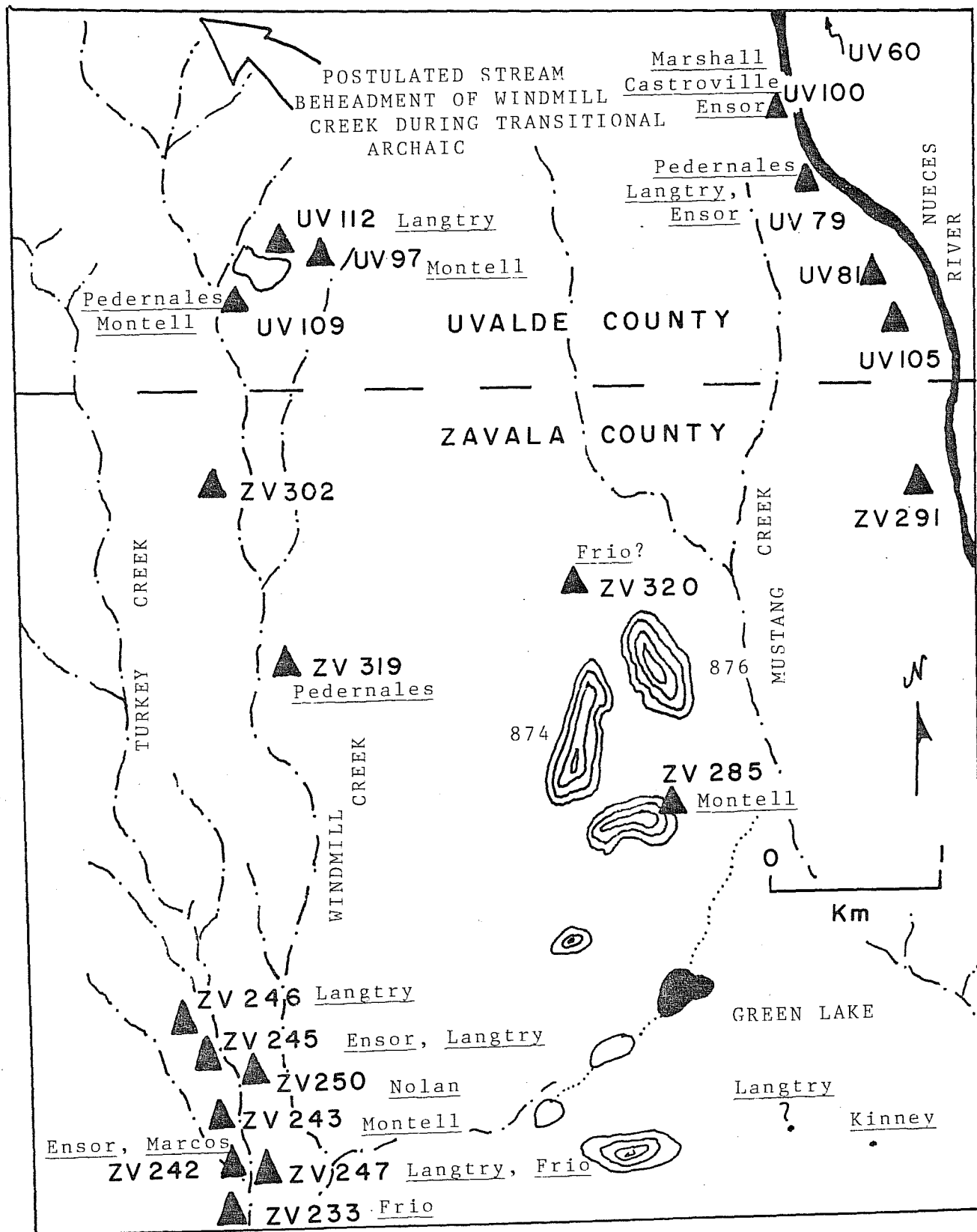


Figure 20. Distribution of Identified Middle Archaic Sites Within the Study Area.

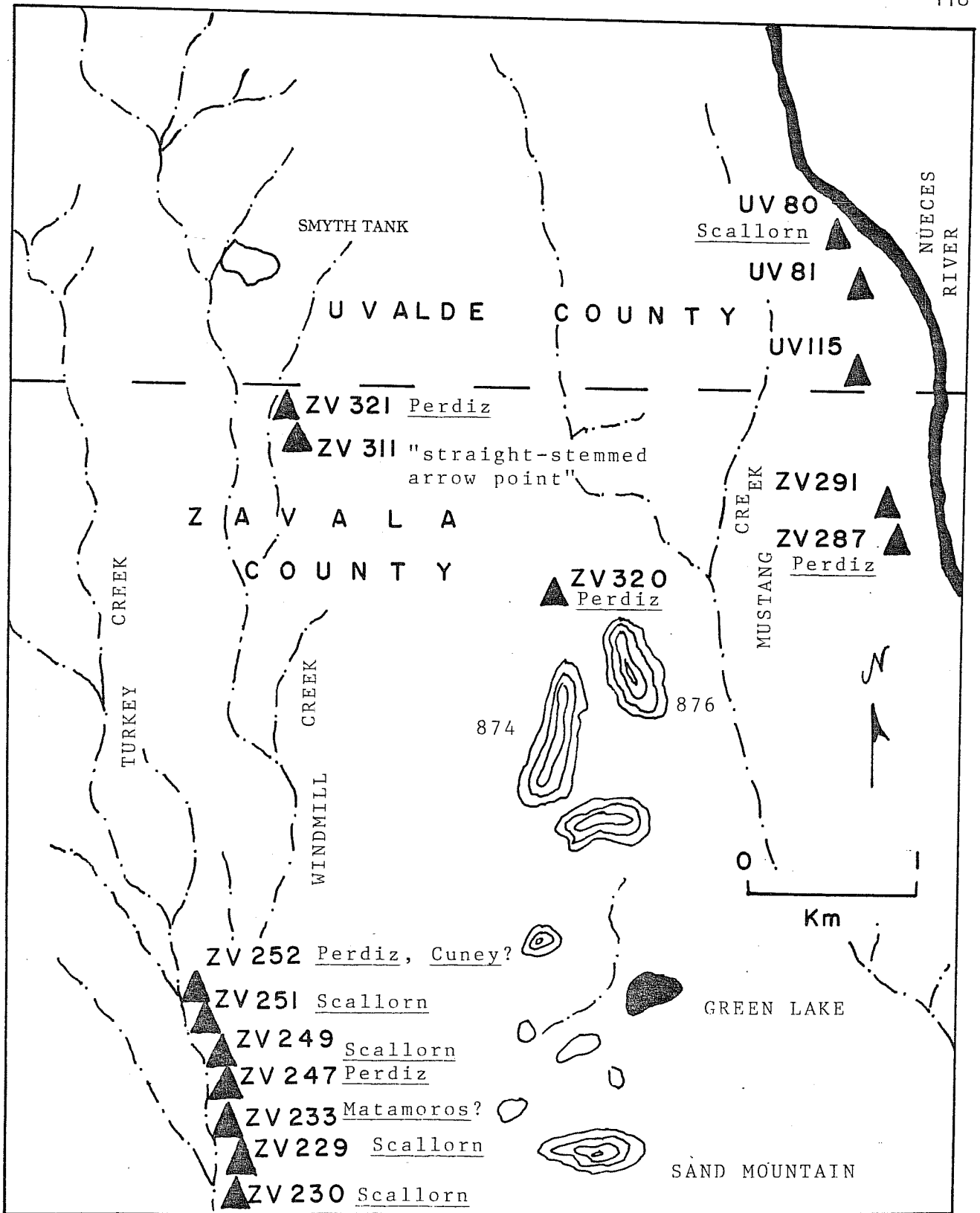


Figure 21. Distribution of Identified Late Prehistoric Sites Within the Survey Area.

