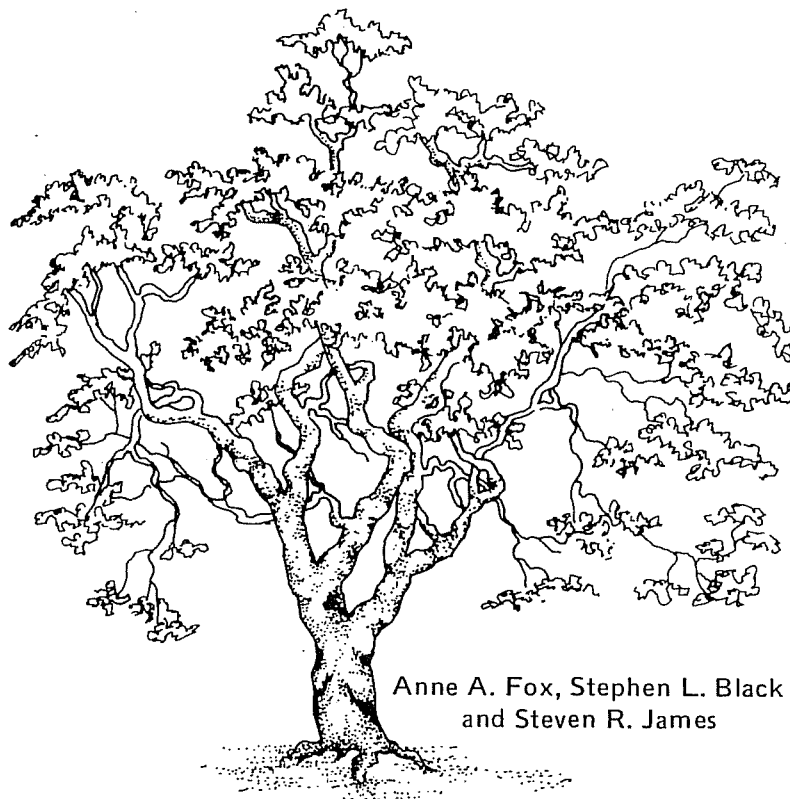


INTENSIVE SURVEY AND TESTING OF
ARCHAEOLOGICAL SITES ON COLETO CREEK
VICTORIA AND GOLIAD COUNTIES,
TEXAS



Anne A. Fox, Stephen L. Black
and Steven R. James

Center for Archaeological Research
The University of Texas at San Antonio
Archaeological Survey Report, No. 67

1979

Prepared for the Guadalupe-Blanco River Authority

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The following information is provided in accordance with
General Rule of Practice and Procedure, 355.01.011C,
Texas Antiquities Committee:

1. Intensive survey and testing of 17 archaeological sites on Coleto Creek;
2. Coleto Creek Project, Phase II;
3. Victoria and Goliad Counties, Texas;
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ABSTRACT

In Spring 1977, the Center for Archaeological Research, The University of Texas at San Antonio, carried out intensive survey and testing of 17 prehistoric archaeological sites on Coleta Creek in Victoria and Goliad Counties, Texas. Individual site investigations are presented. Testing is described in some detail at two sites of unusual importance due to their extent, depth and preservation. The artifacts recovered are illustrated and described. Appendices include documentation of local collections and analysis of soils from the two major sites.

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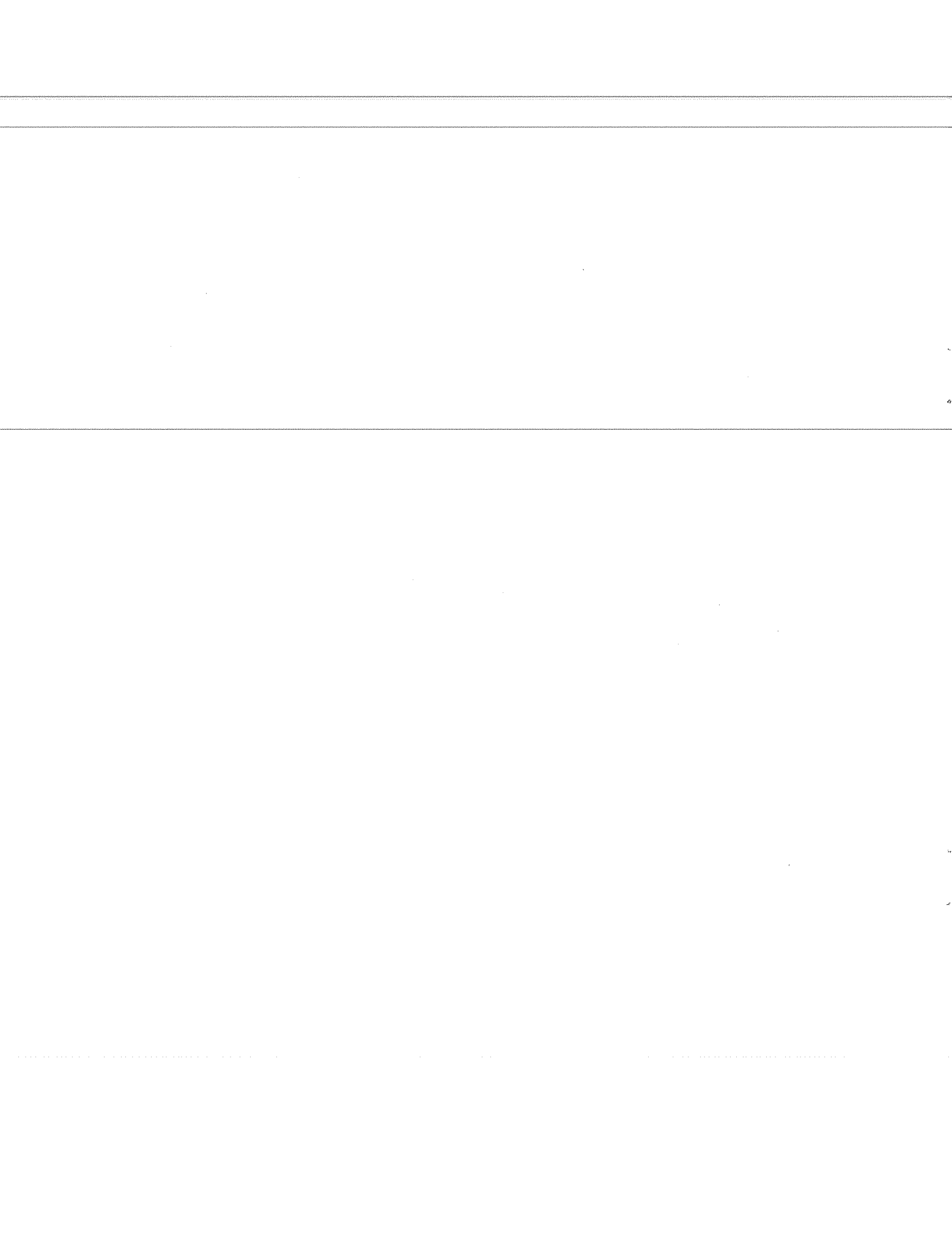
We wish to express our gratitude to a number of people who helped to make this project possible. As in the past, David Welsch and the staff of the Guadalupe-Blanco River Authority were patient and supportive of our efforts, as were G-BRA executives Leroy Goodson and John Specht. Central Power and Light Company Plant Engineer, Bill Scales, was most pleasant and cooperative. We are grateful to W. L. Vernon of Sargent and Lundy, Engineers and to J. L. Melton of Trinity Testing Laboratories for their interest and cooperation in allowing us to record their collections from site 41 GD 21.

Local residents who graciously allowed us access to sites through their property were Mr. and Mrs. Nelson Pantel, Mr. Leslie Berger, Mr. Idus Hattenbach and Mr. Ed Berger. Victoria amateur archaeologist Ed Vogt loaned his collection from site 41 GD 30 for study and photographing. W. W. Birmingham and E. H. Schmiedlin again provided advice, information and moral support to the project.

The following members of the crew worked well under sometimes trying circumstances: Stephen Black, David Brown, Steven James, Paul Lukowski, Thomas Medlin and Billy Pat Newman.

Crew members Steven James and Stephen Black have contributed in a number of important ways to this report. James compiled and wrote the sections on flora and fauna in the reservoir area and carried out a preliminary analysis of the materials from 41 GD 21. Black did extensive study and analysis of the work at 41 GD 30 and wrote the section of the report dealing with that site and Appendix III. All maps were prepared by Daniel E. Fox. The remainder of the report is the responsibility of the senior author.

This report was edited by Thomas R. Hester, Carol Graves and Jane Smith.



INTRODUCTION

The Coleta Creek Project, a joint undertaking by the Central Power and Light Company and the Guadalupe-Blanco River Authority, consists of a coal-fired electric generating plant and an earthen dam and cooling reservoir on Coleta and Perdido Creeks in Goliad and Victoria Counties. The plant will be built in two units and will have an ultimate capacity of 1100 Mw. Unit 1 is scheduled for completion in 1979, and Unit 2 between 1986 and 1988 (United States Environmental Protection Agency 1977:ii). The dam embankment will be of compacted earthfill ca. 18,220 ft in length and a maximum of 65 ft in height (*ibid.*:4-16). The cooling reservoir will cover approximately 3100 acres. Maximum flood pool will vary from approximately 115 ft in the upper reaches of the reservoir to 107 ft at the dam. Normal pool, however, will stand at approximately 98 ft.

PREVIOUS WORK AT THE RESERVOIR

As is the case in other similar projects, numerous historic and prehistoric archaeological sites will be endangered by construction of the reservoir and power plant. Such sites represent unique, nonrenewable resources which are not duplicated in any other area. Not only are these resources important in themselves, but they are a part of the larger picture of the prehistory and history of south Texas, about which regrettably little is known at present. The Center for Archaeological Research, The University of Texas at San Antonio has been engaged since September 1975 in a planned program of intensive survey and testing in an attempt to recover as much information as possible on the past history of the reservoir area, to assess the potential importance of its archaeological resources and to recommend measures to protect them wherever possible.

The results of the first season's work were reported in a publication by the Center for Archaeological Research in 1976 (Fox and Hester). This survey examined over 25% of the land expected to be affected by the reservoir and recorded 49 archaeological sites. Recommendations were made for the next stage of investigations, including intensive survey and testing of the more important sites to be affected by construction of the reservoir.

In May 1976 the Center for Archaeological Research carried out an archaeological survey along the route of a proposed pipeline to supply makeup water for the reservoir from the Guadalupe River to a point near the head of the reservoir. Several new sites were recorded in the vicinity of the Guadalupe River end of the line. At the recommendation of the archaeologist, the route of the pipeline was moved slightly to avoid disturbing an important site of great age and depth on the western edge of Rocky Creek (41 VT 15, also known as the Johnston-Heller Site). The only other site in the direct path of the pipeline (41 VT 68) was observed to be nearly destroyed by gravel mining and is currently of negligible importance.

In August 1976 the Center did an archaeological survey of areas to be affected by the relocation of Highway 59 and railroad spur construction for the power plant. No additional sites were found.

In January 1977 the Center conducted a survey of selected areas on the dam site, in proposed borrow areas and on major tributaries where access had not previously been allowed by landowners in 1975. Eight additional sites were recorded during this survey, including two which constituted a 19th century German farm complex on the Sandhop property at the eastern end of the dam.

After this survey, recommendations for necessary testing were revised and plans were made for two additional projects. The first was to be the second phase of assessment of prehistoric sites carried out by the Center. The second project, done jointly by the Center and the office of Eugene George, Architect, consisted of excavations and documentation at the historic site complex. The historic site investigations were carried out in May 1977; the report is currently being written jointly by the architect and the archaeologist and will be published by the Guadalupe-Blanco River Authority. The following report is an account of the second phase, prehistoric investigations.

METHODOLOGY

The objective of Phase II archaeological investigations was to examine more closely those sites determined, during the initial surveys, to be in immediate danger of destruction through inundation or construction activity. As a result of the original survey, recommendations were made for further intensive survey and testing of 17 such sites in order to gain a better understanding of buried deposits and their potential for yielding important archaeological information on the size and age of sites, and general settlement patterns within the Coleta-Perdido Creeks area. The indicated sites were investigated with a variety of techniques, including controlled surface examination, shovel testing, and one and two meter excavation units. Of the total, two archaeological sites were determined to be of unusual importance because of their extent and depth, and the preservation, in addition to lithic artifacts, of shell, bone and charcoal within the deposits. These sites, 41 GD 21 and 41 GD 30, have been nominated to the National Register of Historic Places, and further excavations are planned to recover as much information as possible from them before the reservoir is finished.

The work was carried out by a crew of six graduate student employees of the Center for Archaeological Research, with the senior author as Field Director. Dr. Thomas R. Hester, Director of the Center, was Principal Investigator for the project.

All excavations were done by hand, employing shovels, trowels and 1/4-inch mesh screens and utilizing standard archaeological methods. Mapping was accomplished with the aid of alidade and plane table. Artifactual materials were processed in the UTSA Archaeology Laboratory, and all materials, excavation records and maps are stored at the Center for Archaeological Research.

ENVIRONMENTAL SETTING

Physical Environment

The Coleta Creek Reservoir will be located on Coleta Creek and Perdido Creek approximately 10 miles upstream from the confluence of Coleta Creek with the Guadalupe River. Topography in the area is relatively uniform, consisting of extensive flat areas broken by small hills. Elevations range from 60 ft mean sea level (msl) at Coleta Creek to 240 ft msl in the uplands. Both Coleta Creek and Perdido Creek valleys are comparatively constricted in their upper reaches, gradually widening into extensive areas of sandy flood plains. The Coleta channel from Coletoville Road southward becomes convoluted in a deeper valley with occasional high bluffs at major bends. Evidence of extreme erosion is highly visible in the form of sand deposits which drastically change and shift with every major storm.

Major tributaries within the reservoir are Perdido Creek and its tributaries of Sulphur Creek, Turkey Creek and Hog Thief Creek, all of which enter the Coleta from the west, draining a dissected area of low wooded hills alternating with open cultivated fields. To the east of Coleta Creek the terrain rises gradually to a relatively flat ridge with a maximum elevation of 190 ft msl between Coleta Creek and the Guadalupe River. The soil in this area is relatively thin and is underlain by gravels which contain cobbles of chert exploited by the prehistoric inhabitants of both stream valleys. In historic times this ridge was noted by Prince Solms Braunfels when he recommended that the German immigrants be routed along the ridge from Victoria to Gonzales on the way to New Braunfels in order to avoid stream crossings (Geue and Geue 1966:48). Prehistoric peoples may well have used this route between south and central Texas, as did the Comanches in 1840 when they swept down from the Hill Country to attack the Coleta Creek settlements and Victoria and to burn the town of Linnville (Linn 1883:338).

Geology and Soils

Detailed discussions of the geology and soils of the reservoir area are contained in the Draft Environmental Impact Statement (United States Environmental Protection Agency 1977:[2]38-46). The following general summary is derived from that publication.

The reservoir site is located within the Gulf Coast Structural Province, a basin consisting of Paleozoic and Mesozoic rocks overlain by Cenozoic clastics. The immediate area of Coleta Creek consists of poorly consolidated to unconsolidated sediments ranging from Middle Tertiary to Modern-Holocene in age. These sediments were deposited along the ancestral Gulf of Mexico margins in fluvial, deltaic and marginal marine environments.

Soils in the reservoir area consist of various types of brown-to-gray sandy loam of varying depths overlying a red-to-yellow clay base. Although as many as 13 soil series occur in the general area, the reservoir and its immediate surroundings contain primarily three types: the Edna series, a poorly drained upland soil; the Telferner series, derived from the rocks of the coastal plains; and the Seguin series, which are calcareous, permeable flood plain soils.

Climate

The climate of the reservoir area is humid subtropical, dominated by the maritime-tropical air mass of the Gulf of Mexico. Prevailing winds are from the southeast. In summer the circulation from the Gulf intensifies and the region becomes almost tropical. Thundershowers frequently develop in this Gulf air. Winter weather is influenced by occasional polar air masses bringing large and rapid temperature fluctuations.

During summer and early fall, tropical disturbances may affect the area. Between 1900 and 1956, 15 to 20 hurricanes struck the coast from Baffin Bay to Galveston Bay. Effects of these storms on the reservoir area are heavy rainfall, which causes severe flooding, and destructive high winds.

Flora

The flora of the project area represents a transitional ecotone between the Texan Biotic Province that extends northward into Oklahoma and the Tamaulipan Biotic Province that runs southward into Mexico. Both biotic provinces were first described by Cooper (1859:269), summarized by Dice (1943:23-24, 61-62) and more thoroughly defined by Blair (1950). The soil boundary between pedocal and pedalfer soils closely corresponds to the boundary between the xerophytic brushlands of the Tamaulipan province and the prairie and oak-hickory vegetation of the Texan province. Climate is another factor delineating the two biotic provinces. Blair (1950:100) states that ". . . rainfall in the Texan province is barely in excess of water need . . ." and Thornthwaite (1948) classified the province as having a moist subhumid climate. The Tamaulipan province, on the other hand, is classified by Thornthwaite as characterized by a semiarid and megathermal climate.