playalike Green Lake and several other smaller, dry, lakebeds in the vicinity. The Paleo-Indian archaeological sites situated along the highpoints north of these lakebeds (41 ZV 285 and 41 ZV 325; see Appendix II) broadly overlook the entire low-lying lakebeds. Such conditions suggest an early and significant utilization of a previously unidentified ecological locality within the survey area. If true, the vicinity of the playa lakes may contain additional buried deposits of Paleo-Indian activities.

The lack of Paleo-Indian materials, as a whole, precludes interpretations on related sites, their distributions, and subsistence patterns. The limited physical evidence suggests an early, at least partial emphasis, on exploitations of uplands or upland resources, while toward the end of the regional Paleo-Indian period (ca. 6000 B.C.), archaeological sites apparently became more frequent and situated in more diverse ecological locations. Although not substantiated, it is thought that slowly changing subsistence patterns, such as a diversification of resource areas, may have affected these site distributions.

Early Archaic site localities associated with *Early Corner Notched*, *Gower*, and *Uvalde* projectile points, and *Guadalupe* tools continue to be located in the same areas as the former Late Paleo-Indian sites along Turkey Creek, near Green Lake, and along portions of the Nueces River terraces. There was, however, an apparent deemphasis of activity along the upper portion of Windmill Creek and an increased frequency of sites along the northern survey limits of the Nueces River. Shifts in tributary stream channels are inferred from the site location at 41 ZV 320; aerial photographs indicate a faint but distinctive band of riparian vegetation that runs northeast-southwest adjacent to and below the site. *Guadalupe* tools, generally associated with this time period, are related to water-proximate occupation sites; these artifacts do not occur in upland locations within the confines of the surveyed areas. A *Guadalupe* tool collected from the vicinity of Green Lake (41 ZV 331; see Appendix II) indicates prehistoric exploitation of this area presumably during periods when the playa lake acted as a source of water. Three Archaic sites along the terraces of the Nueces River, 41 UV 100, 41 UV 98, and 41 UV 79, suggest a more extensive exploitation of riverine resources during this time.

Early Archaic materials generally are scattered throughout mainstream terraces, along the river terraces, and in the vicinity of Green Lake. Very little identifiable Early Archaic material was discovered in upland contexts. In summary, Early Archaic site locations, like the former Late Paleo-Indian sites, may indicate an increase in the exploitation of specific, local ecosystems or ecological niches across the general survey landscape.

Middle Archaic occupation sites associated with *Pedernales* and *Langtry* projectile points primarily occurred along Turkey and Windmill Creeks and at 41 UV 79, along the Nueces River (see Fig. 20). *Langtry* points were found at three occupation sites along Turkey Creek as well as in an isolated context in flat uplands just south of Green Lake. The relatively small number of diagnostically identifiable, Middle Archaic sites is contrasted to their varying locations in distinct environmental contexts; areal exploitation appears both scattered and diffuse, perhaps implying a broad-based system of resource usage. The local manifestations of Middle Archaic cultural activities apparently represented the last episode of major activity in the vicinity of Green Lake.

The Late Archaic period is reflected by sites more southward along the Nueces River as well as other distinctive patterns of site distributions. A concentration of *Montell*-associated materials occurred in the vicinity of Smyth Tank in the northwestern section of the survey area, and a cluster of Late Archaic sites were also identified in the southwestern segment of the project area along Turkey Creek. The concentration of sites in this latter area indicates an increased emphasis on resources along portions of the Turkey Creek drainage. This activity is thought to be related, at least in part, to a postulated episode of stream piracy north of the survey area as Wood Slough beheaded Windmill Creek (see Environmental Background section). The diverted surface water would have flowed southwestward into the modern channel of Turkey Creek and would have caused a substantial increase in the capacity of the mainstream channel as well as the catchment area of the drainage. It may be significant to note that, except in isolated contexts, no sites associated with diagnostic materials more recent in age than (Late Archaic) *Frio* projectile points were recovered along Windmill Creek. The postulated stream divergence of Windmill Creek is thought to have occurred during the terminal Archaic, ca. A.D. 500.

By the end of the Archaic and the early Late Prehistoric period, it is thought the past broad-based resource subsistence pattern gradually shifted to an increased emphasis on local exploitation of specific areas. This was first observed in the distribution of terminal Archaic *Enson*-associated occupation sites along portions of Turkey Creek or along the large activity areas of the Nueces River. This pattern of site locations is unusually similar to early Late Prehistoric *Scallorn*-related sites that are also concentrated in the same locations of Turkey Creek and along the Nueces River. The inference being, apparently, that a pattern of resource exploitation developed during the Late Archaic and continued, as reflected by the similarity of site distributions, at least through the early Late Prehistoric period. The lack of cultural materials in upland areas during this episode may represent a marked emphasis on riparian associated resources. The distribution of *Perdiz*-related materials may be contrasted to this picture of distributional patterns; sites associated with *Perdiz* materials occur in upland contexts, mainstream tributary terrace contexts, and within the extensive occupation sites along the Nueces River. A *Perdiz* arrow point was also recovered as an isolated find in an upland context. While there is some distributional similarity of *Perdiz*-related sites to earlier occupations, *Perdiz*-related materials are apparently more widely scattered throughout the study area and sometimes occur in upland contexts. This may infer a generally similar but qualitatively distinct, pattern of resource exploitation during the Late Prehistoric period within an areal perspective. The lack of ceramic materials throughout the survey area, even within known Late Prehistoric site boundaries, suggests a distinctive sub-regional or local characteristic of the Late Prehistoric period. The recurring presence of straight-stemmed, corner-notched, arrow points somewhat similar to *Perdiz* (see Cultural Materials section) also suggests a poorly recognized and undefined Late Prehistoric cultural entity. While Kelly *et al.* (1983) specifically and others (e.g., Hester 1980) have identified some of these arrow points as *Bonham* or *Cuney*, the eastern Texas associations of these types within the study area have not been substantiated and in all likelihood, these point types represent a local manifestation of a poorly defined subregional type(s).