Aside from being a transition zone between the two biotic provinces, the vegetation of this region has changed since the prehistoric period due to an invasion of shrubby plants. In the last 150 years the vegetation of southern Texas has changed from open grasslands with shrubs and trees confined to riparian courses to a brush covered region dominated by mesquite and other thorny shrubs (Bogusch 1952; Inglis 1964). Briefly stated, the transition from grasslands to brush involves a series of complex interrelationships which include overgrazing by livestock, fencing of range land, decreased aboriginal prairie fires and factors related to the growth of mesquite (Bogusch 1952; also see Covey 1961 and Harris 1966 for more information on aboriginal burning; see Hester 1976 for a brief synopsis of the prehistoric environment). The fact that the Coleta Creek area was more open in prehistoric times than today should be kept in mind when studying the lifeway of the prehistoric inhabitants.

The following list of the major trees, shrubs and lianas in the project area was compiled from specimens collected during the field work. Vines (1960) and a plant pamphlet for Aranama Trail at Goliad State Historical Park (Texas Parks and Wildlife Department n.d.) were used for identification purposes. Most of the plants listed are from sites 41 GD 21 and 41 GD 30. Although vegetational variations between riparian and upland environments are present, most of the major trees and shrubs occur throughout the area.

Flora

<u>Scientific Name</u>	<u>Common Name</u>
<i>Acacia farnesiana</i>	Huisache
<i>Acacia rigidula</i>	Blackbrush acacia
<i>Acacia smallii</i>	Sweet acacia
<i>Celtis laevigata</i>	Texas sugar hackberry
<i>Celtis pallida</i>	Spiny hackberry
<i>Celtis reticulata</i>	Net leaf hackberry
<i>Colubrina texensis</i>	Texas colubrina
<i>Condalia hookeri</i>	Bluewood
<i>Diospyros texana</i>	Texas persimmon
<i>Ehretia anacua</i>	Anaqua
<i>Opuntia lindheimeri</i>	Prickly pear
<i>Prosopis glandulosa</i>	Honey mesquite
<i>Quercus marilandica</i>	Blackjack oak
<i>Quercus stellata</i>	Post oak
<i>Quercus virginiana</i>	Live oak
<i>Rhus toxicodendron</i>	Poison ivy
<i>Salix</i> sp.	Willow
<i>Sophora secundiflora</i>	Texas mountain laurel
<i>Ulmus crassifolia</i>	Cedar elm
<i>Vitis mustangensis</i>	Mustang grape
<i>Yucca treculeana</i>	Trecul yucca
<i>Zanthoxylum fagara</i>	Lime prickly ash

Fauna

The wildlife of the Coleta Creek area is quite abundant. A recent study lists 53 species of mammals, 261 species of avifauna, 65 species of reptiles, 25 species of amphibians and a number of fishes. These figures represent the maximum number of species that are of potential occurrence in the area (Environmental Consultants 1975 3-45, 3-46; Appendices A, B, C; Table 3.3-2). More detailed information on the mammalian fauna of the region is presented in Blair (1952) and Davis (1974). For reptiles and amphibians see Conant (1958), Brown (1950) and Werter (1970); for birds see Peterson (1960).

The major species found in the region today are presented in the following list. (Note: The reader should compare this to the faunal remains excavated from 41 GD 21 and 41 GD 30 in Table 3.)

Mammals

<u>Scientific Name</u>	<u>Common Name</u>
<i>Canis latrans</i>	Coyote
<i>Dasypus novemcinctus</i>	Armadillo
<i>Didelphis virginiana</i>	Opossum
<i>Geomys bursarius</i>	Plains pocket gopher
<i>Lepus californicus</i>	California or black-tailed jackrabbit

Mammals (continued)

<u>Scientific Name</u>	<u>Common Name</u>
<i>Lynx rufus</i>	Bobcat
<i>Mephitis mephitis</i>	Striped skunk
<i>Mustela frenata</i>	Long tailed weasel
<i>Mustela vison</i>	Mink
<i>Odocoileus virginianus</i>	Whitetailed deer
<i>Perognathus hispidus</i>	Hispid pocket mouse
<i>Peromyscus leucopus</i>	Whitefooted mouse
<i>Procyon lotor</i>	Raccoon
<i>Scalopus aquaticus</i>	Eastern mole
<i>Sciurus niger</i>	Fox squirrel
<i>Sylvilagus aquaticus</i>	Swamp rabbit
<i>Sylvilagus floridanus</i>	Eastern cottontail
<i>Tadarida mexicana</i>	Guano bat
<i>Urocyon cinereoargenteus</i>	Gray fox

Avifauna

<i>Bubulcus ibis</i>	Cattle egret
<i>Ardea herodias</i>	Great blue heron
<i>Casmerodius albus</i>	Common egret
<i>Aix sponsa</i>	Wood duck
<i>Anas platyrhynchos</i>	Mallard
<i>Mareca americana</i>	American wigeon
<i>Anas carolinensis</i>	Green-winged teal
<i>Anas discors</i>	Blue-winged teal
<i>Anas cyanoptera</i>	Cinnamon teal
<i>Cathartes aura</i>	Turkey vulture
<i>Coragyps atratus</i>	Black vulture
<i>Bubo virginianus</i>	Great horned owl
<i>Tyrannus tyrannus</i>	Eastern kingbird
<i>Agelaius phoeniceus</i>	Red-winged blackbird
<i>Colinus virginianus</i>	Bobwhite
<i>Zenaidura macroura</i>	Mourning dove
<i>Meleagris gallopavo</i>	Wild turkey
<i>Turdus migratorius</i>	Robin
<i>Mimus polyglottos</i>	Mockingbird

Reptiles

<i>Agkistrodon contortrix contortrix</i>	Southern copperhead
<i>Agkistrodon contortrix laticinctus</i>	Broadbanded copperhead
<i>Agkistrodon piscivorus leucostoma</i>	Cottonmouth
<i>Chrysemys scripta</i>	Pond slider
<i>Coluber constrictor</i>	Racer
<i>Crotalus atrox</i>	Western diamondback rattlesnake
<i>Elaphe obsoleta</i>	Common rat snake

Reptiles (continued)

<u>Scientific Name</u>	<u>Common Name</u>
<i>Kinosternon subrubrum</i>	Eastern mud turtle
<i>Lygosoma laterale</i>	Ground skink
<i>Micrurus flavius tenere</i>	Texas coral snake
<i>Natrix rhombifera</i>	Diamond-backed water snake
<i>Sceloporus olivaceus</i>	Texas spiny lizard
<i>Sceloporus undulatus</i>	Eastern fence lizard

Amphibians

<i>Acris crepitans</i>	Cricket frog
<i>Bufo speciosus</i>	Texas toad
<i>Bufo valliceps</i>	Gulf Coast toad
<i>Hyla versicolor</i>	Northern gray tree frog
<i>Rana catesbeiana</i>	Bullfrog
<i>Rana pipiens</i>	Leopard frog

Fishes

<i>Cyprinus</i> spp.	Carp
<i>Dorosoma</i> spp.	Shad
<i>Lactalurus</i> spp.	Bullhead
<i>Lepisosteus</i> spp.	Gar
<i>Lepomis</i> spp.	Sunfish
<i>Micropterus</i> sp.	Bass
<i>Mugel</i> spp.	Mullet
<i>Pomoxis</i> sp.	Crappie
(Family)	
<i>Cyprinodontidae</i>	Killifish
<i>Cyprinidae</i>	Minnow
<i>Lctaluridae</i>	Catfish
<i>Percidae</i>	Perch
<i>Poeciliidae</i>	Livebearer

ARCHAEOLOGICAL BACKGROUND

Chronology of Prehistoric Occupation

A tentative chronology has been suggested for the transitional area between the Texas Coast and the Edwards Plateau (Fox and Hester 1976:5), based primarily upon that used by Suhm (1960) for central Texas. In this chronology the Paleo-Indian period (ca. 9000 to 5000 B.C.) is followed by the Archaic period (5000 B.C. to A.D. 1000) and the Neo-American (Late Prehistoric) period (A.D. 1000 to 1600). Each period is represented by distinctive forms of projectile points and tools which have been tentatively dated for the Coleta

Creek area by comparison with similar forms found in other parts of the state and already dated through stratigraphic excavations and radiocarbon analysis.

Lanceolate and stemmed projectile points and heavy bifacial tools typical of the Paleo-Indian period have been found on a number of sites in the reservoir area, including the Morhiss site (Campbell 1976:82), the Johnston-Heller site (Birmingham and Hester 1976:15-33) on the Guadalupe River and site 41 VT 16 on Coleta Creek (Fox and Hester 1976:63-69).

The Archaic period in this section of south Texas is represented by stemmed and triangular projectile point forms, large bifacial tools, milling stones and bone and shell artifacts (Calhoun 1965:5-7). Campsites of this period often consist of deep deposits indicating periodic use of the same locations over thousands of years.

The Neo-American (Late Prehistoric) period is represented by small arrow points, reflecting acquisition of the bow and arrow, and occasional sherds of simple pottery, both coastal and inland types. Deposits from this period are relatively shallow and sparse within the reservoir area (Fox and Hester 1976:70).

Previous Archaeological Investigations

A discussion of previous work in the area was included in the Phase I Survey report (Fox and Hester 1976:5-6). A brief summary is included for reference.

The only previous professional archaeological excavations which have been carried out in the lower Guadalupe River-Coleta Creek area were done in 1939 at the Morhiss site (41 VT 1), south of Victoria, by the WPA and The University of Texas. A summary, by Campbell, of these excavations is included in Fox and Hester (1976:81-85). The site yielded numerous occupational remains dating from Paleo-Indian through Neo-American (Late Prehistoric) times, including considerable information on a local complex which existed in the Middle to Late Archaic period, which has since been named the Morhiss complex.

W. W. Birmingham and E. H. Schmiedlin of Victoria have tested and recorded remains of Paleo-Indian, Archaic and Neo-American periods at the Johnston-Heller site (Birmingham and Hester 1976) on the Guadalupe River to the east of the reservoir. Archaic period materials were found upstream from this site at the Jackson site by W. A. Duffen for the WPA in 1940 (manuscript on file, Texas Archeological Laboratory, Austin).

Amateur archaeologists in the Victoria area have recorded sites on the Guadalupe River and Coleta Creek and have generously loaned their documented collections for professional study and recording.

Slightly out of the immediate area of the reservoir but nevertheless important for comparative purposes are the extensive survey and testing program done at Cuero I Reservoir in 1972-1973 by the Texas Historical Commission (Fox *et al.* 1974) and the excavations currently being conducted by the Southern Texas Archaeological Association on Arenosa Creek northeast of Victoria. Artifacts representing all time periods from the Paleo-Indian through the Late Prehistoric period have been recovered in these projects.

SITE INVESTIGATIONS

Various combinations of investigative methods were utilized, depending upon the previous recommendations of the original survey and the judgment of the senior author. The first operation on each site was a surface examination with the object of delineating the extent of the site. To aid in this effort, a series of 15-cm² shovel tests was placed at strategic points in order to evaluate depth and content of the deposits. Where indicated from these examinations, one and two meter test pits were then excavated to obtain an artifactual and stratigraphic sample of the site in order to assess its potential for yielding important archaeological information.

The following accounts of individual site investigations are arranged in ascending order of the intensity of investigation, beginning with those sites which were minimally tested and found to have little or no potential and concluding with the two sites found to be worthy of inclusion in the National Register of Historic Places. Locations of these sites are shown in Fig. 1.

41 VT 55

Location and Setting

The site is on the east bank of Coleta Creek, opposite its confluence with Turkey Creek, at an elevation of 90-100 ft. It is situated on a sandy knoll over the creek near a small arroyo. A clump of live oaks is situated in the center of the site. The soil ranges from sandy loam at the surface to yellow sandy clay at ca. 30 cm.

Phase I Survey

Occasional chert flakes were visible in gopher tailings and washing out of the slope toward the creek. The survey collected chert flakes and fragments from the surface. The recommendation was for limited testing.

Phase II Investigation

Individual exposed chert flakes were flagged on the surface in order to estimate the extent of the deposits. Then a series of shovel tests was excavated across the site to evaluate its depth and content.

Interpretation

The shovel tests revealed a shallow deposit of undetermined date, which lies directly upon the clay at approximately 30 cm. The site does not merit further investigation.

This page has been redacted because it contains restricted information.

41 VT 56

Location and Setting

The site is next to an arroyo on the east bank of Coleta Creek, opposite its confluence with Turkey Creek, at an elevation of 100-105 ft. The soil is sandy clay loam over red-orange clay, with a light grass cover. Clumps of live oaks and persimmons grow throughout the area. Debris, such as concrete slabs and pipe fragments, is strewn over the surface of the site.

Phase I Survey

The survey yielded chert flakes and artifacts from gopher burrows and from the eroded surface of a ranch road which bisects the site. It was suggested that this site might yield important information, based on the artifacts recovered from the surface.

Phase II Investigation

A series of shovel tests was initiated over the site to determine its depth and extent. No diagnostic artifacts were recovered. When it was determined that the site was comparatively shallow and contained a thin deposit, the investigation was terminated.

Interpretation

This appears to be a thin deposit of primarily Archaic materials. The absence of bone and shell suggests generally poor preservation within the site, and the disturbance evident on the surface suggests that it is not worthy of further investigation.

41 GD 13

Location and Setting

The site is located 100 m southeast of the confluence of Sulphur Creek with Perdido Creek, at an elevation of 81-93 ft. It lies on a sloping hillside in an open, grassy field with a border of live oaks and anaquas to the north along Sulphur Creek. The soil is dark brown sandy loam.

Phase I Survey

The original survey located the site from chert fragments found in gopher tailings and washing out of a ranch road which runs across the site. No diagnostic artifacts were recovered. Intensive survey was recommended.

Phase II Investigations

A careful examination of the surface and several shovel tests at widely spaced intervals revealed few flakes and no bone or shell present. At 15-25 cm a sterile gray clay was encountered.

Interpretation

The only informative artifact from the site was a *Guadalupe* tool found on the surface, which suggests that occupation of the site may have been as early as the Pre-Archaic period (Hester and Kohnitz 1975:23). The site appears to be shallow and of little value for further study.

41 GD 20

Location and Setting

The site is on the north side of Perdido Creek, 350 m northeast of its confluence with Sulphur Creek, at an elevation of 95-100 ft. The soil is sandy clay loam with a medium grass cover under scattered, small live oaks. It is situated near the top of a gradual slope toward the creek, which is 100 m south.

Phase I Survey

Location of the site was greatly aided by the presence of numerous gopher holes, in the back dirt of which were found chert debris, a fragment of a purple quartzite cobble and a baked clay ball. Intensive survey and limited testing were recommended.

Phase II Investigation

After a surface examination to determine its apparent extent, a series of five shovel tests was executed across the site to assess its depth and content. These tests revealed that the site contains a very sparse deposit in about 30 m of dark brown sandy loam over a clay base. Judging from the tests and surficial evidence, the site extends approximately 12 m east to west and 18 m north to south.

Interpretation

No diagnostic artifacts were recovered and the deposit appears to be very light and badly disturbed by rodents. No further work is recommended.

41 GD 22

Location and Setting

The site is on the north side of Perdido Creek, 8 km southwest of its confluence with Sulphur Creek, at an elevation of 105-110 ft. The soil is brown sandy loam with a light grass cover. The site is in an open area along the edge of a bluff over Perdido Creek, surrounded by large live oaks and low brush. Active erosion is cutting an arroyo around the north end of the site, and the southeast portion is rapidly deflating, probably due to flooding of the creek.

Phase I Survey

The original estimate of the area of the site was 25 m in diameter. Scattered flakes and artifacts were present on the surface, including a core, a thick biface fragment and a *Clear Fork* tool. Intensive survey was recommended.

Phase II Investigation

Intensive survey revealed that the site extended over a larger area than first estimated. However, the first estimate of its rapid destruction was confirmed. A large area along the edge of the bluff has been totally deflated to clay. Portions which remain intact were tested by a series of shovel tests, which revealed an average depth of 20 cm of sandy loam containing scattered flakes. A surface collection from the deflated area yielded numerous cores, a *Gower* point, thin biface fragments, several *Guadalupe* tools and fragments of other thick bifacial tools.

Interpretation

The presence of the *Gower* point and the *Guadalupe* tools suggests an occupation at this site in the Pre-Archaic period. Other bifacial forms represent the Early Archaic period as well. Unfortunately, there is little left of this site, and what material remains is probably out of its original context. For this reason it can be of little further use in obtaining cultural information.

41 GD 31

Location and Setting

The site is on the west side of Coletto Creek, 3.4 km upstream from Coletoville Crossing, at an elevation of 95 ft. It is embedded in a sandy clay bluff with an open meadow above and is eroding into the creek.

Phase I Survey

Observations made on the site during the original survey suggested there was a deeply buried deposit eroding from the bluff at approximately 4 m below the surface. Further testing was recommended to determine the potential for recovering information from the site.

Phase II Investigation

The site and the surrounding area were thoroughly examined. A shovel test excavated in the center of the site proved to be sterile to 130 cm. Two heavy bifacial tools were recovered from the face of the bluff.

Interpretation

It was determined that the only artifactual materials in this site are in a stratum approximately 30 cm thick located about 4 m deep in the cut bank. The only feasible way to expose such a deposit for archaeological examination would be with heavy machinery, and this site does not appear to merit the expense of this type of excavation. There is a distinct possibility that this is a secondary deposition from other sites immediately upstream.

41 GD 39

Location and Setting

This site is on the west side of Turkey Creek, 1.5 km southwest of Coletoville Crossing, at an elevation of 100-105 ft. It sits atop a knoll at a bend of the creek. The area is an open field with heavy grass cover, sloping to a wooded area of live oaks and underbrush near the creek bank.

Phase I Survey

This site was recorded during the January 1977 survey and was located by observing chert flakes in gopher tailings and a large core-tool eroding from the surface of a nearby arroyo. Since it is located at the southwestern end of proposed Dike No. 2, further investigation was mandatory.

Phase II Investigation

A surface survey was conducted to determine the extent of the site. Then a series of shovel tests was excavated to sterile clay to assess its contents. This work revealed clay at 15 cm, with a sparse amount of chert debris present. Also found on the surface were late 19th century historic artifacts such as ironstone sherds and a fragment of stoneware crockery, suggesting the presence of a farmhouse somewhere in the vicinity.

Interpretation

No artifacts were recovered which would allow even speculative dating for this site. Its size and depth are not sufficient to warrant further work.

41 VT 50

Location and Setting

The site is located 0.6 km north of Coletto Creek, at a point 3 km upstream from the Coletoville Crossing, and is at an elevation of 80 ft. The soil is a dark gray loamy bottom land on the edge of an island in an old lake bed. The island is covered by a thick mott of large live oaks and underbrush festooned with grapevines.

Phase I Survey

The site was determined to contain approximately 100 cm of deposit which consisted mainly of flakes and fragments of chert. One core-tool and a quartzite cobble fragment were also recovered. The site was recommended for further work because of its rather unique location which might indicate that the deposits would have considerable antiquity.

Phase II Investigation

Surface examination revealed very little about the site. A series of four shovel tests across its center yielded what appears to be a disturbed collection of chert fragments, barbed wire, a bone which is probably bovine, and a scattering of snail and mussel shells, bone and quartzite fragments. Sterile gray clay was encountered at about 100 cm.

Interpretation

The deposits appear to have been disturbed, at least in the upper levels. Although numerous chert flakes and fragments were recovered, no artifacts were found which would provide dating for the site. No further work is recommended.

41 GD 18

Location and Setting

The site is on the west side of Coletto Creek, 700 m downstream from the Schroeder Road crossing, at an elevation of 96-100 ft. The soil is dark brown sandy loam with a heavy leaf cover and thin grass, under large live oaks. A dry arroyo joins the creek just north of the site.

Phase I Survey

Surface examination of gopher tailings yielded chert flakes and fragments, a triangular projectile point and a few fragments of mussel shell. On the basis of its location on the stream and the possibility of obtaining datable information, the site was recommended for more detailed study.

Phase II Investigation

No surface indications could be found when the crew returned to the site. A series of shovel tests was excavated across the site and around its periphery to the yellow clay at about 30 cm. These yielded very little artifactual material.

Interpretation

The archaeological deposits at this site appear to be too diffuse to provide any stratigraphic data. No further work will be necessary.

41 GD 23

Location and Setting

The site is on the south side of Perdido Creek, 0.5 km west of its confluence with Coleta Creek, at an elevation of 85-100 ft (Figs. 1, 2,a). It is situated in an open field overlooking the creek, just north of the foundations of an early 20th century farmhouse and outbuildings which have been removed in preparation for the reservoir construction. The creek is 50 m to the northeast of the site (Fig. 3). The soil is tan sandy loam with medium grass cover.

Phase I Survey

The only surface evidence of the site was chert flakes in the gopher tailings. A 15-cm² test indicated flakes still present at a depth of 100 cm, and the diameter of the site was estimated to be around 50 m. A total of 46 chert flakes and fragments was recovered, along with one sherd of sandy paste pottery identified as *Rockport* ware (Suhm and Jelks 1962:131). Additional testing was recommended.

Phase II Investigation

A careful surface inspection was made and a series of shovel tests was excavated across the site (Fig. 3). It became apparent that the site is larger than first estimated, probably approaching 30 x 100 m.

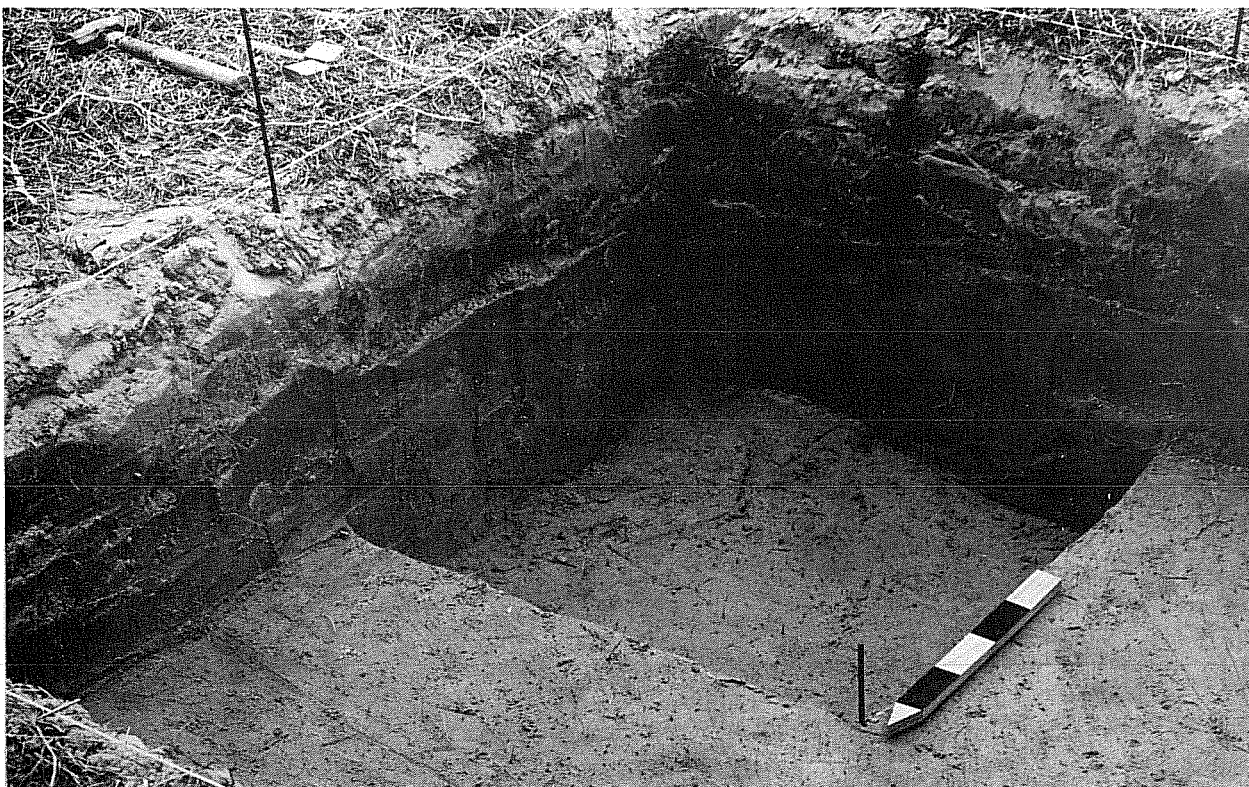
**a****b**

Figure 2. *Views at Site 41 GD 23.* a, confluence of Perdido Creek with Coleta Creek, viewed from the site; b, Test Pit 2 at 80 cm.

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Test Pit 1 was a 1 m² in the center of the southeastern portion of the site. The pit was excavated in 15 cm levels to 30 cm, then in 20 cm levels through light brown sand to 170 cm. At this point the sand continued downward but only occasional chert flakes were present. Gopher burrows were plentiful throughout the excavation, and no stratification appeared to exist. No diagnostic artifacts were found, although several quartzite cobbles were recovered at 110-130 cm, and a thin biface was found at 150 cm.

Test Pit 2 was a 2 m² in the center of the northwestern portion of the site, near the location of the shovel test by the survey crew which had recovered a ceramic sherd.

Level 1 (0-20 cm): The soil was tan sand with thick grass roots, greatly disturbed by gopher burrows. Numerous chert flakes and fragments were recovered, as well as a shotgun shell and a .22 caliber bullet, reminders of the more recent occupation.

Level 2 (20-40 cm): There was no change in the soil and gopher burrows were evident across the square. There was an increase in the amount of chert, and a few fragments of burned, sandy clay were observed.

Level 3 (40-60 cm): The soil remained the same and rodent disturbance continued. Chert flakes and fragments continued to be numerous. Two chert cobbles and a core were recovered from this level.

Level 4 (60-80 cm): Only the southeast quadrant of the square was further excavated, as clay was beginning to appear at 60 cm (Fig. 2,b). A layer of large pebbles sat on the basal clay at 80 cm. Flakes and fragments were fewer in this level, and a chert hammerstone (Fig. 17,c) was found at 65 cm.

Interpretation

The total lack of stratification in this site is probably due to the incessant gopher activity, which has reworked the deposits many times. It was surprising to find no diagnostic artifacts in a site which contains so much debitage. Due to the above conditions, no further investigation is recommended at the site.

41 GD 33

Location and Setting

The site is located on a knoll on the south side of Perdido Creek, 0.625 km west of its confluence with Coletto Creek, at an elevation of 80-85 ft (Fig. 4). The soil is light gray-tan sandy loam with medium grass cover. Groups of large live oaks grow to the east of the site, along the edge of the terrace.

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Phase I Survey

Surface evidence consisted of chert flakes in gopher tailings. A shovel test revealed that the artifactual material continued downward to at least 100 cm and the diameter of the site was estimated to be approximately 20 m. Further testing was recommended.

Phase II Investigation

A 1-m² test pit was laid out in the approximate center of the site (Fig. 4). Excavation proceeded by 15-cm levels to orange clay at a depth of 145 cm.

Level 1 (0-15 cm): The soil consisted of gray-tan sandy loam with occasional small pebbles, greatly disturbed by gopher burrows. This level contained numerous chert flakes and fragments, including a thin bifacially worked projectile point of the type commonly called *Scallorn* (Fig. 15,t).

Level 2 (15-30 cm): The soil continued the same color and consistency, with the same disturbances. Chert frequency was slightly higher. A thick biface was recovered from this level.

Levels 3-5 (30-75 cm): The soil remained the same, although there appeared to be more sand in the lower levels. Chert became progressively more scarce. Gopher disturbance was still noticeable. A core was recovered in the 30-45 cm level.

Level 6 (75-90 cm): The soil appeared the same, containing a slight increase in sand and in small pebbles. A fragment of a quartzite cobble and one edge-altered flake were recovered from this level.

Levels 7-9 (90-135 cm): The soil became progressively wetter and more sandy and the total number of chert flakes and fragments decreased slightly. A reddish clay lens ca. 6 cm thick appeared in level 8 across one end of the square. A small core was recovered in this level.

Level 10 (135-145 cm): Sterile clay was encountered at 145 cm. A shovel test to 151 cm produced a few flakes at the contact zone, then sterile clay, and the excavation was discontinued at this point.

Interpretation

The situation here appeared to be the same as at 41 GD 23. Continuous gopher activity has evidently eliminated any stratification which once existed. Here, also, diagnostic artifacts were absent, except for the Late Prehistoric projectile point found in the uppermost level. No further work is recommended.

41 VT 52

Location and Setting

The site is on the southeast side of Coleta Creek, 600 m south of its confluence with Perdido Creek, at an elevation of 90-100 ft. It is located on a hillside 100 m from the creek bank (Fig. 5). The soil is brown sandy loam with medium grass cover in a clearing surrounded by live oaks and low brush.

Phase I Survey

A surface collection was made from gopher tailings and the site was estimated to cover an area 20 m x 30 m. A total of 28 chert flakes and fragments was recovered. A brief testing program was recommended.

Phase II Investigation

After a careful surface examination, several shovel tests determined that the site covers an area of about 30 m x 70 m and varies in depth from 65-145 cm, at which point a sterile grayish white clay stratum was reached. All tests contained snail shells and fragments of mussel shell.

Test Pit 1, a 1 m², was laid out in the approximate center of the deposits.

Level 1 (0-20 cm): The soil was dark brown, sandy loam with gopher burrows. It contained chert flakes and fragments, mussel shell fragments and the shells of several species of land snails.

Level 2 (20-35 cm): The dark brown loamy soil began to contain occasional gray concretions as well as chert fragments, snail and mussel shell. One heavily patinated thick biface and a sandstone grinding stone were found in this level.

Level 3 (35-50 cm): The soil began to change to tan sand at 50 cm. Chert flakes and fragments were numerous, as were mussel shell fragments and snail shells. Recovered from this level were a fragment of antler tine (Fig. 16,m) and a thick biface.

Level 4 (50-65 cm): The soil was tan sand with small gray concretions. Less chert and mussel and snail shells were present in this level. Sterile gray sandy clay was encountered at ca. 65 cm and the excavation was discontinued.

Interpretation

Gophers appear to have badly disturbed this site. The presence of shells but no bone is unusual in this area where both are generally preserved together or not at all. The absence of diagnostic artifacts makes dating of the site impossible. The disturbed condition and shallow deposit suggest that work at this site will not be productive and no further investigations are recommended.

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41 VT 54

Location and Setting

The site is on a knoll on the east side of Coleta Creek, 0.25 km downstream from the mouth of Turkey Creek, at an elevation of 100 ft. The soil is fine sand with medium grass cover. A grove of live oaks stands to the southwest of the site, but there is a grassy slope between the site and the creek, which is 100 m to the northwest (Figs. 6,a;7).

Phase I Survey

Surface evidence was confined to chert flakes in gopher tailings. A shovel test showed flakes still present at 130 cm, and the area of the site was not determined. Limited testing was recommended, since the site will probably be within the borrow area for the dam.

Phase II Investigation

Several shovel tests, one of which yielded an Archaic projectile point (Fig. 15,p), suggested that the site might have potential for providing chronological information. The area of the site was estimated to be 30 x 60 m.

A 1-m² test pit was laid out near the point of most intense concentration of material (Fig. 6,b). Excavation proceeded by 15 cm levels to a depth of 120 cm. Numerous rodent burrows were encountered throughout the excavation at all levels. The sand continued downward without any appreciable change in color or texture to the 120 cm depth, and no stratification was observed. No features were encountered, and no temporally diagnostic artifacts were recovered. The deposit appeared to continue to a greater depth, but it was apparent that no further information would be recovered.

Interpretation

The situation here seems the same as that for the previously described sites. Again, there was an almost total lack of diagnostic artifacts. The site appears to be completely altered by gopher activity, which precludes any recovery of stratigraphic information. No further work is recommended.

41 GD 14

Location and Setting

The site is on an 8-meter-high bluff on the north side of Perdido Creek, 500 m due south of the mouth of Sulphur Creek, at an elevation of 100-103 ft. The soil is gray sand over red to tan clay, with medium grass cover. A group of large live oaks stands just east of the site.