In summary, the prehistoric site distributions identified from the 1981-1982 archaeological surveys of the East Chacon project area represent a changing series of characteristics that are in a large part, dependent upon shifting hydrological patterns. The distribution of archaeological sites reflect broad-based trends and shifts of subsistence patterns through time, and the diachronic location of any occupation site reflects the exploitation of distinctive resources during that time. As such, the prehistoric sites of the survey area indicate an emphasis on locally stable water resources through time and, as such, also serve as an indicator of past hydrological patterns. From the distributions and interpretations of mainstream tributary and riverine terrace sites of the East Chacon project area, it is suggested that the riparian resources of these separate localities are (and were) distinctly different generally and quantitatively different specifically. In the light of these observations, it is suggested that such distinctive resources may indicate seasonal or otherwise chronologically different episodes of activities based upon the availability of resources in any given area.

In a broader areal or subregional context, the archaeology of the study area may be favorably compared to that of the Chaparrosa Ranch (Hester 1978; Montgomery 1978), ca. 10 km to the south. Similar to those of the East Chacon study area, the prehistoric sites in the Chaparrosa Ranch are characterized by: (1) a concentration of sites along mainstream drainages; (2) a general lack of ceramics in Late Prehistoric site locations; (3) a predominance of Late Prehistoric/Late Archaic materials and sites; (4) related or similar soil types; and (5) geomorphological stream shifts along Turkey Creek which are thought to be similar in scope to those identified in East Chacon. Hester (1978:44) suggested that, on the Chaparrosa Ranch, the current dendritic drainage pattern represented stream cutting of the past 2000 years. Studies of the East Chacon area suggest a dynamic evolving pattern of hydrological activities that included major channel shifts. The pattern of archaeological sites in the East Chacon study area suggests that, within the Chaparrosa Ranch location, unidentified sites may exist in upland areas once related to former (and as yet unidentified) stream channels, and that soil types of the Chaparrosa Ranch may provide a general indicator of the age of associated archaeological sites; i.e., soils overlying caliche being related to older sites. A distinction noted between the collection of surface materials from these two areas was the proliferation of the distally beveled *Dimmit* scraper tool type in the Chaparrosa Ranch area that was not as common in the East Chacon survey; such a distally beveled tool form might suggest a subregional variation of a more generalized tool form.

Several radiocarbon dates from the Chaparrosa Ranch at 41 ZV 83, at the Holdsworth and Tortuga Flat sites, (A.D. 1650, A.D. 1140-A.D. 1760, respectively) indicate protohistoric or early Historic (no evidence of European contact) sites. Considering the extensive occupations of the East Chacon study area and its proximity to the Chaparrosa Ranch, it is highly possible similar-aged Late Prehistoric/Historic sites exist along the floodplain of Turkey Creek or along the terraces of the Nueces River.

In comparison to the archaeological research conducted by Lukowski (n.d.) along the Leona River drainage (see Archaeological Background section) in Uvalde County, the East Chacon project area reflects distinct differences

in both the types and size of prehistoric sites. As noted earlier, no early intact materials were noted during testing of sites along the Eight Mile Waterhole. The occupations along this portion of the Leona River drainage consisted of Late Archaic/Late Prehistoric materials that overlie extensive gravel deposits. While Lukowski (personal communication) suggests earlier materials may have been destroyed by episodes of hydrological scouring, this geomorphological characteristic may also be related to massive changes in the hydrological pattern of the drainage, i.e., the formation of the waterhole itself.

The excavations reported by Weir and Doran (1980) at the Anthon site, 41 UV 60, brings an interesting perspective to the site distributions in the East Chacon area. Terrace level occupations relating to 41 UV 60 may tentatively be considered to contain Middle Archaic materials as the earliest intact deposits, and Neck's (n.d.) paleo-environmental reconstructions from this site suggest a well-developed woodland environment ca. A.D. 400 which gradually transitioned into a prairie-savannah condition by A.D. 1200. This may be related to the East Chacon area in which, during these times, there is a noticeable increase of terminal Archaic and early Late Prehistoric occupations along the Turkey Creek drainage. Neck's (n.d.) conclusions of an ecological shift to a prairie-savannah condition by ca. A.D. 1200 may be related to this report's speculation of a more diversified, broad-based resource exploitation pattern in the later episode of the Late Prehistoric period. Interestingly, Weir and Doran's (1980) tentative new projectile point type, the *Anthon* point, did not occur with any frequency in the 30,000-acre East Chacon project survey.

Regionally, the East Chacon survey reflects the complexity and ambiguity of the general archaeological record. Diagnostic materials such as *Langtry* points suggest a Lower Pecos influence although central Texas prehistoric materials predominate the artifact collections. Southern Texas materials are only modestly represented. Although Kelly *et al.* (1983) has identified certain arrow points collected during the 1981 survey as having eastern Texas affiliations, it is believed here these points represent only a subregional or areal, unidentified cultural entity.

The presence of other protohistoric sites regionally, for example, 41 LK 201 in Live Oak County, again suggests the possibility of similar, but as yet, unidentified early historical sites within the current study area. Highley (personal communication) has identified 41 LK 201 as containing ceramic material, *Perdiz* arrow points, bison bone, marine and mussel shell, and several unidentified expanding-stemmed arrow points. MASCA calibrated radiocarbon dates from the site have been assayed at A.D. 1590 \pm 60 (TX-4668) and A.D. 1470-1500 \pm 50 (TX-4667). No European contact materials, however, were collected from the site.

In conclusion, interpretations from the 1981-1982 surveys of the East Chacon project area have suggested a complex picture of prehistoric activities and site locations that are integrally related to a dynamic pattern of shifting ecological and hydrological resources. It is believed that while many of the interpretations presented here are speculative and cannot be totally substantiated by the limited physical evidence, they, however, represent a considered and realistic appraisal of the prehistoric development and significance of the study area.

RECOMMENDATIONS

The combined recommendations for the 1981 and 1982 surveys are presented in this section. In addition to, and beyond any specific assessments for potential site eligibility, this report will further make specific recommendations for future sites mitigation based upon studies of site distributions and other data presented in the Interpretations section.

A total of 149 prehistoric sites were identified and recorded during the 1981-1982 surveys of the East Chacon project. Seven archaeological sites were identified in 1981 as being potentially eligible to the National Register, and 11 sites were recorded during the 1982 survey. Additionally, one other site, 41 ZV 331, was determined to be of National Register eligibility (see Appendix II), and three other sites were recommended for further work.

The local soil conditions, characterized by high rates of aeolian soil deposits, have produced such erosional evidence on moderate to extensively buried cultural deposits that the actual significance (National Register eligibility) of many of the newly recorded buried sites could not be accurately assessed at this time, although they were identified per Texas Historical Commission criteria. Because this Phase 2 (for definition of Phase 2 testing see Appendix I) evaluation involved only a comprehensive surface survey with minimal time and monies for subsurface testing, a determination of National Register eligibility for these sites would best be decided by future subsurface examination. Sites have been ranked according to three categories, A, B, and C, depending upon their estimated potential archaeological value.

Sites placed in Category A are believed to have the necessary qualities and archaeological importance to be nominated to the National Register of Historic Places. Only subsurface testing will verify whether or not National Register criteria are present. Standard hand-excavated units will normally be required, but could be supplemented by subsurface testing at some of the very large sites by careful use of backhoes and mechanical augers. If found to be of National Register quality, these sites will require either mitigation through excavation or protection and preservation.