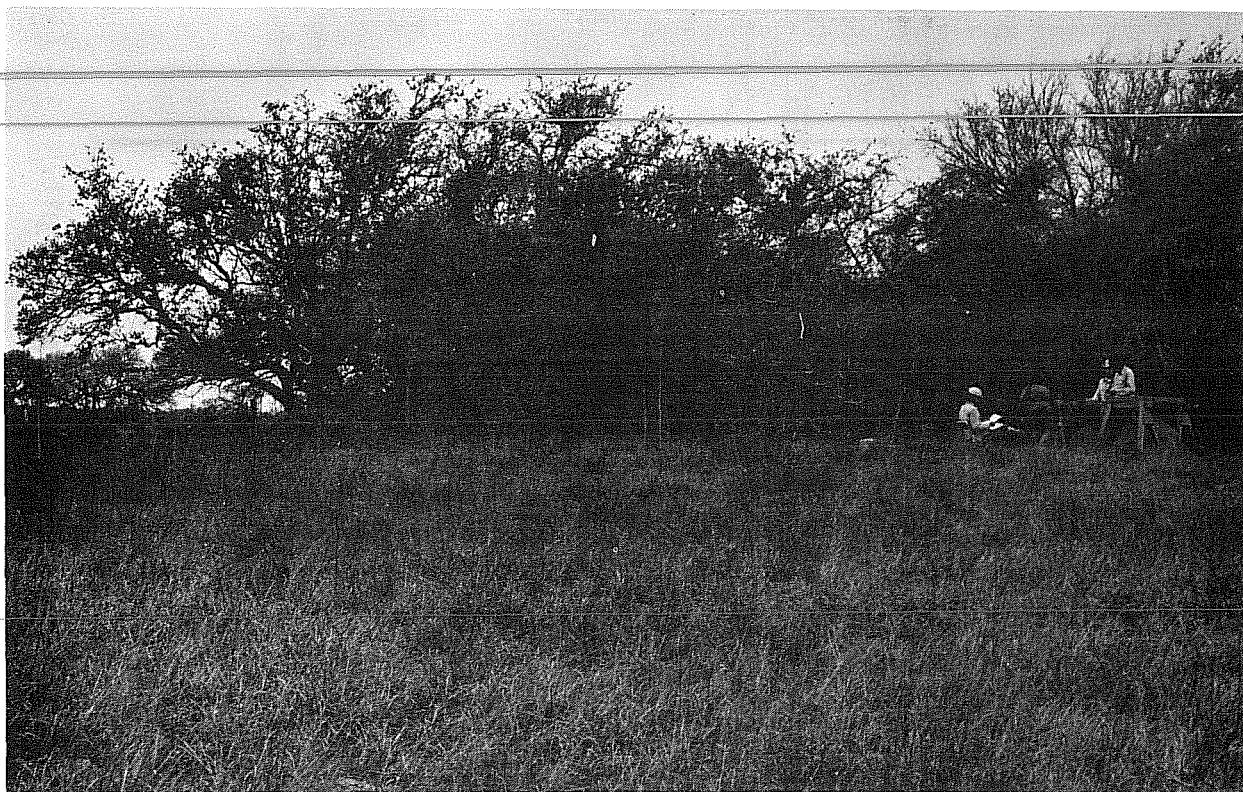
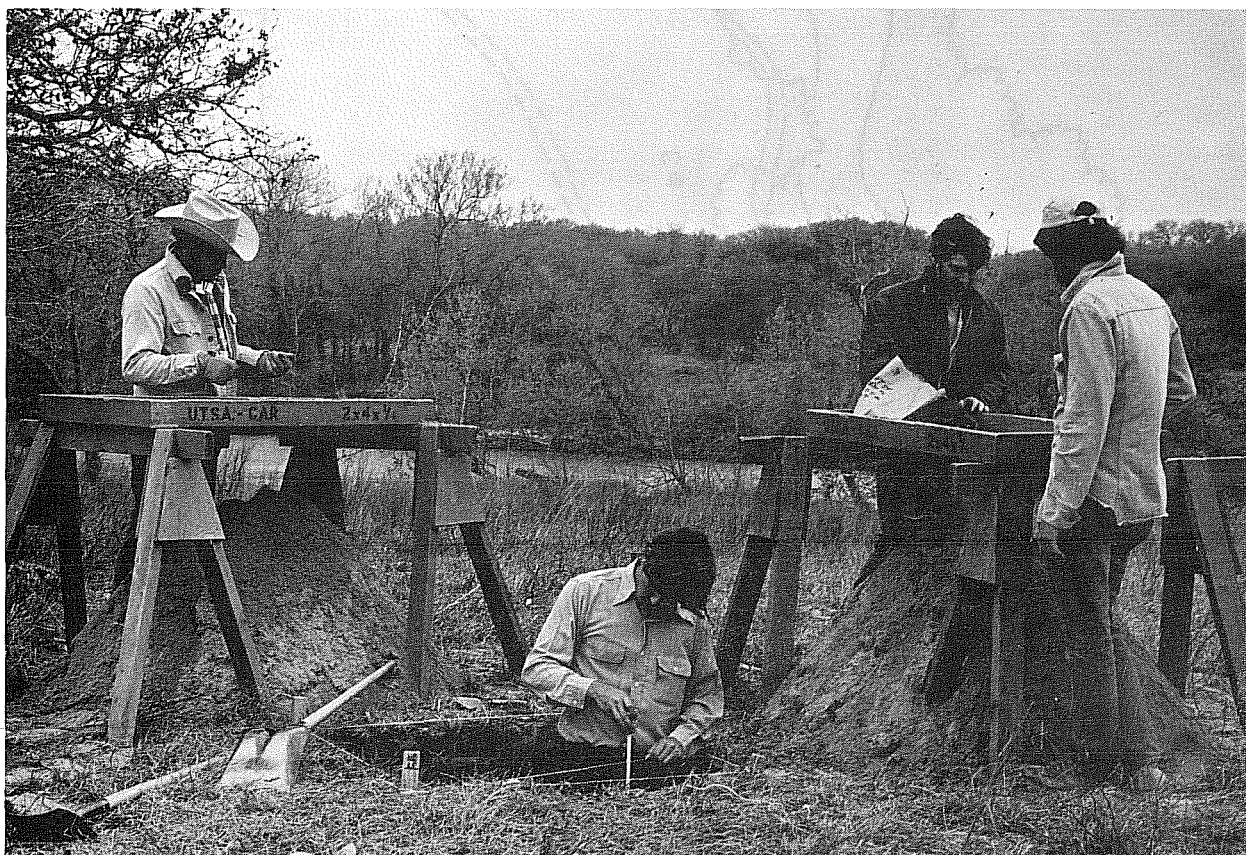
**a****b**

Figure 6. Views at Site 41 VT 54. a, looking across site; b, work in progress.

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Phase I Survey

Evidence of the site consisted of chert flakes, a core, a biface, bone fragments and burned rock eroding from the bluff. The site appeared to be nearly destroyed by stream erosion, but it was thought that some information might still be retrieved from the remnant. Intensive survey was recommended.

Phase II Investigation

Extensive surface examination of the site yielded a thin biface which had eroded from the bluff. A 1 m² was excavated to clay at 60 cm in the only remaining undisturbed fragment of the site. The test yielded a scattering of flakes and fragments. There was no stratification and no faunal remains were present.

Interpretation

Apparently stream erosion has nearly eliminated this site, and there is no further information to be gained from the remnant.

41 GD 16

Location and Setting

The site is on a point of land on the west side of Coleta Creek. It is 600 m downstream from the Schroeder Road crossing, at an elevation of 100 ft. The soil is tan sandy loam under a thick cover of leaves in a live oak forest.

Phase I Survey

Surface evidence was chert debris in gopher tailings over an area 6 x 10 m. A shovel test yielded flakes, tools and mussel shell to a depth of 35 cm. Limited testing was recommended.

Phase II Investigation

A total of 11 shovel tests was dug in an attempt to determine the extent of the site (Table 1). A test pit 1 m² was laid out near the high point of the site.

Level 1 (0-15 cm): The soil was dark gray-brown sandy loam which yielded chert flakes and fragments of mussel shell.

Level 2 (15-30 cm): The same materials were found, with the addition of a small quartzite cobble. The soil contained caliche fragments.

Level 3 (30-45 cm): This level contained fewer chert and mussel shell fragments, but in addition an edge-altered flake and a quartzite cobble fragment. At this point sterile clay was reached and the excavation was terminated.

TABLE 1. DISTRIBUTION OF ARTIFACTS FROM SHOVEL TESTS

	Depth of Deposit	Flakes & Fragments	Cores	Core Tools	Thick Bifaces	Thin Bifaces	Quartzite Fragments	Bone Fragments	Snails	Muscle Shell	Ceramics	TOTALS
Survey Surface	11											
Test 1	0	17		1								18
2	10	6										6
3	50	23							X	X		23
4	30	2										2
	28	116										116
TOTALS		164		1								165
Survey Surface	41					2	1					3
Test 1	20	17	1	1								2
2	115	16										17
3	20	6										16
4	20	9										6
												9
TOTALS		48	1	1	2	1						53
Survey Surface	72											72
Test 1	30	18			1	1						5
												18
TOTALS		93			1	1						95
Phase I	10					1						11
Test 1	30	11										11
2	10											
3	35											
4	30											
5	45											
TOTALS		21				1						22
Survey Surface	34		1		2							37
Test 1	35	108	13		10	13						43
2	20	4										108
3	20	1										4
4	20											1
5	20	1										1
6	20	1										1
TOTALS		156	14		12	13						195
Survey	65			1			1					67
Test 1	105	157						1	X			158
2	120	116						21	X	X		137
3	100	40										40
4	30	3										3
TOTALS		381		1			1	22				405
Survey	80				1	1				X		82
Test 1	70	1										1
2	70											
3	50											
4	70											
5	60											
6	65											
7	35											
8	45											
9	55						1					1
TOTALS		81			1	1	1					84
Survey	46										1	47
Test 1	105	58										58
2	140	80					3					83
3	155	92			1							93
4	90	12										12
TOTALS		288			1		3				1	293
Survey	28											28
Test 1	150	52							X	X		52
2	65	51	1						X	X		52
3	115	48							X			48
TOTALS		179	1									180

	Depth of Deposit	Flakes & Fragments	Cores	Core Tools	Thick Bifaces	Thin Bifaces	Quartzite Fragments	Bone Fragments	Snails	Muscle Shell	Ceramics	TOTALS
Survey	55											55
Test 1	120	124										133
2	120	294			1		9					295
3	120	124	1				14					139
TOTALS		597	1		1		23					622
Survey	15			1			2				X	18
Test 1	30	2										2
2	25											
3	35	4								X		4
4	30	3										3
5	30											
6	45	1										1
7	40											
8	20											
9	35											
10	20											
11	30	2										2
TOTALS		27		1			2					30
Survey	25		1				1	X		X		27
Surface	29		10		3	3	3	X				48
Test 1	43	15				1						16
2	40	19							X			19
3	35	14				1			X			15
4	40	14							X	X		14
5	85	7							X			8
6	94	11					1		X	X		11
7	70	54							X	X		54
8	80	15							X	X		15
9	80	580				2	10		X	X	X	592
10	78	28							X			28
11	42	131										132
12	125	66							X	X		66
13	15	14										14
14	35	23									2	25
15	35	4							X			4
TOTALS		1049	11		3	7	15				3	1088
Survey	—	173	4		1	5		X	X	X		183
Surface	—	44	5	3		1	1	X		X		54
Test 1	20	3								X		3
2	15	2										2
3	75	11								X	X	11
4	20	12			1							13
5	80	41								X	X	41
6	105	74								X	X	74
7	95	391				4			X	X	X	395
8	110	63	1						X	X	X	64
9	82	22							X	X	X	22
10	50	61							X	X	X	61
11	50	40	1				3		X			44
12	5	1								X	X	1
13	105	282	1				6		X	X	X	289
14	30	30								X	X	30
15	105	86								X	X	86
16	83	545				2	1		X	X	X	548
17	35	3							X	X		3
18	78	1							X	X		1
TOTALS		1885	12	3	2	12	11					1925
TOTALS		4969	40	7	21	37	57				4	5135

Interpretation

This site appears to be a rather thin scatter of cultural material which has eroded severely. A combination of erosion and rodent disturbance has eliminated its potential for yielding archaeological information. No further work is necessary.

41 GD 21

Location and Setting

The site is located on the west bank of Sulphur Creek ca. 1.5 km from its confluence with Perdido Creek, at an elevation of 90-95 ft. It lies in a wooded area on a moderately sloping terrace next to the creek (Figs. 8,9).

Phase I Survey

On first examination, the site appeared to extend approximately 15 m back from the creek bank and 20 m parallel to the creek, primarily toward the southeast of the spot where it was exposed in a cattle trail. Chert flakes, animal bones and snail and mussel shells were visible in washed out areas along the trail, which traversed the site, and samples of these materials were collected. Limited testing was recommended in order to assess the site's potential.

Phase II Investigation

When the testing crew arrived at the site, it was discovered that the depth and extent of the site had been considerably underestimated by the original survey. During power plant construction a flume had been built along a drainage to the southeast of the originally estimated limit of the site, revealing that the deposits extended as far as this drainage and continued southeastward on the other side of the flume for some distance. Collections made by plant employees during and after flume construction were found to include artifacts representing all time periods from the Late Prehistoric to the Early Archaic and the Pre-Archaic (Figs. 18,19,20).

In order to determine the extent of the site and the areas of concentration, a series of shovel tests was excavated at intervals along the terrace across the approximate center of the site (Table 1) and the entire site was mapped. It was decided to treat the areas on either side of the flume as separate sections of one site. The original portion of the northwest side of the flume was designated 41 GD 21, and the one to the southeast 41 GD 21A.

Test Pit #1 in 41 GD 21 was a 1 m² located at the point of deepest deposits (Fig. 9).

Level 1 (0-20 cm): This level was excavated through dark brown compact clay loam, which contained bone, shell and chert fragments as well as a few burned sandstone fragments, two chert cores, a *Perdiz* projectile point and a thin biface which

**a****b**

Figure 8. *Views at Site 41 GD 21. a, the site looking from the flume; b, 41 GD 21A from the site.*

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is probably a *Perdiz* preform. A fragment of bone-tempered pottery was also discovered. A few sherds of glass from an early 20th century farmhouse recently removed by plant construction were found near the surface. The chert and shell were primarily found below the 10 cm level.

Level 2 (20-35 cm): This level was limited to 15 cm when the intense concentration of artifactual material encountered suggested that detailed stratigraphic information might be recovered by excavation in smaller increments. A large amount of chert flakes, snail and mussel shells and bone was recovered from this level, as well as an *Ensor* projectile point (Fig. 15,s). There was no noticeable change in soil coloration or consistency and no features were encountered.

Level 3 (35-50 cm): This contained the same concentration of artifactual materials and another *Ensor* point (Fig. 15,r). At 50 cm a concentration of burned sandstone was found which appeared to be in place. There was no charcoal or burned earth in association with this feature and soil collected and processed separately from around the immediate area gave no clue to its function.

Level 4 (50-65 cm): This level continued in the same dark brown loam, which turned lighter and contained flecks of white caliche as the excavation progressed downward. The change was gradual, with no observable line of demarcation. Chert and faunal content was considerably less concentrated, and no diagnostic artifacts were encountered in this level. By the time the excavation reached 65 cm there was comparatively little occupational debris in the deposit, and excavation ceased at this point.

Test Pit 2 in 41 GD 21 was a 1 m² ca. 50 m to the southwest of Test Pit 1, at an elevation 4 m higher on the terrace.

Level 1 (0-15 cm): This was excavated through brown, highly compacted sandy loam which contained many caliche fragments. The occupational materials recovered included snail and mussel shell, chert fragments, bone and 12 sherds of bone-tempered pottery. No other diagnostic artifacts were recovered.

Level 2 (15-30 cm): This continued through the same soil with a slight decrease in artifactual content. One sherd of prehistoric pottery was recovered in this level.

Level 3 (30-45 cm) and Level 4 (45-60 cm): Both levels continued through the same type of soil, with an increasing amount of caliche and a steadily decreasing amount of occupational debris to sterile caliche at ca. 60 cm. No diagnostic artifacts were recovered.

Test Pit 1 at 41 GD 21A, across the flume, was a 1 m² located near shovel test 14, which had indicated that there was approximately 30 cm of cultural debris present on this part of the site. Excavation through brown loam with caliche inclusions identical to that in Test Pit 2 across the flume yielded two thin biface fragments and a sherd of bone-tempered pottery in the first 15 cm level, along with chert fragments, bone and shell which extended to the 45 cm level with no stratification.

Test Pit 2, located about 31 m to the north toward the creek and 3 m lower in elevation, was a 1 m². The soil was dark brown clay loam and the occupational

deposit was sparse and non-diagnostic. No stratification could be determined, and investigation terminated at 106 cm, at which point occasional chert fragments and shell appeared to continue.

Surface examination of 41 GD 21A suggested that the site may continue for some distance along the creek bank toward the southwest.

Interpretation

Site 41 GD 21 is an important site, both in size and in content. Apparently the deposits date from the Late Prehistoric period back through the Late Paleo-Indian and probably earlier. Judging from artifacts recovered when the flume was built, an extensive, undisturbed deposit of Morhiss complex materials must also be present (see Appendix I). Since no concrete data have yet been recovered on the dating and artifactual content of Morhiss complex sites, this site appears to give genuine promise for recovery of important cultural information. Excellent preservation of bone and shell will yield unusually complete subsistence information for the various time periods represented. This site has been placed on the National Register of Historic Places, and we strongly recommend that further archaeological investigations be carried out before any further construction is undertaken in this area.