Sites ranked in Category B are considered important enough to require limited subsurface testing for more archaeological information, and some will, probably, be found important enough to be upgraded to a Category A classification. In most cases, the limited testing should provide adequate investigation for the site. Testing by mechanical means may supplement evaluation of some of these sites.

Sites ranked as Category C are considered to have been adequately investigated through the site survey activities. They will provide valuable settlement and special activity data, but are not considered worthy of further time or funds. Factors placing sites in this classification are destruction and displacement by natural causes (slope wash, flooding, etc.), extensive damage by relic collectors (interviews with local collectors), and modification by modern activities such as farming, tank, and road building.

By far, the greatest number of buried sites occur along the Turkey Creek drainage, the terraces of the Nueces River, and along portions of Windmill Creek. As noted in the Interpretations section, sites located along mainstream tributary channels are qualitatively distinct from river associated sites. As such, and beyond any current assessments of National Register eligibility, further recommendations will be suggested later in this section regarding future work at Category B sites in these localities.

Site Recommendations for the 1981 Survey of the East Chacon Study Area

A total of 75 archaeological sites were identified in the East Chacon study area during 1981. Seven recommendations for further work based on potential eligibility to the National Register were made (see Tables 10 and 11). Additionally, 26 other sites (Category B) were recommended for limited testing based on the potential for significant, buried site deposits. The numbers of sites, per drainage area, are tabulated in Table 11.

Following a detailed records search and site distributional analysis after the 1982 field work, six additional archaeological and three historical sites were located in the 1981 survey area. A detailed individual site description of these locations is presented in Appendix II. The three historical sites, 41 ZV 326, 41 ZV 327, 41 ZV 328, (the Herd Windmill area, the Washer location, and Turk's Ranch area, respectively), are recommended for further archival research to determine if they are of potential National Register quality. One prehistoric site, 41 ZV 331, in the vicinity of Green Lake, is considered to be potentially eligible to the National Register of Historic Places. No other sites found at this time are recommended for further work. (These latter archaeological and historical sites are tabulated in Table 12.)

The Turkey Creek Drainage Sites

Thirty-three archaeological sites were recorded along the margins of the Turkey Creek drainage during the 1981 field season. Of these, eight were eventually determined to be beyond the boundaries of the current study area. Based on the significance and frequency of collected cultural materials, seven sites (41 ZV 219, 41 ZV 230, 41 ZV 236, 41 ZV 247, 41 ZV 251, 41 ZV 273, and 41 ZV 283) were assessed to be of potential National Register quality, and further testing was recommended. Additionally, 18 other site locations were found to contain moderate to extensive subsurface deposits, and no accurate determination of potential National Register eligibility could be made (see Table 10).

The Nueces River Terrace Sites

Fifteen sites were identified along terraces of the Nueces River. Twelve of these were recorded in Zavala County and four in Uvalde County. All recorded sites in Uvalde County were determined to be beyond Kelly *et al.* (1983) original survey boundaries, as was 41 ZV 226. Only one site, 41 UV 79,

TABLE 10. SITE RECOMMENDATIONS FOR THE 1981 SURVEY

Intensive testing (Category A) is recommended to determine whether or not National Register Nomination criteria are met for the following sites:

41 ZV 219	41 ZV 247	41 ZV 273
41 ZV 230	41 ZV 251	41 ZV 283
41 ZV 236		

Limited testing (Category B) is recommended for the following sites:

41 ZV 209	41 ZV 235	41 ZV 249
41 ZV 214	41 ZV 237	41 ZV 250
41 ZV 217	41 ZV 241	41 ZV 252
41 ZV 218	41 ZV 242	41 ZV 253
41 ZV 227	41 ZV 243	41 ZV 275
41 ZV 229	41 ZV 244	41 ZV 277
41 ZV 232*	41 ZV 245	41 ZV 281
41 ZV 233	41 ZV 246	41 ZV 285
41 ZV 234	41 ZV 248	

The following sites are worthy of limited testing (Category B), but are outside present survey boundaries:

41 ZV 207	41 ZV 223	41 UV 80
41 ZV 220	41 ZV 224	41 UV 81
41 ZV 221	41 ZV 238	41 UV 82

No further action is recommended for the following sites:

41 ZV 204	41 ZV 222	41 ZV 270
41 ZV 205	41 ZV 225	41 ZV 271
41 ZV 206	41 ZV 228	41 ZV 272
41 ZV 208	41 ZV 231	41 ZV 274
41 ZV 210	41 ZV 239	41 ZV 276
41 ZV 211	41 ZV 240	41 ZV 278
41 ZV 212	41 ZV 266	41 ZV 279
41 ZV 213	41 ZV 267	41 ZV 280
41 ZV 215	41 ZV 268	41 ZV 282
41 ZV 216	41 ZV 269	41 UV 39

*Recorded in 1981. See also Tables 11 and 15.

TABLE 11. SUMMARY OF SITE RECOMMENDATIONS PER DRAINAGE ASSOCIATION FOR 1981

Number of Identified Sites	Sites of Potential National Register Quality (Category A)	Other Recommended Sites (Category B)	Study Location
33	7	18	Turkey Creek
15	1	-	Nueces River Terraces
7	-	3	Windmill Creek
8	-		Maverick Creek
2	-	1*	Mustang Creek
10	-	5	Uplands
75	7	26	TOTAL

* Not in Kelly *et al.* (1983) survey area. See Table 13.

TABLE 12. ADDITIONAL SITES FOUND IN THE 1981 SURVEY AREA (RECORDED 1982)

Site Number	County	Potentially Eligible to National Register	Limited Testing to Determine Significance of Buried Deposits	No Further Work
41 ZV 324	Zavala			X
41 ZV 325	Zavala			X
41 ZV 326	Zavala		Archival Research	
41 ZV 327	Zavala		Archival Research	
41 ZV 328	Zavala		Archival Research	
41 ZV 329	Zavala			X
41 ZV 330	Zavala			X
41 ZV 331	Zavala	X		
41 ZV 318	Zavala			X

See Appendix II for descriptions and discussion.

was considered to be of potential National Register quality. During the 1982 survey period, 41 UV 79 was redefined, and the recommendations are incorporated in the 1982 assessment.

The Windmill Creek Drainage Sites

Seven archaeological sites were recorded along Windmill Creek in 1981. None were determined to be of potential National Register quality, although three sites (41 ZV 214, 41 ZV 217, and 41 ZV 227) were recommended for limited testing based on the buried deposits.

The Mustang Creek Drainage Sites

Only two archaeological sites were discovered during the 1981 field season survey of Mustang Creek. One site, 41 ZV 208, is not recommended for any further work. The other site, 41 ZV 232, was determined to be beyond the 1981 survey limits. The site description of this latter site is included in Kelly *et al.* (1983). Since the site is located within the 1982 survey area, it is listed and tabulated in the 1982 survey summary and Table 15. Kelly *et al.* (1983) recommended limited testing at this site to determine the extent and significance of buried cultural deposits.