41 GD 30

Location and Setting

Also known locally as the Berger Bluff site, 41 GD 30 is located on the west bank of Coletto Creek approximately 3.6 km upstream from the Coletoville crossing, at an elevation of 95-115 ft (Fig. 10). The site is situated on a high bluff overlooking the creek. Cultural material extends some 200 m west of the bluff on the south side of a large arroyo which empties into the creek. Vegetation ranges from open areas covered by a thick mat of pasture grasses to a large anaqua, hackberry and live oak grove along the bluff. Surface soils range from sandy loam away from the bluff top to a humus-rich loam along the bluff (Fig. 11,b).

Phase I Survey

The site has been known to local inhabitants for at least 45 years (Fox and Hester 1976:36). W. W. Birmingham and E. H. Schmiedlin of Victoria (see also Appendix II) have monitored the site in recent years and have watched accelerating erosion push the bluff back each year. Material observed eroding from the bluff includes human skeletal material, animal bone, mussel shell, land snail shells, chert tools, projectile points and a variety of burned rock and chert debitage. Additional testing was recommended.

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redacted because it
contains restricted
information.

**a****b**

Figure 11. Views at Site 41 GD 30A. a, shovel testing at east side of site; b, center of site at location of Test Pit 1.

Phase II Investigation

During Phase II of the Coleta Creek project 41 GD 30 was revisited. Subsurface testing, surface collection, plane table mapping and site recording activities were undertaken to further document and evaluate the site. It was immediately apparent that the site had undergone additional disturbances which were destroying this valuable resource. As noted in the survey report, much of the site had already been lost over the years through bluff slumping created by stream erosion. This process is being accelerated by recent uncontrolled digging along the bluff edge. Another unfortunate disturbance observed was recent bulldozer clearing activities on the western portion of the site. The upper 15-30 cm of soil had been bladed off an area 200 m from the bluff edge. This soil, containing quantities of cultural material, was pushed into the arroyo to the north and across to the far side, onto the surface of site 41 GD 29.

Due to the disturbed nature of the surface material, uncontrolled collections were made of cultural debris from the bulldozed area (arbitrarily designated 41 GD 30B) and the bluff area deposits (41 GD 30A). Among items recovered from the surface were chert flakes, cores, bifacial tools, projectile points, burned rock, mussel shell, snail shells, hammerstones, ground stone implements, faunal material and some recent historic refuse.

Thick grass cover masked the surface of the site between areas A and B, making it difficult to determine if these areas were actually cultural or erosional patterns (Fig. 11,a). A series of shovel tests was dug to outline buried deposits suitable for controlled testing. Eighteen such tests, approximately 50 cm in diameter, were spaced over most of the site (Fig. 10). A field appraisal of the material recovered and the depth of the deposits (Table 1) confirmed the existence of two horizontally separated components. Shovel tests within both areas contained abundant cultural material including at least fragments of most types of material found during surface collections. Based on the shovel tests, a controlled excavation unit was placed in each area of concentration.

Test Pit 1 in 41 GD 30A, a 2 m², was excavated near shovel test 7, several meters from the bluff edge. The unit was dug in 15 cm arbitrary levels and screened through 1/4-inch mesh. Below level 5 (61-75 cm) the unit was decreased in size to 1 m², the southeast quadrant of the original 2 m² unit. A shovel test was dug in the northwest quadrant of the 1 m² from 150-190 cm. Cultural material was dense in the upper 5 levels. Mussel shells and land snail shells were present in enormous quantities; only a sample was collected from each level because of the time it would have required to retrieve all the shell fragments. Faunal recovery was very good from most levels, yielding many identifiable bones. Chert debitage, burned sandstone and burned quartzite were recovered in quantity. Smaller numbers of ground stone fragments, bifaces, sherds, cores, bone tools and worked mussel shells were also present in the upper 75 cm.

Cultural material in the lower levels generally decreased, with the exception of bone. An abrupt decrease in bone in level 6 (75-90 cm) was followed by gradually increasing quantities, with level 9 (120-135 cm) containing (proportionally) as much bone as was present in level 4. Below 150 cm cultural material appeared to be more scarce but still present to the bottom of the test excavation.

Comparatively little stratigraphy could be observed in Test Pit 1. The soil in the upper 90 cm was a dark brown sandy loam containing organic humus. Below 90 cm the soil remained sandy but gradually became lighter in color with decreasing quantities of organic matter. No caliche or clay horizon was ever reached. Cultural stratigraphy was equally obscure. The only layer visible in profile was the thick midden zone in the upper levels, the upper and lower limits of which it was impossible to delineate in the profiles.

Artifacts diagnostic of known cultural time periods were scarce. Several sherds of bone tempered pottery were recovered from the first level, indicating a Late Prehistoric occupation. A thin bifacial preform probably also indicative of the Late Prehistoric period (Fig. 15,i) was found in level 2, as was a side-notched point probably diagnostic of the Late Archaic period (Fig. 15,u). Level 3 contained a triangular thin biface of the Form 2 category which probably dates to the latter part of the Archaic period. Bone tools found in levels 2 and 3 (Fig. 16,p) are typical of the Late Archaic period in coastal Texas (Calhoun 1965). A shell ornament (Fig. 16,l) from level 3 is identical to those found in Late Prehistoric and possibly also in Late Archaic period sites in central Texas. No diagnostic artifacts were found below 45 cm.

Two features were recorded in Test Pit 1. Feature 1 at 60 cm in the southeast quadrant of the unit was a cluster of approximately 13 pieces of fire-fractured sandstone (Fig. 12,a). No charcoal, ash or stained soil were observed. Additional material associated with this feature may continue to the south of the excavation unit. At 75 cm a second sandstone feature was found. Feature 2 was a small cluster of six fire-fractured sandstone chunks, again with no evidence of burned wood or earth. The function of these features is unknown. They may represent hearth fragments or they may just be clusters of burned rock removed or scattered from a nearby hearth.

Test Pit 1 in 41 GD 30B, a 1 m², was excavated in 15 cm arbitrary levels adjacent to shovel test 16 (Fig. 12,b). The unit was screened with 1/4-inch mesh and constant volume soil samples were retained from each level for laboratory processing. Eleven 15 cm levels were excavated to a total depth of 165 cm, with a shovel test in the northwest corner of the unit continuing to 193 cm.

Large quantities of cultural material were recovered from this test pit. Levels 2-5 (15-75 cm) contained the most concentrated quantities. However, flakes were found in small numbers below 165 cm. The soil was very sandy throughout. The upper 30-40 cm was a dark brown sandy loam, which gradually became lighter in color but remained sandy. Below 165 cm the soil was tan sand with increasing caliche. No clear stratigraphy was observed; however, a larger profile may show lenses of cultural material. Fluctuations in the flake count suggest some vertical separation. Levels 2-5 (15-75 cm) and 7-10 (90-165 cm) are separated by an almost sterile level 6 (75-90 cm). Bone and artifact distribution shows a similar separation.

Temporally diagnostic artifacts recovered reflected the bulldozer activity on the surface of this area. A surface collection from the dislocated top portion of the site yielded *Refugio* and *Pedernales* projectile points typical of the Middle Archaic period. Level 3 in the excavation unit yielded an Early Archaic *Travis* point. Worked bone artifacts typical of the Middle Archaic period were found in level 2, but no diagnostic points were present in that level.

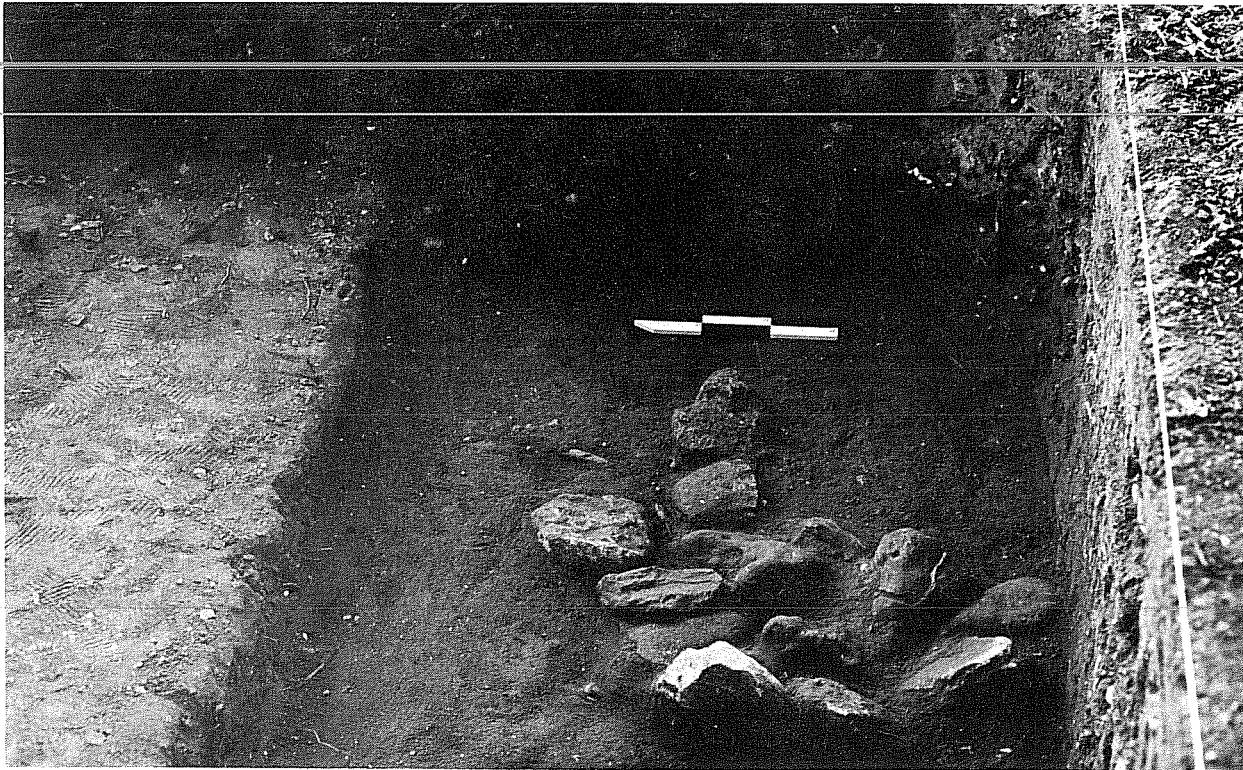
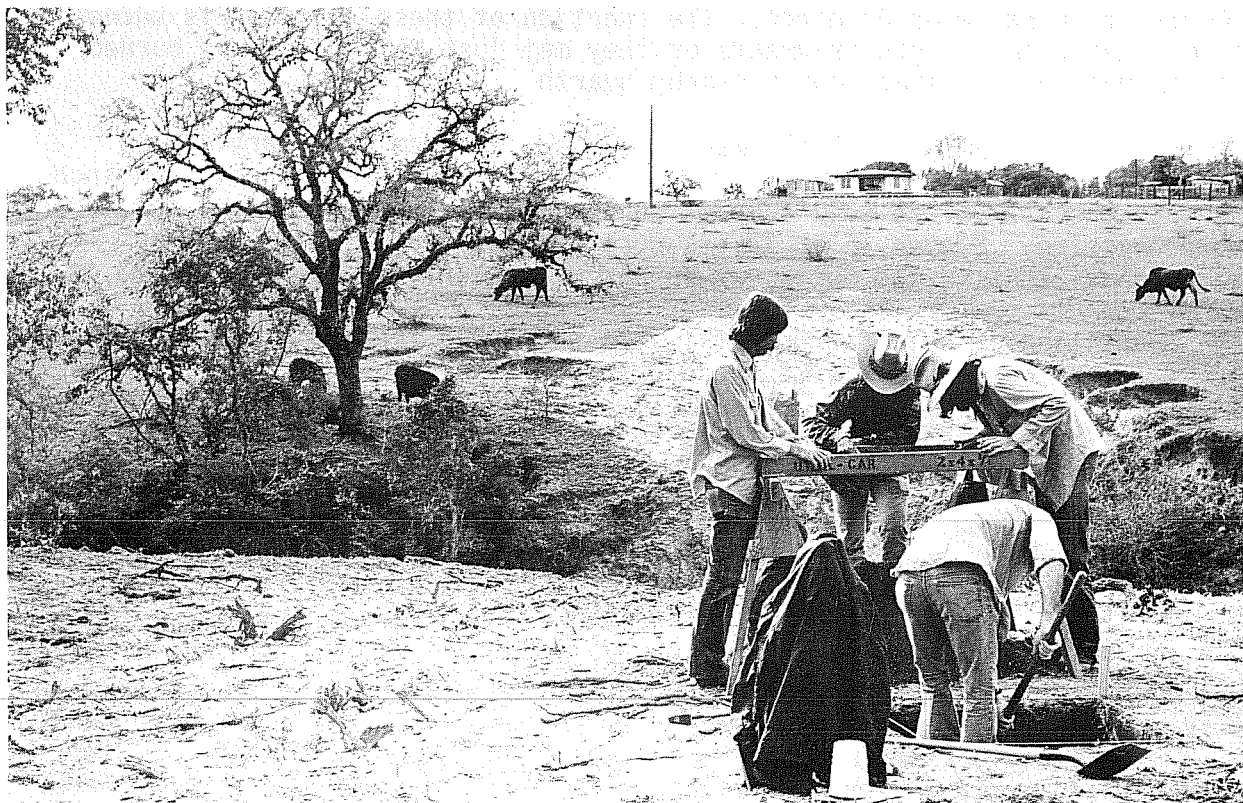
**a****b**

Figure 12. *Views at Site 41 GD 30B.* a, Feature 1 in Test Pit 1; b, Test Pit 1.

Interpretation

The limited testing undertaken at the Berger Bluff site during Phase II serves best as an indication of the potential value of the site. The following discussion is of a preliminary nature based on a very small sample of the content of the site.

The Berger Bluff site, 41 GD 30, is a multicomponent open campsite occupied during Archaic and Late Prehistoric times. Two horizontal components of the site, Areas A and B, are characterized by cultural deposits of at least 190 cm in depth. Shovel tests placed between the two areas contained relatively little cultural material. Area A deposits contain at least one midden zone (0-75 cm) composed of abundant lithics, bone, shell and burned rock. Stratigraphy at the site is not well defined. Fluctuations in the types and amounts of cultural material noted in both controlled test units indicate deposits are not homogeneous. Dart point types from the site have been found in context with Middle and Late Archaic assemblages in adjacent areas of the state. It is possible that earlier material is still present in the deeper portions of the site; no time indicators were recovered below 45 cm, but abundant cultural material was found to 150 cm and lesser quantities to at least 190 cm.

Materials recovered from the site indicate a variety of activities was carried on at or near the site, including flint knapping, faunal procurement, food processing, bone working and possibly shell working. Flint knapping activities produced much of the material recovered. Lithic materials include broken cobbles, cores, all types and sizes of flakes, hammerstones, abrading stones and all stages of bifacial tool reduction. A bone-flaking tool was also recovered. Other bone tools suggest bone working and crafts connected with their use, such as basket making and leather working. Numerous burned rocks and pieces of fire-fractured chert and quartzite indicate many fires were built at the site.

The faunal list (Table 3) compiled from test excavations contains over 20 species, attesting to an intensive pattern of exploitation. A variety of mammals, rodents, fish and reptiles were collected and brought to the site from several econiches. Aquatic, riverine and grassland species are represented. In addition, at least three species of snail and three of mussel were observed.

This site has been placed on the National Register of Historic Places. We recommend that the site be protected from future disturbance due to reservoir construction, and that further, more detailed archaeological investigations be carried out here before the reservoir is completed.

MATERIALS RECOVERED

Artifact descriptions in this section are based primarily on those used in the report of the Cuero Reservoir survey (Fox *et al.* 1974:24-56) in order to facilitate comparison with the results of that survey. Artifact totals reported in this section do not include unidentifiable broken fragments such as thin biface tips and medial fragments. Complete totals which include these fragments will be found in Tables 1 and 2.

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STONE

The primary raw materials available to the prehistoric people for manufacture of tools and weapons were cobbles of chert and quartzite found in large areas on the ridge to the east of Coleta Creek. Cobbles also can be found at some sites on the creek recorded during the 1976 survey. These include 41 VT 19 (Fox and Hester 1976:56-59), where chert cobbles are eroding from the east bank of the creek, and 41 VT 47 (*ibid.*:55), where a small tributary joining Coleta Creek from the east has carried large quantities of cobbles and strewn them over a large area near its mouth. A fresh supply of cobbles would have been available from gravel bars along the creek after every major flood. No similar sources have so far been recorded on Perdido Creek.

The process of producing tools and projectile points from cobbles has been illustrated by Fox (Fox *et al.* 1974:Fig. 8) for the Cuero area 20 miles to the north on the Guadalupe River drainage. The same process appears to have been utilized on Coleta and Perdido Creeks, using a similar raw material. Flakes were struck from cobbles, using chert or quartzite cobbles from the same geological formation, in order to create heavy tools and bifaces. Some of these were further reduced into thinner bifacial tools and projectile points. Flakes derived from the process were often utilized as they were or were further shaped into tools or thin bifaces. The resultant cores were sometimes shaped into core-tools. Since very little is known about the uses to which these various forms were put by the aboriginal peoples, descriptions are limited to morphological rather than utilitarian terms.

Flakes and Chips

More than 23,000 flakes and chips of chert were recovered in the process of intensive survey, shovel testing and test excavations. No attempt has been made at detailed analysis of these materials in this report. However, the debitage from excavations has been broken down into a number of categories for purposes of comparison.

Flakes (6057 specimens)

A flake is a fragment which has been removed from a cobble or biface and retains a fragment of the platform from which it was struck. For purposes of analysis flakes can be divided into three groups.

Primary Flakes (45 specimens): A primary flake represents initial flake removal from a cobble. Therefore, it has an unprepared cortex striking platform and cortex covers its entire exterior surface. This category represents 0.7% of the total number of flakes recovered from excavations.

Secondary Flakes (1639 specimens): Secondary flakes, removed from partially decorticate cores or bifaces, bear some of the original cortex. They represent 27.1% of the total number of flakes from the excavations.

Tertiary Flakes (4373 specimens): These flakes have no cortex present on their surfaces, being derived from decorticate parts of cores, bifaces or flakes. They represent 72.2% of the total of flakes recovered from excavations.

Chips (10,815 specimens)

Chips are broken portions of flakes without platforms. They have been divided into groups depending on the amount of cortex present.

Corticate (337 specimens): Corticate chips are fragments of primary or secondary flakes having cortex over their entire external surfaces. These represent 3% of the total number of chips excavated.

Partially Decorticate (2305 specimens): These are fragments of secondary flakes. They make up 21.4% of the total of chips excavated.

Decorticate (8173 specimens): Decorticate chips have no cortex on their surfaces, being derived from tertiary flakes or decorticate sections of secondary flakes. These make up 75.6% of the total number of excavated chips.

Cores (50 specimens)

A core is a cobble from which one or more flakes have been removed.

Cortex Platform Cores (15 specimens; Fig. 13,a)

Cortex platform cores are those from which flakes have been struck using the unaltered cortex of the cobble as a platform.

Prepared Platform Cores (35 specimens; Fig. 13,b)

These are cobbles from which one or more flakes have been removed in order to create a platform for further flake removal.

Core-Tools (6 specimens)

Core-tools are simply cores which have been slightly altered or used as they were for chopping or scraping. They have been sorted into two distinct groups.

Group I (2 specimens; Fig. 13,c): These tools are cores with a sharp sinuous edge along one side which shows signs of considerable wear. In each case, the end opposite the working edge still retains its cortex.

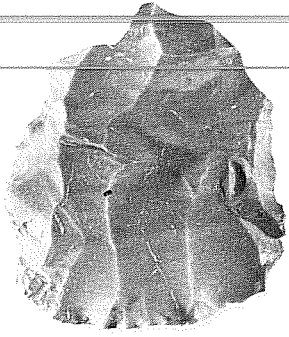
Group II (4 specimens; Fig. 13,d): These tools show evidence of purposeful shaping of the utilized edge into a semi-pointed or rounded form, as well as wear-fractures along the edge from heavy use.

Figure 13. *Cores, Core-Tools and Core Bifaces*

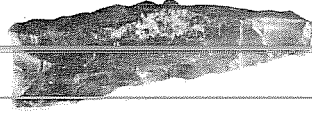
a, cortex platform core	41 GD 30B, surface
b, prepared platform core	41 GD 30A, Test Pit 1, level 5
c, core-tool, Group I	41 GD 30B, surface
d, core-tool Group II	41 GD 30A, 1-7, se quad.
e, core-biface Group I	41 GD 30, bluff
f, core-biface Group II	41 VT 54, 1-3

Figure 14. *Thick Bifaces*

a, Group I, subtriangular	41 GD 22, surface
b, Group II, ovate	41 GD 30A, Test Pit 1, level 4, northern half
c, Group III, Form 1 (<i>Guadalupe</i> tool)	41 GD 13, surface
d, Group III, form 2	41 GD 30A, 1-4, northern half
e, Group III, Form 3	41 GD 22, surface



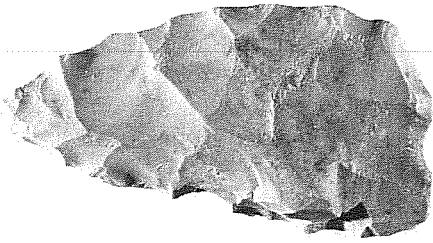
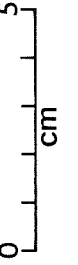
b



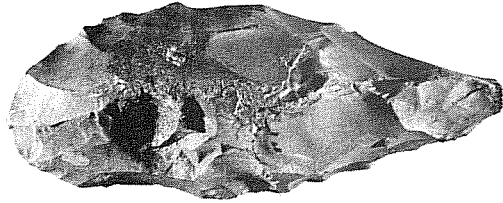
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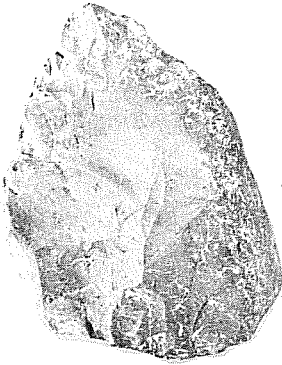
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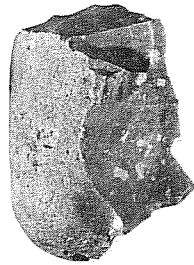
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c



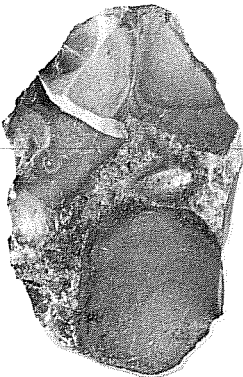
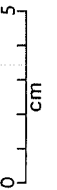
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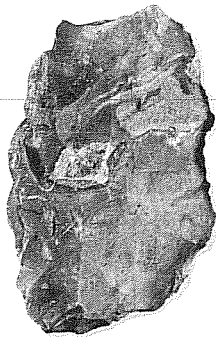
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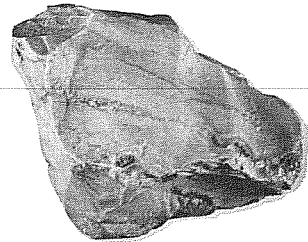
f



a



c



e

Bifaces (77 specimens)

Bifaces can be defined as specimens which are bifacially worked with the apparent intent to produce a functional shape. This category has been divided into several groups.

Core-Bifaces (15 specimens)

Core-bifaces are bifacially worked cores which approach thick bifaces in shape and size but generally retain some of their original cortex. They exhibit relatively crude flaking and a sinuous edge. They appear to be an intermediate step in the production of bifaces from cores and can be roughly divided into two groups.

Group I (11 specimens; Fig. 13,e): These specimens are made from cobbles which were originally oval in shape. They have been reduced to a nearly flat surface on one side but retain much of the original cortex on the other. Flaking has been done from natural and prepared platforms.

Group II (4 specimens; Fig. 13,f): These specimens exhibit large, crude flake scars struck primarily from cortex platforms. They are irregular in shape and retain a large percentage of the original cortex.

Thick Bifaces (19 specimens)

These exhibit crude flaking, are thicker than 1.3 cm and have little or no cortex remaining. This category is divided into three groups on the basis of their general shape. Groups I and II may be stages in the process of making thin bifaces. The specimens in Group III are finished or nearly finished tools.

Group I (5 specimens; Fig. 14,a): Specimens in this group are subtriangular in outline and vary from 1.4 to 2.2 cm in thickness.

Group II (3 specimens; Fig. 14,b): These bifaces are roughly ovate in shape and average 1.6 cm in thickness.

Group III (11 specimens): This group includes three subtly different forms of thick, subtriangular bifaces. The distinctive feature of the group is that the specimens are nearly as thick as they are wide, and in each case the wider end is beveled to form a working edge.

Form 1 (3 specimens; Fig. 14,c): These tend to be elliptical in outline. The distal end is beveled by flaking from the ventral surface, giving an upward curve to the profile, the rest of the ventral surface being comparatively flat. The dorsal ridge is prominent, often retaining some cortex. They vary from 8-10 cm in length.

This form, commonly called "Guadalupe adze" or "Guadalupe tool," is found primarily on the Guadalupe and San Antonio River drainages (Campbell 1976:84; Hester and Kohnitz 1975:23).

Form 2 (6 specimens; Fig. 14,d): These specimens, more triangular in outline and more lenticular in cross section, are otherwise quite similar to Form 1 specimens. The major differences are in the relatively straight working edge and a tendency toward a rounded rather than a flat ventral surface. These bifaces are similar to Fox's Form 3 (Fox *et al.* 1974:40-41).

Form 3 (2 specimens; Fig. 14,e): Similar in shape to Form 1, these bifaces are smaller and display finer workmanship than the others in this group, being approximately 6.5 cm in length. The ventral surface is flat and the cross-section is triangular. The flaking which created the straight working edge is primarily from the dorsal side.

Thin Bifaces (41 specimens)

Thin bifaces are generally more uniform in thickness and shape and probably represent both preforms and finished products, including numerous intermediate stages of reduction. They are thinner than 1.3 cm and seldom retain any cortex.

Irregular (2 specimens; Fig. 15,a): These bifaces are less uniform in shape than other forms and appear to have been broken and discarded at an early stage in the reduction process.

Pointed-Ovate (12 specimens): Pointed-ovate bifaces, as their name implies, are pointed at the distal end and rounded at the proximal end. Edges vary from convex to straight and are divided by maximum width into three forms.

Form 1 (3 specimens; Fig. 15,b): These are 4.3 to 5.0 cm maximum width and 8 cm or more long, with convex edges. The illustrated specimen is a finished tool and is alternately beveled with delicate pressure flaking. The others were broken before they could be finished.

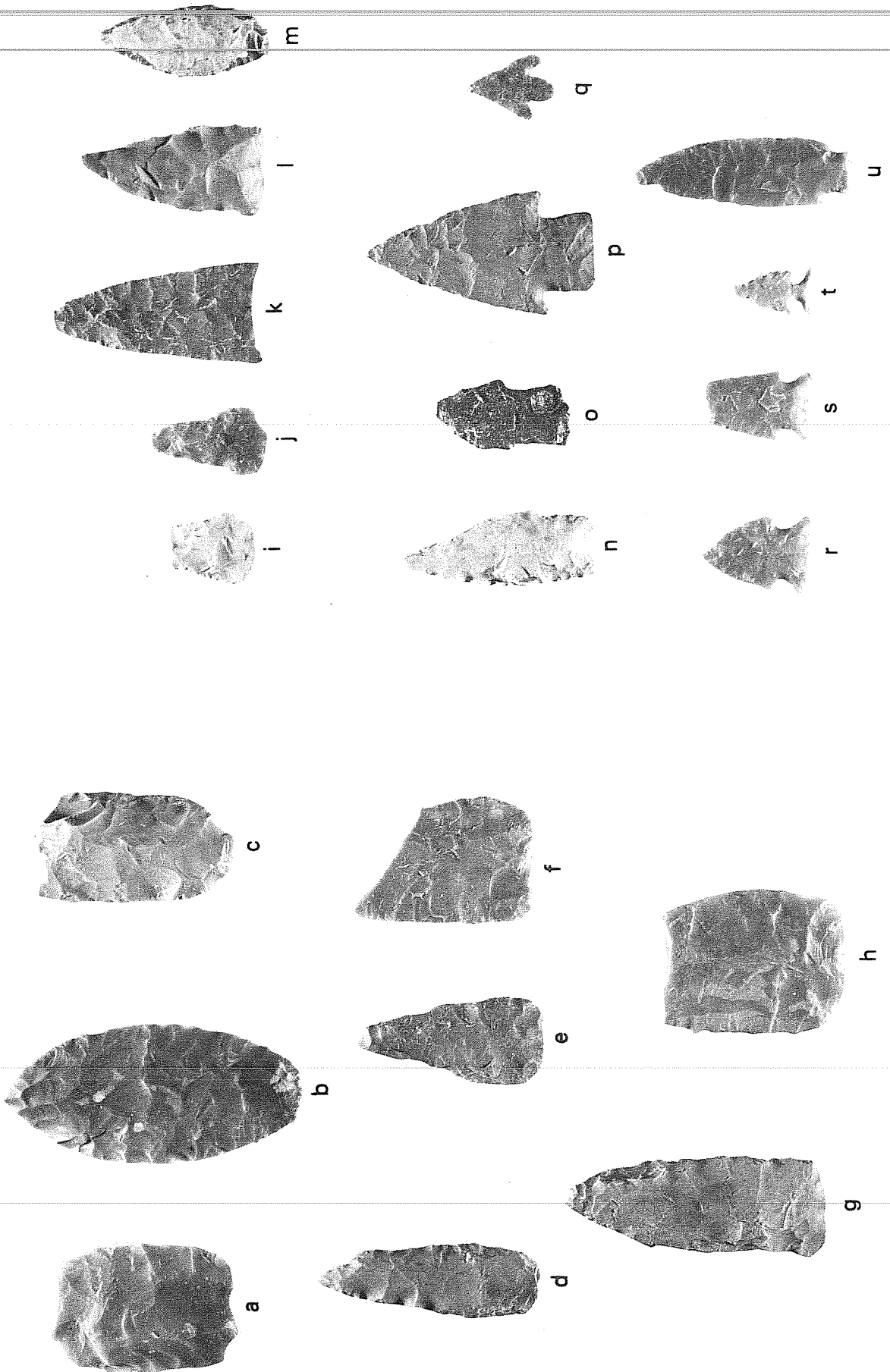
Form 2 (6 specimens; Fig. 15,c): These are 3.1 to 3.7 cm maximum width and well over 6 cm long, with nearly parallel edges. They average 1.1 cm in thickness and are percussion-flaked.

Form 3 (3 specimens; Fig. 15,d): These are similar to Form 2 but smaller in scale. They measure 2.5 to 3.6 cm in maximum width, 7 cm or more in length, and their average thickness is 0.6 cm. The illustrated specimen appears to be a projectile point of the type commonly called *Refugio*, described by Suhm and Jelks (1962:241, Plate 121). This is a common dart point in the central coastal area. Its age was estimated by Suhm and Jelks (*ibid.*) at 2000 B.C. to A.D. 1000.

Figure 15. *Thin Bifaces*

a, irregular
 b, pointed-ovate, Form 1
 c, pointed-ovate, Form 2
 d, pointed-ovate, Form 3
 e, subtriangular, Form 1
 f, subtriangular, Form 1
 g, subtriangular, Form 2
 h, subtriangular, Form 2
 i, subtriangular, Form 3
 j, subtriangular, Form 3
 k, triangular, Form 1
 l, triangular, Form 2
 m, contracting stem
 n, straight stem, Form 1
 o, straight stem, Form 2
 p, straight stem, Form 3
 q, straight stem, Form 4
 r, expanding stem, Form 1
 s, expanding stem, Form 1
 t, expanding stem, Form 2
 u, expanding stem, Form 3

41 GD 22, surface
 41 GD 14, surface
 41 GD 30A, Test Pit 1, level 8
 41 GD 30B, surface
 41 GD 30A, Test Pit 1, level 5
 41 GD 30B, surface
 41 GD 30B, surface
 41 GD 21, Test Pit 1, level 3
 41 GD 30A, Test Pit 1, level 2
 41 GD 21, Test Pit 1, level 1
 41 GD 30A, Test Pit 1, level 3
 41 GD 22, surface
 41 GD 30B, Test Pit 1, level 3
 41 GD 30B, surface
 41 GD 30B, Test Pit 1, level 3
 41 VT 54, Shovel Test 2
 41 GD 21, Test Pit 1, level 1
 41 GD 21, Test Pit 1, level 3
 41 GD 21, Test Pit 1, level 2
 41 GD 33, Test Pit 1, level 1
 41 GD 30A, Test Pit 1, level 2



Subtriangular (17 specimens): These bifaces have straight to slightly convex bases with rounded corners. Sides are straight to convex. Most specimens show evidence of controlled thinning, such as prepared platforms or pressure flaking.