The Maverick Creek Drainage Sites

Eight small prehistoric activity loci were identified along Maverick Creek. None were assessed of National Register potential, and no further work was recommended in this area.

Upland Sites, Zavala County

Ten prehistoric sites not associated with any nearby drainage were identified by Kelly *et al.* (1983) in Zavala County. None were considered as potentially eligible to the National Register of Historic Places, although five locations (41 ZV 209, 41 ZV 275, 41 ZV 281, 41 ZV 241, and 41 ZV 284) were recommended for limited testing due to the possibility of significant buried cultural deposits.

Site Recommendations for the 1982 Survey of the East Chacon Study Area

A total of 66 sites were identified and recorded in the East Chacon study area. Eleven of these sites are recommended for further work based on their potential eligibility to the National Register of Historic Places. Twenty-four other sites are also recommended for limited testing as erosional evidences suggest the possibility of further, currently unknown buried site materials. Table 13 presents the summary of the site recommendations recorded during 1982. Tables 14 and 15 tabulates the number of recorded sites, per drainage area.

TABLE 13. SITE RECOMMENDATIONS FOR THE 1982 SURVEY

Sites recommended for further work to determine potential eligibility to the National Register (Category A):

41 UV 98	41 UV 81	41 UV 79	41 ZV 291
41 UV 100	41 UV 105	41 ZV 287	41 ZV 306
41 UV 103	41 UV 109	41 ZV 290	41 ZV 331*

Sites recommended for limited testing to determine significance of buried deposits (Category B):

41 UV 97	41 UV 112	41 ZV 298	41 ZV 320
41 UV 99	41 UV 117	41 ZV 301	41 ZV 321
41 UV 101	41 ZV 293	41 ZV 302	41 ZV 322
41 UV 102	41 ZV 294	41 ZV 304	41 ZV 326**
41 UV 106	41 ZV 295	41 ZV 311	41 ZV 327**
41 UV 108	41 ZV 296	41 ZV 315	41 ZV 328**
41 UV 110	41 ZV 297	41 ZV 319	

Sites recommended for no further work (Category C):

41 UV 93	41 UV 114	41 ZV 303	41 ZV 316
41 UV 94	41 UV 115	41 ZV 305	41 ZV 317
41 UV 95	41 UV 116	41 ZV 307	41 ZV 318
41 UV 96	41 ZV 286	41 ZV 308	41 ZV 323
41 UV 82	41 ZV 288	41 ZV 309	41 ZV 324*
41 UV 104	41 ZV 289	41 ZV 310	41 ZV 325*
41 UV 107	41 ZV 292	41 ZV 312	41 ZV 329*
41 UV 111	41 ZV 299	41 ZV 313	41 ZV 330*
41 UV 113	41 ZV 300	41 ZV 314	

* Not in 1982 survey area; see Appendix II and Table 12.

** Not in 1982 survey area; archival research recommended. See also Table 12 and Appendix II.

TABLE 14. DRAINAGE ASSOCIATION OF THE SITES SURVEYED IN 1982

Site Number	Site Description Found in Text Under Drainage Association	Testing Recommended		
		Potentially Eligible to National Register (Category A)	Limited Testing to Determine Significance of Buried Deposits (Category B)	No Further Work (Category C)
41 UV 93	Upland			X
41 UV 94	Nueces River			X
41 UV 95	Nueces River			X
41 UV 96	Mustang Creek			X
41 ZV 286	Mustang Creek			X
41 UV 97	Windmill Creek		X	
41 UV 98	Nueces River	X		
41 UV 99	Nueces River		X	
41 UV 100	Nueces River	X		
41 UV 101	Nueces River		X	
41 UV 102	Nueces River		X	
41 UV 103	Nueces River	X		
41 UV 81	Nueces River	X		
41 UV 82	Nueces River			X
41 UV 104	Nueces River			X
41 ZV 287	Nueces River	X		
41 ZV 288	Nueces River			X
41 ZV 289	Nueces River			X
41 ZV 290	Nueces River	X		
41 UV 105	Nueces River	X		
41 ZV 291	Nueces River	X		
41 UV 106	Nueces River		X	
41 UV 107	Upland			X
41 ZV 292	Turkey Creek			X
41 ZV 293	Turkey Creek		X	
41 ZV 294	Turkey Creek		X	
41 ZV 295	Turkey Creek		X	
41 ZV 296	Turkey Creek		X	

Table 14. (continued)

Site Number	Site Description Found in Text Under Drainage Association	Testing Recommended		No Further Work (Category C)
		Potentially Eligible to National Register (Category A)	Limited Testing to Determine Significance of Buried Deposits (Category B)	
41 ZV 297	Turkey Creek		X	
41 ZV 298	Turkey Creek		X	
41 ZV 299	Turkey Creek			X
41 ZV 300	Turkey Creek			X
41 ZV 301	Turkey Creek		X	
41 ZV 302	Windmill Creek		X	
41 UV 108	Windmill Creek		X	
41 UV 109	Windmill Creek	X		
41 UV 110	Windmill Creek		X	
41 ZV 303	Windmill Creek			X
41 ZV 304	Windmill Creek		X	
41 ZV 305	Windmill Creek			X
41 UV 111	Windmill Creek			X
41 UV 112	Windmill Creek		X	
41 ZV 306	Windmill Creek	X		
41 ZV 307	Windmill Creek			X
41 ZV 308	Windmill Creek			X
41 ZV 309	Turkey Creek			X
41 ZV 310	Mustang Creek			X
41 UV 113	Windmill Creek			X
41 ZV 311	Windmill Creek		X	
41 ZV 312	Mustang Creek			X
41 ZV 313	Mustang Creek			X
41 ZV 314	Mustang Creek			X
41 ZV 315	Mustang Creek		X	
41 ZV 316	Mustang Creek			X
41 ZV 317	Upland			X

Table 14. (continued)

Site Number	Site Description Found in Text Under Drainage Association	Testing Recommended		No Further Work (Category C)
		Potentially Eligible to National Register (Category A)	Limited Testing to Determine Significance of Buried Deposits (Category B)	
41 ZV 318	Upland			X
41 ZV 319	Windmill Creek		X	
41 UV 114	Mustang Creek			X
41 ZV 320	Windmill Creek		X	
41 ZV 321	Windmill Creek		X	
41 UV 115	Nueces River			X
41 ZV 322	Nueces River		X	
41 ZV 323	Windmill Creek			X
41 UV 116	Nueces River			X
41 UV 117	Nueces River		X	
41 UV 79	Nueces River	X		
Total Number of Sites in Survey Area:				
66		11	24	30*

* Does not include 41 ZV 318; see Table 13.

TABLE 15. TOTAL NUMBER OF SITES PER DRAINAGE ASSOCIATION FOR 1982

Number of Identified Sites	Sites of Potential National Register Quality (Category A)	Other Recommended Sites (Category B)	Study Location
11	-	7	Turkey Creek
23	9	6	Nueces River Terraces
19	2	10	Windmill Creek
11*	-	2	Mustang Creek
3	-	-	Uplands
67*	11	25*	TOTAL

* Total includes 41 ZV 232 along Mustang Creek recommended by Kelly *et al.* (1983) for further work.