Form 1 (5 specimens; Fig. 15,e,f): These vary from 2.3 to 4.0 cm in maximum width and are 6 cm or more in length. They average 7.5 cm in thickness and have been pressure-flaked to the point where edges are quite thin and nearly straight and surfaces are comparatively flat.

Form 2 (10 specimens; Fig. 15,g,h): These measure 3.1 to 4.9 cm maximum width and 9 cm or more in length. Thickness averages 0.9 cm and shaping is primarily by percussion, leaving sinuous edges and comparatively rough surfaces. The overall effect is more crude than that of Form 1.

Form 3 (2 specimens; Fig. 15,i,j): These are considerably smaller, measuring 2 cm maximum width and ca. 3.5 cm in length. They have slightly convex bases which are quite thin. They are probably preforms for *Perdiz* projectile points.

Triangular (4 specimens): Triangular thin bifaces have straight to slightly concave bases and straight to slightly convex sides. The two forms recovered differ primarily in thickness and amount of pressure flaking present.

Form 1 (3 specimens; Fig. 15,k): These measure 2.8 to 3.0 cm maximum width, 6.3 cm or more in length and 0.5 cm in thickness. They compare in workmanship with Form 1 in the Subtriangular category, being thin and flat with sharp, straight edges. Smaller specimens may be considered *Kinney* projectile points (Suhm and Jelks 1962: 201).

Form 2 (1 specimen; Fig. 15,l): This specimen is 1 cm thick, 2.5 cm wide and 5.4 cm long. Flaking is predominantly by percussion, leaving an irregular outline and sinuous edges.

Contracting Stem (1 specimen; Fig. 15,m): This specimen is nearly bi-pointed, with a flat, narrow base. It was made from a flake, the base being the original striking platform from which the flake was struck. The artifact is 3 cm wide at its maximum point, 5 cm long and 6 cm thick. It is similar to *Lerma* points reported by Suhm and Jelks (1962:207, Plate 104) to be found throughout the central coast and southwestern Texas, dating to the Paleo-Indian and Archaic periods.

Straight Stem (4 specimens): This group includes thin bifaces which have shoulders and comparatively straight-sided stems.

Form 1 (1 specimen; Fig. 15,n): This specimen has a long triangular blade with sloping shoulders and a straight-sided stem with a convex base. It is 2.2 cm in width at the shoulders, 1.8 cm at the widest part of the stem, 5.5 cm long and 0.9 cm thick.

This form fits the description by Suhm and Jelks (1962:235-237, Plates 118, 119) for *Pedernales* projectile points, which are commonly found throughout central Texas and less often in the coastal area. Current information indicates these points were in use during the Middle Archaic period (ca. 2000 to 1000 B.C.).

Form 2 (1 specimen; Fig. 15,o): This has a flat blade, straight edges and sloping shoulders. The stem has a flat base and squared corners. Its maximum width is 1.9 cm at the shoulders and 1.8 cm at the base. The specimen is severely burned and the tip is broken, making further identification impossible.

Form 3 (1 specimen; Fig. 15,p): The blade on this pressure-flaked specimen is triangular with slightly convex edges and short barbs. The rectangular stem is thinned at the base and sides. It measures 3.5 cm across the shoulders, 2.3 cm across the stem, 6.5 cm in length and 0.9 cm in maximum thickness.

This form is described by Suhm and Jelks (1962:169, Plate 85) as a *Castroville* point, found in central Texas and adjoining areas. These points were in use during the Late Archaic period.

Form 4 (1 specimen; Fig. 15,q): This pressure-flaked form has a triangular blade with straight to slightly convex sides, long barbs and a relatively straight stem which is rounded at the base. It measures 1.9 cm across the barbs, 0.6 cm across the widest part of the stem, 2.5 cm in length and 0.3 cm in thickness.

Suhm and Jelks (1962:283, Plate 142) identify this as a *Perdiz* point, common over most of Texas in the Late Prehistoric period (A.D. 1000 to 1600).

Expanding Stem (5 specimens): The stems of these specimens expand outward toward the base and blades are shouldered or barbed. All are pressure-flaked.

Form 1 (2 specimen; Fig. 15,r,s): The blades are triangular, the stems are wide and the bases straight on these side-notched specimens. They average 2.1 cm across the shoulders, 2.4 cm across the base, 3.3 cm in length and 0.6 cm in thickness.

Similar points are identified by Suhm and Jelks (1962:189, Plate 95) as *Enser* points, found in central and coastal Texas. They were popular in the Late Archaic period.

Form 2 (1 specimen; Fig. 15,t): This thin, pressure-flaked point has a triangular blade with serrated edges and a corner-notched stem with a sharply expanding base which is slightly concave. It measures 1.3 cm across the shoulders, 1.5 cm across the base, 2.3 cm in height and 0.3 cm in thickness.

This form is similar to those described by Suhm and Jelks (1962:285, Plate 143) as *Scallorn* points. They have been found throughout most of Texas and were used in the earlier part of the Late Prehistoric period (ca. A.D. 500 to 1000).

Form 3 (1 specimen; Fig. 15,u): The long, slender blade of this form is slightly beveled, the shoulders poorly developed and the base was formed by side-notching. It measures 2 cm at the widest part of the blade, 1.3 cm across the base, 6.3 cm in length and 0.5 cm in thickness. Made on a long, thin flake, the striking platform forms the base of the specimen.

Form 4 (1 specimen; not illustrated): This specimen is rather crudely made, with a triangular blade, weak shoulders and a deep basal indentation. Its dimensions are 1.5 across the shoulders, 1.6 cm across the base, 3.5 cm in length and 0.8 cm in thickness. Basal edges have been lightly ground.

Projectile points similar to this form were first identified by Shafer (1963:64, Fig. 7) as *Gower* points, and they have been associated with the Pre-Archaic period, ca. 5500 B.C.

Trimmed Flakes and Chips (35 specimens)

A trimmed flake or chip is one on which the edges have been shaped by removal of a series of small flakes. None of the specimens in this category from Phase II excavations appears to have been purposefully shaped into any particular form, but flakes have been utilized as they came from the core. These can be divided into three forms.

Form 1 (4 specimens; Fig. 16,c,d): Flakes and chips in this category are unifacial and have been trimmed along the distal end opposite the striking platform, and often along the lateral edges as well. Specimens range from 2.5 to 8.5 cm in length and from 1.5 to 2.2 cm in thickness.

Form 2 (2 specimens; Fig. 16,e,f): These specimens are somewhat circular in shape and exhibit irregular trimming around most of their perimeter. Both are ca. 4 cm in diameter.

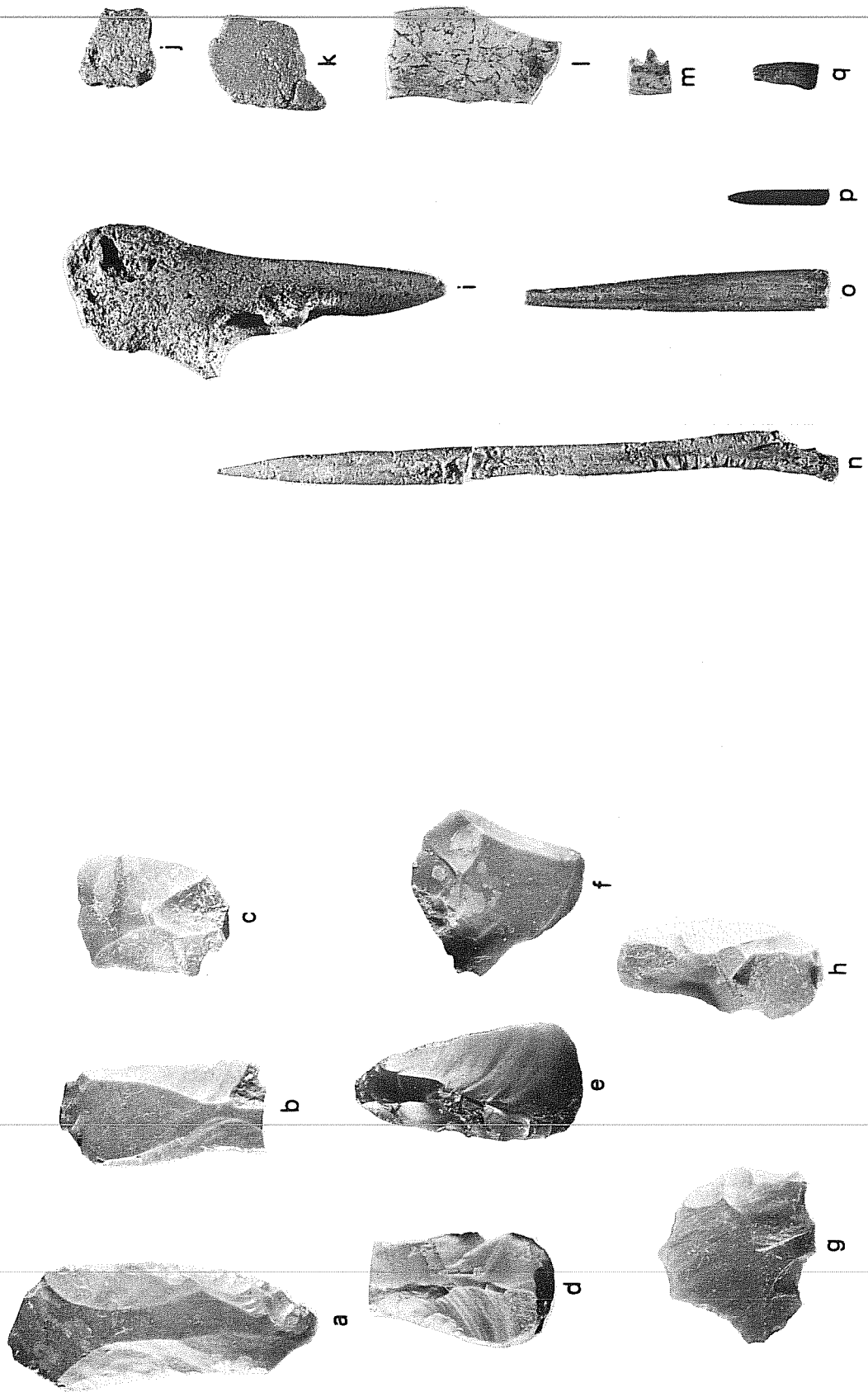
Form 3 (29 specimens; Fig. 16,g,h): The large majority of these artifacts fall into this category. In each case, one edge or both edges parallel to the long axis of the flake have been trimmed. They vary from 0.3 to 8 cm in length and from 2 to 4.5 cm in width.

Edge-Damaged Flakes and Chips (104 specimens; Fig. 16,a,b)

Sometimes referred to as "utilized" flakes and chips, this category includes specimens whose edges exhibit minute, irregular chipping which could have been caused by use as a tool. Opinions vary as to the validity of this category (Dunfield 1970; Wylie 1975; Hester *et al.* 1976), but it is included for comparative purposes. Specimens are primarily tertiary flakes, although secondary flakes and decorticate chips are also well represented.

Figure 16. *Flakes, Pottery, Shell and Bone Artifacts.*

a, b, utilized flakes and chips	a, 41 GD 30A, Test Pit 1, level 2 b, 41 GD 21, surface
c, d, trimmed flakes and chips, Form 1	c, 41 GD 30A, Test Pit 1, level 2 d, 41 GD 21, surface
e, f, trimmed flakes and chips, Form 2	e, 41 GD 30A, Test Pit 1, level 2 f, 41 GD 30A, Test Pit 1, level 4
g, h, trimmed flakes and chips, Form 3	g, 41 GD 30A, Test Pit 1, level 2 h, 41 GD 30A, Test Pit 1, level 4
i, j, pottery	i, 41 GD 21A, Test Pit 1, level 1 j, 41 GD 21A, Shovel Test 14
k, marine shell	k, 41 GD 30B, Test Pit 1, level 3
l, shell ornament	l, 41 GD 30A, Test Pit 1, level 3
m, antler fragment	m, 41 VT 52, Test Pit 1, level 3
n, polished bone fragment	n, 41 GD 21A, Test Pit 2, level 1
o, ulna flaker	o, 41 GD 30A, Test Pit 1, level 2
p, q, bone awl	p, 41 GD 30A, Test Pit 1, level 3 q, 41 GD 30, Shovel Test 7



Chert Cobbles (7 specimens; Fig. 17,c)

Whole cobbles or nodules of chert were occasionally found during excavation. Several of these appear to have been used as hammerstones.

Sandstone (21 specimens; Fig. 17,d-f)

Fragments of sandstone which appear to have been used as grinding implements were found in several sites. All have been intentionally shaped and have at least one smooth surface. One bears remnants of red ocher on its flattened surface, and another has a hole drilled through it near one end. These objects average 2 cm in thickness.

Sandstone milling stones or manos have been found in the upper levels of sites on the Guadalupe River near Mission Valley, ca. 5 miles northeast of 41 GD 30 (W. W. Birmingham, personal communication). Calhoun (1965) lists thin tabular sandstone grinding implements as an attribute of the Morhiss complex on the lower Guadalupe and San Antonio Rivers.

Quartzite Cobbles (104 specimens; Fig. 17,a,b)

Whole and fractured cobbles of quartzite were found in nearly every excavation unit. The stone varies from deep purple to light pink to pale yellow in color, and surfaces are sometimes blackened as if scorched in a fire. Most of these stones are nearly slick on at least one side, as if they had been used for rubbing or grinding. The same stone may also have one end roughened from battering. It appears that these quartzite cobbles, found in the same deposits as the chert, were put to a number of different uses by the aboriginal people.

Burned Sandstone and Clay

Isolated fragments of burned sandstone and clay were found in most excavations and at various depths. Occasional concentrations, usually composed of both sandstone fragments and clay lumps, appeared to be the remnants of hearths. However, no charcoal was found in direct association with these features. Some natural concretions, common in the soils of the region, appear also to be in association with the burned materials and may have been used in hearth construction.

NONLITHIC ARTIFACTS

Worked Bone (5 specimens; Fig. 16,n-q)

One nearly complete bone awl 14.3 cm long, made from a deer metapodial, and portions of two others nearly identical to the first were found in excavations at 41 GD 30. The tip of another was found in 41 GD 21A. A deer ulna flaking tool was also recovered from the same site.

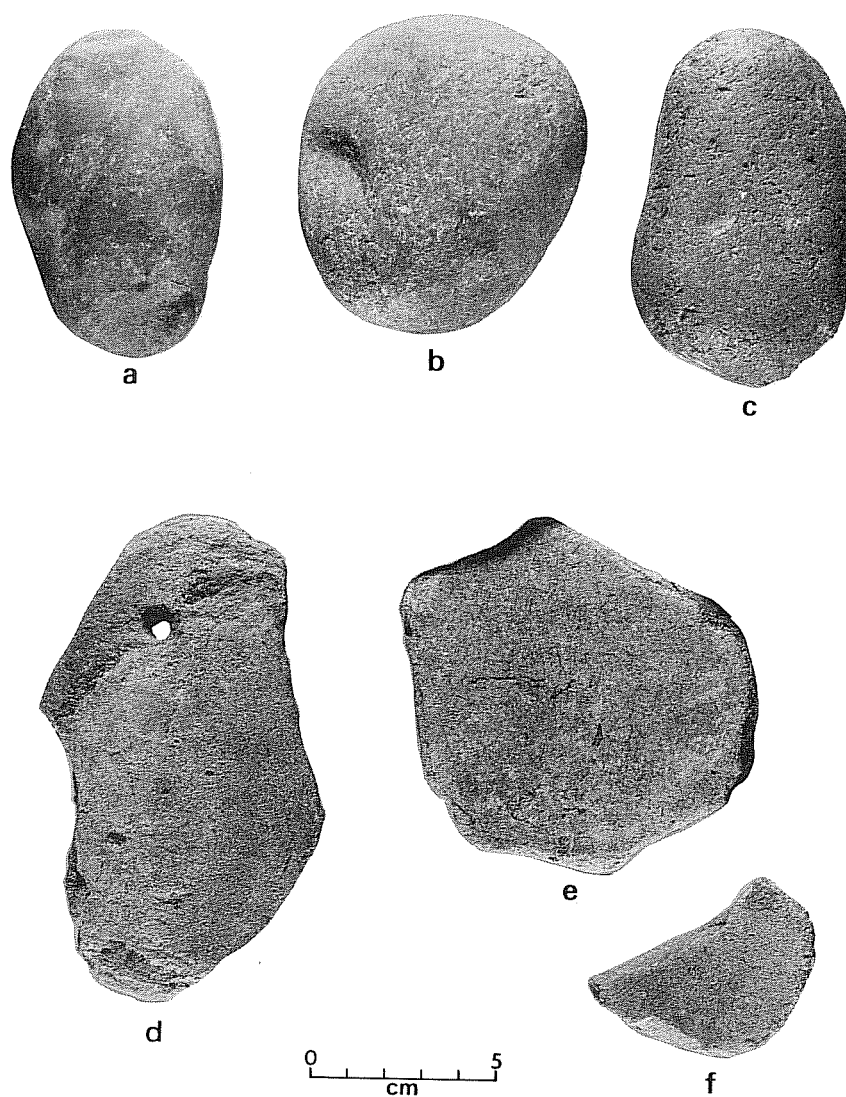


Figure 17. *Utilized Stone.*

a, burned quartzite cobble	41 GD 30A, Test Pit 1, level 3
b, quartzite mano	41 GD 30, Shovel Test 16
c, chert cobble, battered at one end	41 GD 23, Test Pit 2, level 4
d, drilled sandstone slab	41 GD 30, bluff
e, ocher, stained sandstone	41 GD 30, bluff
f, sandstone mano	41 GD 30A, Test Pit 1, level 1

A tubular bone bead 0.6 cm long and 0.5 cm in diameter was excavated from 41 GD 30.