The Turkey Creek Drainage Sites

Eleven prehistoric occupation sites were identified in the 1982 Turkey Creek survey area. While no sites were considered eligible for potential nomination to the National Register, a total of seven sites were observed as having deep and possibly intact, significant, cultural materials. These sites (41 ZV 301, 41 ZV 297, 41 ZV 296, 41 ZV 295, 41 ZV 294, 41 ZV 298, and 41 ZV 293) are recommended for further work to determine the nature and extent of buried cultural deposits for a more accurate assessment of National Register eligibility.

The Nueces River Terrace Sites

A total of 23 prehistorical and historical locations were identified and recorded along the terraces of the Nueces River. Of these, nine sites (41 UV 100, 41 UV 98, 41 UV 79, 41 UV 103, 41 UV 81, 41 UV 105, 41 ZV 290, 41 ZV 291, and 41 ZV 289) are potentially significant sites which may be of National Register quality. Additionally, the presence of eroding materials at other sites (41 UV 117, 41 UV 102, 41 UV 101, 41 UV 99, 41 UV 106, and 41 ZV 322) suggests deeply buried cultural deposits. Further work at these last sites would clarify an assessment of their National Register potential.

The Windmill Creek Drainage Sites

Nineteen prehistoric sites were identified along the margins of the Windmill Creek drainage. Two of these 41 UV 109 and 41 ZV 306, are considered to be

of potential National Register quality. Additionally, ten other locations (41 UV 108, 41 UV 112, 41 UV 110, 41 UV 97, 41 ZV 304, 41 ZV 30, 41 ZV 321, 41 ZV 311, 41 ZV 319, and 41 ZV 320) are recommended for limited testing because of possibly significant subsurface deposits.

The Mustang Creek Drainage Sites

Although nine prehistoric site locations were observed along Mustang Creek, none were considered to be of potential National Register quality. One site, 41 ZV 315, is recommended for further testing since eroding materials suggest further intact deposits of an unknown significance. Additionally, Kelly *et al.* (1983) identified two sites in this area (41 ZV 208 and 41 ZV 232), the latter he recommended for further testing as a Category B site.

Upland Sites, Zavala County

Three small upland sites were located during the 1982 survey. None of these sites are over 50 m², and no chronologically diagnostic materials were collected. No further work is recommended at any of these sites.

Additional Recommendations Within the East Chacon Study Area

High Potential Archaeological Localities

As noted in the Interpretations section, Green Lake, within the central portion of the study area, represents an unusual natural feature that may have had an as yet unidentified influence upon local prehistoric subsistence patterns and site distributions. An intensive survey and subsurface testing in the vicinity of Green Lake and other small playalike depressions several kilometers south of this area are recommended. Such further work would bring into perspective both the archaeological significance of site 41 ZV 331 and the intermittent lakes themselves.

Four upland overlook locations are recommended for intensive survey and testing in the East Chacon study area. These areas (Sand Mountain and the three large hills in the center of the project area identified on USGS topographic maps as Highpoints 876, 874, and 844) are extremely high overlooks densely overgrown with vegetation that obscures much of the ground surface. Highpoint 844 includes the archaeological site of 41 ZV 285, where a fluted projectile point fragment was collected. We believe a limited, intensive survey of these locations, coupled with a systematic form of subsurface testing, would not only more clearly define the extent of known site occupations, but would possibly identify further as yet, undiscovered significant cultural materials.

Recommendations for a Systematic Approach Toward Subsurface Testing of Category B Sites

The majority of buried cultural materials occur along the Turkey Creek, Windmill Creek, and Nueces River drainages. In these locations, only 20 sites are

designated as Category A (considered potentially eligible to the National Register), but an additional 45 sites are recommended for further work in the form of subsurface testing to more accurately assess potential eligibility; these latter constitute Category B site locations.

While it may be possible to test each of these individual sites, it is our belief a more manageable, cost-effective, and regionally significant approach, beyond any determination of National Register qualification, is through the selection of a series of Category B sites per local environmental context (per drainage system). These representative sites would be used to test the hypotheses of site distributional patterns outlined in the Interpretations section and define the overall extent and significance of vertical deposits within a local environmental context. The representative samples of Category B sites would be selected on an individual basis using the qualifying criteria of: (1) extent of surface dimensions; (2) present site condition (observable erosion or site disturbance); (3) types and relative significance of associated diagnostic materials; (4) represented cultural stages; (5) the occurrence of intact features; (6) postulated site function(s); (7) potential for little-known Paleo-Indian or Early Archaic components; and (8) potential project-related impacts. As an example, minimum surface dimensions of 100 m along a site axis may be one arbitrary qualification from which to consider the representative significance of Category B sites, the assumption, that in this locality, larger surface distributions of materials indicate a larger, more extensive prehistoric activity area. The actual number of "representative" sites is nonstatistically derived; it merely represents the group of Category B sites in any given area which may best be exploited for further work and that represent the most productive potential.

As noted in the Interpretations section, five resource exploitation-prehistoric subsistence patterns have been inferred from current site distributional data. In summary, these are: (1) a poorly represented Paleo-Indian pattern that, at least in part, centers upon upland resources or exploitation of upland areas; (2) a Late Paleo-Indian/Early Archaic pattern that indicates a diversification of exploited resource areas as well as an increase in intensive exploitation of local ecosystems; (3) a middle Late Archaic activity pattern shift to broad-based resource exploitation; (4) a transitional Archaic/early Late Prehistoric emphasis on specific areal exploitations; and (5) a shift during more recent Late Prehistoric times to a broad-based resource exploitation strategy. These interpretations are, of course, tentative and based only upon a limited data base. Their primary function, however, is to present a model of prehistoric activities from which a series of testable hypotheses may be inferred. Data from future work would be used to compare actual results with the preliminary hypotheses.

As an example, a series of sites, based on the foregoing criteria, would be selected for the Turkey and Windmill Creek drainages. Of the 22 Category B sites identified along these two drainages in the 1981-1982 surveys, 14 sites contain: (1) a minimum surface extent of at least 100 m; (2) identifiable occupational debris such as eroding features; (3) chronologically diagnostic artifacts; and (4) a potential, based on collected materials, of Paleo-Indian or Early Archaic components, or secondarily, of possibly stratified, more recent, components. A list of sites is presented in Table 16 for the Turkey Creek drainage and Table 17 for the Windmill Creek drainage.

TABLE 16. SELECTED CATEGORY B SITES FROM THE TURKEY CREEK DRAINAGE

Site Number	Dimensions	Collected Diagnostics/Remarks
41 ZV 218	minimum of 100 meters	Scallorn
41 ZV 233	8 x 200 m	Matamoros, Frio
41 ZV 235	40 x 200 m	Frio
41 ZV 242	200 m ²	Enson, Frio, Marcos, Castroville, Plainview (?)
41 ZV 248	100 x 20 m	Enson
41 ZV 249	150 x 75 m	Scallorn
41 ZV 250	350 x 80 m	Nolan
41 ZV 301	500 x 900 m	quarry site
41 ZV 297	75 x 150 m	see site description
41 ZV 296	75 x 100 m	see site description
41 ZV 295	250 x 20 m	see site description
41 ZV 294	500 x 30 m	see site description
41 ZV 298	350 x 20 m	see site description
41 ZV 293	250 m ²	Guadalupe tool

TABLE 17. SELECTED CATEGORY B SITES ALONG WINDMILL CREEK

Site Number	Dimensions	Collected Diagnostics/Remarks
41 ZV 117	125 x 250 m	Langtry
41 UV 97	500 m ²	Montell
41 ZV 304	200 x 475 m	Clear Fork tool
41 ZV 303	400 x 800 m	Frio
41 ZV 321	75 x 125 m	Perdiz
41 ZV 311	400 x 100 m	Perdiz
41 ZV 319	75 x 150 m	Pedernales
41 ZV 320	100 x 250 m	Frio, Bell, or Shumla

It is our belief that, unlike the discrete but intensive prehistoric occupations along the tributary drainages of the study area, the sites located along the Nueces River represent, in a large part, an ill-defined zone of activity that can only be more clearly described following subsurface testing. While activity loci on distinctive topographic features are noted as sites, the reader is cautioned that such topographic features are often adjacent. As such, the archaeological sites represent an almost continuous band of terrace occupations approximately five kilometers in length on every major, inhabitable portion of the terraces. These sites are thus qualitatively distinct, from an inter-site perspective, when compared to the pattern of mainstream tributary sites. For this reason, no representative sample of Category B sites along the Nueces River are suggested; instead, we recommend testing of all sites assessed for further work. We do not, on the basis of our limited data, define the terrace occupation sites as an archaeological zone since we cannot define the actual activity limits of such an area (which we believe, if it exists, would extend well beyond the present survey limits). Subsurface testing along the river terraces should clarify the extent and inter-relationships of this intensive pattern of activities along the Nueces River.

General Recommendations for Future Subsurface Testing

Limited subsurface testing (Phase 3 activities) is used in this report to describe those activities necessary to determine eligibility or potential eligibility of sites to the National Register (see Appendix I). Limited testing is recommended when an avoidance policy is not feasible. Testing is defined as a series of systematic hand-excavated units excavated, if possible, in conjunction with mechanical equipment, such as a backhoe. The actual variety and extent of testing techniques is to be determined by individual site conditions. Hand excavations may be described as a series of 50 cm² shovel tests, one- or two-square meter units excavated by trowels and other small tools and screened through 1/4-inch or 1/8-inch wire mesh. Hand excavations may also consist of small trenches excavated in a similar fashion.

Supplementary mechanical excavations may be described as backhoe trenching which we feel would be particularly applicable to investigations in the East Chacon Creek project area. A systematic trenching strategy could quickly and cost-effectively determine the cultural potential of many Category B sites in locations of moderately to extensively buried deposits. The CAR's experience in many areas of southern Texas reflects the usefulness of such an approach and, if machinery is available, we recommend its application for future work here.

Because of the potential extent of intact cultural deposits, we also recommend an extensive program of micro-faunal and floral collection obtained through flotation recovery techniques such as the system developed by McGraw (n.d.). The recovery of such data would contribute much new, significant information, usually unrecoverable, concerning prehistoric areal and regional subsistence studies.

Summary

In summary, the 1981 and 1982 investigations of the East Chacon Creek study area have identified and recorded 149 archaeological and historical sites. A total of 20 sites are recommended for further work based on their potential eligibility to the National Register of Historic Places. Additionally, because extensive aeolian deposits throughout large portions of the survey have buried the remains of much archaeological evidence, it is impossible, on the basis of this investigation, to determine National Register eligibility at 56 other locations. Also, three historical sites are recommended for further background and archival research to evaluate their significance. Two high potential archaeological localities in the East Chacon area are recommended for further work as they represent unusual and possibly significant prehistoric influences: the Green Lake area and four upland overlooks (see page 133).

Beyond any recommendations for potential eligibility to the National Register and in the interests of a more manageable cultural resources approach, we also suggest a representative sample of 22 Category B sites (compared to an actual total of 35 Category B sites) in the Turkey and Windmill Creeks locations for further work. We feel that this would most effectively test the hypotheses of a regional pattern of prehistoric activities and resource exploitations, an approach which would be more archaeologically productive, more cost-effective, and would reflect the project area's significance from a regional perspective.

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APPENDIX II.

SITE DESCRIPTIONS OF ADDITIONAL PREHISTORICAL AND HISTORICAL
SITE LOCATIONS IDENTIFIED IN THE 1981 EAST CHACON STUDY AREA
(RECORDED IN 1982)¹41 ZV 318

Location: The site is located on the flat upland plain adjacent to West Windmill.

Elevation: 800 feet msl.

Description: The site was indicated by cultural materials appearing for approximately 150 m along the bed of a ranch road stretching out from the nearby windmill. Lithic debitage and small amounts of burned rock were noted in the roadcut. While erosion appeared minimal across the area, there was evidence of past land clearing activities, especially around the windmill itself.

Type of Site: Temporary upland occupation or expediency site.

Remarks: The close proximity to 41 ZV 281, recorded by Kelly *et al.* (1983:68) survey, may be more than coincidental. Both sites were revealed in roadcuts near West Windmill and exhibited similar assortments of cultural materials (noted are the recovery of diagnostic projectile points resembling the *Martindale* and *Frio* types at 41 ZV 281). The two sites may, in fact, be sections of one larger site.

Recommendations: Limited subsurface testing was recommended by Kelly *et al.* (1983) at 41 ZV 281, which should indicate the relationship between the two sites.

41 ZV 324

Location: The site is located on a high promontory looking west over the drainage of Windmill Creek, approximately 1200 m east of Kiefer Windmill.

Elevation: 860 feet msl.

Description: The site is irregularly oval in shape, extending around the west and southwest sides of the promontory for a least 25 m. Archaeological evidence consisted of scattered chipping debris and isolated burned rock fragments. Several biface fragments were observed, along with bases of projectile points resembling the *Early Triangular* and *Early Corner Notched* series. Erosion appeared to be heavy.

Type of Site: Light upland occupation.

¹Site recommendations for the described sites are included in the Recommendations section of this report; also see Table 12 and Historical Background section.

Remarks: Diagnostic materials seem to indicate an early use of the site.

Recommendations: Due to the highly eroded nature of the area, indicating little possibility of buried deposits, no further work is recommended at this site.

41 ZV 325

Location: The site encircles the rocky summit of a large outcrop of metamorphosed sandstone, approximately 1500 m southeast of Kiefer Windmill.

Elevation: 850-860 feet msl.

Description: The site rings the top of the stone outcrop, running for about 150-200 m along each side. Cultural materials consisted of a light scatter of lithic debris, including several thick biface fragments and the base of a lanceolate point. No burned rock was in evidence. The very summit of the outcrop was bare, weatherworn sandstone; soils along the slopes appeared extensively eroded.

Type of Site: Temporary upland occupation or chipping station.

Remarks: Views eastward over the Mustang Creek drainage and Green Lake (see 41 ZV 331) and westward over Windmill and Turkey Creeks suggest possible use as a hunters' overlook.

Recommendations: Due to the apparent lack of soil depth and extensive erosion, no further work is recommended at this site.

41 ZV 326

Location: The site is located within the boundaries of the present Kiefer Windmill complex, in the western portion of the 1981 East Chacon survey area.

Elevation: ca. 768 feet above msl.

Description: The remains of a historical ranch complex dating to the mid-19th century (and perhaps slightly earlier) was first identified through records research and then confirmed by field inspection of the area. Although labeled the Heard (or Herd) Windmill on a copy of an 1898 Uvalde topographic map, little remains of this historical site today. The original homestead was abandoned when it burned ca. 20-30 years ago (Chester Kiefer, current owner, personal communication), and only a small workshed and water tank remain to indicate this earlier occupation.

Type of Site: Historical occupation; mid-late 19th century.

Remarks: The site has been extensively modified, damaged, or destroyed.

Recommendations: Further archival research is recommended to determine the significance of the Heard Ranch complex and its possible relationship to the historical grave site at 41 ZV 290, as suggested by preliminary archival studies (see Historical Background section).

41 ZV 327

Location: The site is located just west of the Missouri-Pacific Railroad line ca. 300 m southeast of the intersection of U.S. Highway 81 and the Nueces River (along the eastern margins of the 1981 East Chacon survey area).

Elevation: ca. 810 feet above msl.

Description: Field investigations discovered the remains of an early 20th-century occupation complex in this area which preliminary archival research indicates was once the property of Nathaniel Washer of San Antonio. Extensive historic debris in the form of bottles, cans, machinery fragments, outbuildings, and a house foundation characterize the site. Extensively damaged by land clearing, the site is poorly preserved today. R. Houston (present owner of the property, personal communication) indicated the remains of the house structure was moved ca. 20 years ago and was eventually destroyed by a major flood of the Nueces River.

Type of Site: Historical occupation; early 20th century.

Remarks: The site has been extensively damaged or destroyed.

Recommendations: Further archival research is recommended to determine the significance of the Washer complex and its relationship to the early historical development of the study area.

41 ZV 328

Location: The site is located in the southwestern margins of the 1981 East Chacon survey area just east of Windmill Creek.

Elevation: 750-760 feet above msl.

Description: Field investigations, prompted by preliminary archival research, discovered the remains of a mid-late 19th-century historical occupation site (Turk's Ranch) in this area. The actual location of the occupation structure was not identified, although several outbuildings and the original water well and water storage tank were noted, as well as scattered historical debris.

Type of Site: Mid-late 19th-century occupation.

Remarks: Little is known of this early historical site or its former inhabitants, and much of the site location is extensively damaged by modern alterations.

Recommendations: Further archival research is recommended to determine the significance of the Turk's Ranch complex and its relationship to the early historical development of the study area.

41 ZV 329

Location: The site is located on the western slope of a long, high ridge running northeast-southwest, parallel to the easternmost branch of Windmill Creek, approximately 1200 m northeast of Kiefer Windmill.

Elevation: 860 feet msl.

Description: The site is roughly oval in shape, stretching at least 200 m along its major axis. Scattered burned rock fragments and flintknapping debris were observed across the area. A projectile point resembling the *Tortugas* type, and a side-notched, expanding stemmed point were also noted. Soils in and around the site were rocky and sandy, and appeared highly eroded.

Type of Site: Light upland occupation.

Remarks: Relatively early use of the site is indicated by the cultural materials observed. The view across the Windmill Creek drainage to the west suggests possible use as a hunters' overlook.

Recommendations: The soils at this location appeared highly eroded and disturbed by land-clearing activities. No further work is recommended.

41 ZV 330

Location: The site is located on the western slope of a ridge west of the easternmost branch of Windmill Creek, about 2100 m northeast of Kiefer Windmill.

Elevation: 850 feet msl.

Description: Site boundaries were indistinct, but the site was estimated to be circular, approximately 150 m in diameter. Cultural materials noted included scattered fragments of fire-fractured rock and a light scatter of chipping debris. A projectile point preform of heat-treated flint was also observed. Erosion appeared extensive, intensified by recent land-clearing activities.

Type of Site: Light upland occupation.

Remarks: The small amount of archaeological evidence observed at the site suggests only temporary occupation.

Recommendations: Because of the apparently disturbed nature of the deposits, no further work is recommended.

41 ZV 331

Location: The site is located approximately 1.70 km southeast of the high overlook site of 41 ZV 285. Site 41 ZV 331 is adjacent to and just south of a ranch road running northeast-southwest through the central portion of the 1981 East Chacon survey area.

Elevation: ca. 800 feet above msl.

Description: This prehistoric site is located around the margins of a (now) dry, playalike lakebed. The actual area of the depression is ca. 300-400 m in diameter and cultural evidence in the form of lithic debris is scattered to a distance of 200 m from the edge of the depression. Depth of the lakebed is estimated at one to two meters below normal ground surface.

Type of Site: Burned rock, scattered lithic debris, and a *Guadalupe* tool indicate at least moderate, early occupations around this lakebed.

Remarks: The location of this site below the Paleo-Indian overlook site of 41 ZV 285 and the occurrence of an Early Archaic tool form at the lakebed suggest potentially significant, early materials may be buried in and around this playa lake.

Recommendations: Further work is recommended in the form of hand and mechanical limited testing to determine the extent and significance of cultural materials at this potential National Register site.

	Nueces River System & Regional Setting	Mainstream Tributaries of Study Area	Comments
Late Prehistoric	modern channelization	development of lower Mustang Creek drainage	extensive occupations along Turkey Creek
Late Archaic		Turkey Creek becomes primary mainstream tributary in study area	occupations begin at 41 UV 60
Middle Archaic		episodes of stream piracy	
Early Archaic	distinctive channel movements	Windmill Creek primary mainstream tributary	extensive occupations vicinity Symth Tank, along Windmill Creek
ca. 8000-9000 B.C.	extensive alluvial/fluviatile depositions		
	river rechannelizes into its approximate present configuration	development of shallow, intermittent lakebeds in central portion of East Chacon study area	fluted projectile point associated with 41 ZV 285
Late Pleistocene	river drains into Leona River drainage vicinity of Garman Slough (?)		
	Leona Formation deposited		
	Uvalde Clays in adjacent Leona River drainage deposited		
	Uvalde Gravels correlate with materials in Maverick County; suggest stream connection of Nueces River and the Rio Grande		
	"Old Uvalde River" flows through study area (related to presence of Uvalde Gravels)		
Lower Pleistocene	1) streams deposit materials obtained from denudation of Cen'l Texas & Pliocene erosional debris west of Rocky Mountains		
	2) streams deposit fine sands, silts/clays in southwest Texas (Bee, Live Oak, Jim Wells, and Nueces Counties)		
	3) no early Pleistocene deposits along lower courses of Rio Grande (obliteration of these deposits in mid-late Pleistocene?)		
	4) development of Pinyon Pine, Big-tooth Maples in upper Old Uvalde River drainage system		

development of Aquifer/faulting sequences along Edwards Plateau