Similar bone artifacts were found in Archaic period deposits at the Morhiss site (Campbell 1976:84), and they are common in central and coastal Texas sites.

Worked Antler (1 specimen; Fig. 16,m)

A small section of the tip of an antler was found in the third level at 41 VT 52. The cut end appears polished as if considerable effort had been required to separate it from the rest of the antler. It is 1.5 cm long and 0.5 cm in diameter.

Worked Shell (2 specimens; Fig. 16,k,l)

A fragment of a mussel shell ornament was recovered from 41 GD 30. It consists of a flat, rectangular piece of shell 0.5 cm x 0.6 cm with two holes drilled near one edge. Nearly identical mussel shell ornaments have been found in Late Prehistoric sites in the vicinity of San Antonio (Fox, Bass and Hester 1976:70-71, Fig. 24).

A fragment of *Macrocallista nimbosa* shell has one edge which appears worn smooth, perhaps from some sort of scraping activity. A salt water variety, this shell was either carried to the site from the coast or obtained through trade with a coastal group.

Ceramics (21 specimens; Fig. 16,i,j)

Sherds of pottery found at sites 41 GD 21 and 41 GD 30 vary from 5 to 7 mm in thickness, from charcoal gray to reddish brown in color, and often have a black to dark gray core. Since uneven firing temperatures can result in a complete range of colors on an individual vessel, there is no way to determine how many vessels may be represented. No rim sherds were recovered. All sherds were tempered with varying amounts of white to dark gray bone fragments. The paste appears extremely porous, with a coarse texture and numerous rounded smoky quartz inclusions.

The sherds recovered are quite similar to those recovered from other Late Prehistoric sites in south Texas (Hester and Parker 1970; Hester 1977; Hester and Hill 1971; Calhoun 1966). Similarities of this type of pottery to *Leon Plain* ware common to central Texas and bone tempered wares found along the southeastern edge of the Edwards Plateau have been noted by Hester and Hill (1975:14-15). It seems probable that the Late Prehistoric pottery tradition is much the same throughout central and south Texas, and that minor differences observed in the proportions of sand to clay in the paste merely reflect the content of the local clay with which the potter was working.

FAUNAL REMAINS

Vertebrate (Table 3)

The animal bone recovered from test excavations at 41 GD 21 and 41 GD 30 was analyzed by Billy Davidson of the Center staff. A number of observations can be made based upon the species of animals represented and their distribution within the sites. Perhaps one of the most striking bits of information to be gained from the provenience table is the concentration and diversity of vertebrate faunal materials found in the Late Archaic levels. The absence of these concentrations in 41 GD 30B suggests that the bulldozer operation removed and redistributed all or most of the Late Prehistoric and Late Archaic deposits on that part of the site where the test pit was located. This idea is reinforced by the Late Archaic artifacts found during surface collecting over the disturbed area.

The types of vertebrate remains in these Late Archaic assemblages suggest that the terrain and climate were not too different at that time from those present today. The presence of gar, frog and various aquatic turtles indicates there was permanent water in the creek during that period. Rice rats and swamp rabbits prefer a swampy habitat (Davis 1974:212, 243). Raccoons are seldom found very far from water (*ibid.*:91). The cottonrat, grasshopper mouse, deer mouse, jackrabbit and bison indicate expanses of open grassland such as are currently found in the area. Coyote, bobcat, deer and squirrel prefer woodlands such as those present today along the stream banks.

The contrast of the varied diet of the Late Archaic levels with one which consisted primarily of turtle, deer and occasional jackrabbit in the Early and Middle Archaic levels is remarkably similar to that found during the testing of sites in the Cuero Reservoir (Fox *et al.* 1974). There was, however, a slightly different assortment of vertebrates present at Cuero due to slight differences in habitats in a wider, more geologically complex stream valley.

Invertebrate

Pelecypods representing at least three fresh water species were recognized among the shells recovered from test excavations. Large numbers of *Amblema*, *Lampsilis* and *Quadrula* were present. A fragment of *Macrocallista nimbosa*, a marine species, was recovered from the third level at 41 GD 30B. Undoubtedly other less easily identified species were also present, but funds were not budgeted in this phase of the project for detailed analysis.

Gastropods present included *Rabdotus*, *Helisoma*, *Mesodon*, *Polygyra* and *Practicolella*. It is generally accepted that the bulk of the *Rabdotus* found in archaeological sites in south Texas represent a food resource (Hester and Hill 1975:16). The other gastropods were probably naturally present on the site or were attracted there by decaying vegetal matter discarded by site occupants.

[illegible]

*Present in the reservoir area today.

CONCLUSIONS AND RECOMMENDATIONS

As a result of the archaeological investigations carried out thus far in the Coleta Creek Reservoir, some general conclusions can be made concerning prehistoric lifeways and settlement patterns in the area. These are based upon information gained in the original Phase I survey, from local amateur archaeologists, from several smaller, intermediate surveys and from Phase II testing.

Apparently man has been present in the Coleta Creek area from Paleo-Indian times, as artifacts of this time period have now been recovered from at least one site, 41 VT 16, near the head of the reservoir (Fox and Hester 1976:64). Fortunately, in terms of its chances for preservation, this site will not be directly affected by reservoir construction; it will, however, be exposed to more intense relic collecting and uncontrolled digging as a result of public use of the reservoir. The site has been placed on the National Register of Historic Places in an attempt to aid in its protection. Paleo-Indian remains may well be present in other deep, bluff-top sites such as 41 GD 30, 41 VT 43 and 41 VT 44. The latter two sites are above the flood pool and therefore were not tested in this project. In each case so far observed, these earliest deposits lie beneath Archaic and Late Prehistoric remains, indicating a site which was used periodically over thousands of years.

A great deal more numerous are sites of the Archaic period, which is not surprising since this period covers a greater span of time (more than 6000 years). While the older and larger sites were extensively used during the Archaic period, there were also many smaller and shallower occupation sites apparently in use only during the Archaic period, probably indicating both a larger population and a change in subsistence and settlement practices. These dietary changes have also been demonstrated by the faunal recovery at sites 41 GD 21 and 41 GD 30.

Late Prehistoric period deposits generally seem to occur in the top levels of sites previously occupied during earlier periods. Contrary to impressions gained during Phase I (Fox and Hester 1976:70), Phase II investigations located a number of sites which contain Late Prehistoric deposits. However, it still appears that there were comparatively few Late Prehistoric people living on Coleta Creek or returning there seasonally, as suggested by Spanish accounts of the area in a slightly later time period (*ibid.*:7).

Table 4 demonstrates how closely tied the prehistoric population was to a permanent water source. The few sites which are today over 200 m from the creek are in an oxbow where the stream has moved away from them in more recent times. The faunal recovery at sites 41 GD 21 and 41 GD 30 indicates that one primary reason for this dependence on water was the large percentage of the diet which was obtained therefrom, including fish, reptiles and mammals, as well as several species of mussels.

One of the more interesting aspects of the nature of archaeological sites in the Coleta Creek area is the differential preservation of bone and shell. Lack of faunal preservation, intense gopher activity and natural erosion present the most difficult problems for the archaeologist attempting to find

TABLE 4. SITE COMPARISONS

Site	Drainage	Elevation (ft.)	Area (m²)	Depth (m)	Distance from Water (m)	Affiliation of Artifacts Recovered
41GD23	Perdido	95	3000	170	50	Late Prehistoric
41GD33	Perdido	88	700	145	50	Late Prehistoric
41GD20	Perdido	98	225	30	100	
41GD13	Perdido	88	2500	20	100	Early Archaic
41GD14	Perdido	101	x	100	●	
41GD22	Perdido	108	5500	20	100	Pre-Archaic, Early Archaic
41GD34	Perdido	103	90	15	●	
41GD35	Perdido	103	30	15	●	
*41GD21	Sulphur	100	3500	60	30	Late Paleo Indian thru Late Prehistoric
41GD42	Coletto	85	300	15	●	
41VT41	Coletto	83	7800	200	50	
41GD24	Coletto	88	SCATTER		200	
41VT52	Coletto	95	1000	145	150	
41VT54	Coletto	100	8000	120	100	Late Archaic
41VT55	Coletto	95	3000	50	50	
41VT56	Coletto	103	4000	20	100	Archaic
41VT53	Coletto	105	SCATTER		130	
41GD15	Coletto	105	SCATTER		200	
41GD27	Coletto	106	x	40	120	
41GD18	Coletto	100	2800	40	75	Archaic
41GD17	Coletto	100	SCATTER		200	
41GD16	Coletto	100	1000	35	●	
41GD25	Turkey Creek	103	SCATTER		25	
41GD26	Turkey Creek	103	SCATTER		10	
41GD19	Coletto	82	95	x	20	
41VT39	Coletto	93	SCATTER		10	
41VT40	Coletto	115	300	x	120	
41GD31	Coletto	95	BURIED		●	Early Archaic
*41GD30A	Coletto	100	3300	200+	●	Archaic thru Late Prehistoric
*41GD30B	Coletto	103	2000	190	100	Archaic thru Late Prehistoric
41GD29	Coletto	128	SCATTER		130	
41GD28	Coletto	130	5000	25	100	Archaic
41VT51	Coletto	96	SCATTER		400	
41VT50	Coletto	80	100	100	500	
41VT49	Coletto	93	95	60	800	
41GD32	Coletto	115	300	80	170	
41VT43	Coletto	136	2000	x	50	Late Paleo Indian thru Late Prehistoric
41VT44	Coletto	119	1000	60+	50	Archaic
41VT45	Coletto	121	1500	75	50	
41VT46	Coletto	123	2000	x	50	
41VT47	Coletto	126	100	x	50	
41VT18	Coletto	138	8000	x	50	Pre Archaic thru Late Prehistoric
41VT48	Coletto	123	300	70	50	
41VT19	Coletto	130	4800	x	30	Archaic
41VT21	Coletto	140	7800	5	●	Archaic
41VT17	Coletto	165	1900	x	200	Pre Archaic
41VT20	Coletto	175	7800	x	150	Pre Archaic
*41VT16	Coletto	125	1500	600	75	Paleo Indian thru Late Archaic

* National Register Site
● Bluff Top Site
x Unknown

sites in south Texas which will yield a maximum amount of cultural and chronological information. It is fortunate that these three adverse effects generally occur in combination, on Coleta Creek, primarily in areas of deep, sandy soil, and that sites with a higher clay and humus content, such as 41 VT 16, 41 VT 43, 41 GD 21 and 41 GD 30, appear to be in a much better state of preservation. No cultural reason has so far been determined to account for the choice of an area with one type of soil over another with a different type, as a place to live. However, diagnostic artifacts have been comparatively scarce in the poorly preserved, sandy sites, whereas deep, well-preserved sites often contain numerous tools and projectile points. This suggests a possible difference in either the activities or the span of occupation at the two types of locations. This argument is tenuous at the present time. Future archaeological investigations may provide additional information on this question.

In summary, while the survey and testing phases of work on Coleta Creek have provided a great deal of useful data on the prehistory of the area, detailed work will be necessary at well-preserved, relatively undisturbed sites where good recovery of faunal remains and charcoal will facilitate analysis, dating and interpretation of occupation levels. Positive dating of occupation periods and the human artifactual remains within them are essential for a reconstruction of the prehistory of Coleta Creek and its immediate environs. For this reason, we recommend intensive excavations at sites 41 GD 21 and 41 GD 30 if they are found to be impacted seriously by the action of flooding or by future construction of flumes and dikes on the reservoir.

APPENDIX I

PRIVATE COLLECTIONS FROM SITE 41 GD 21

When the members of the testing crew arrived at the power plant site to arrange permission to work at 41 GD 21, they were informed that a number of people who had been present when the flume was constructed through the site had collected artifacts which were turned up by the machinery. J. L. Melton of Trinity Testing Laboratories and W. L. Vernon of Sargent and Lundy, Engineers, generously allowed the crew to record their collections (Figs. 18-20), which add helpful information toward understanding the content and dating of the deposits.

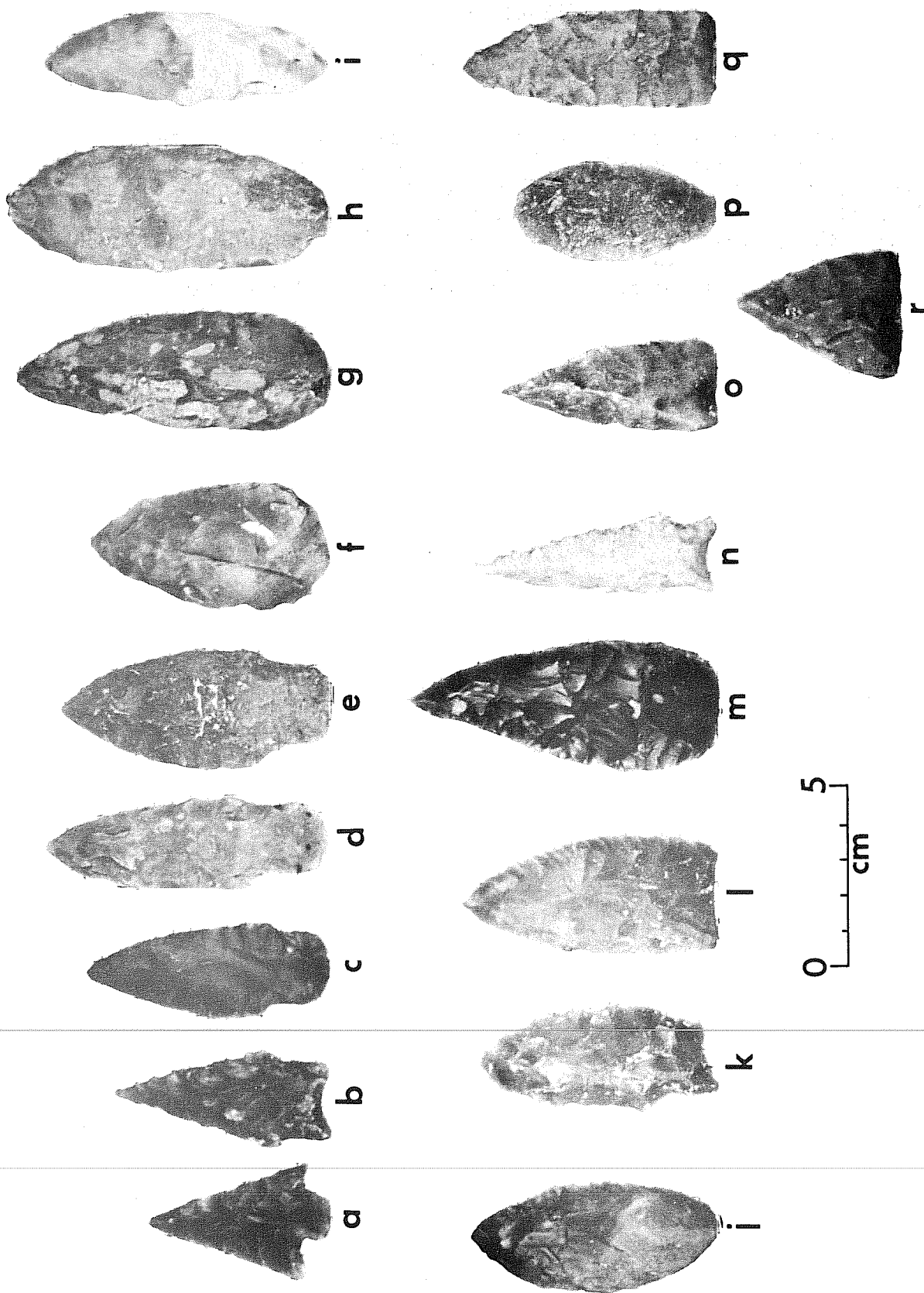


Figure 18. Artifacts from the J. L. Melton Collection, 41 GD 21.

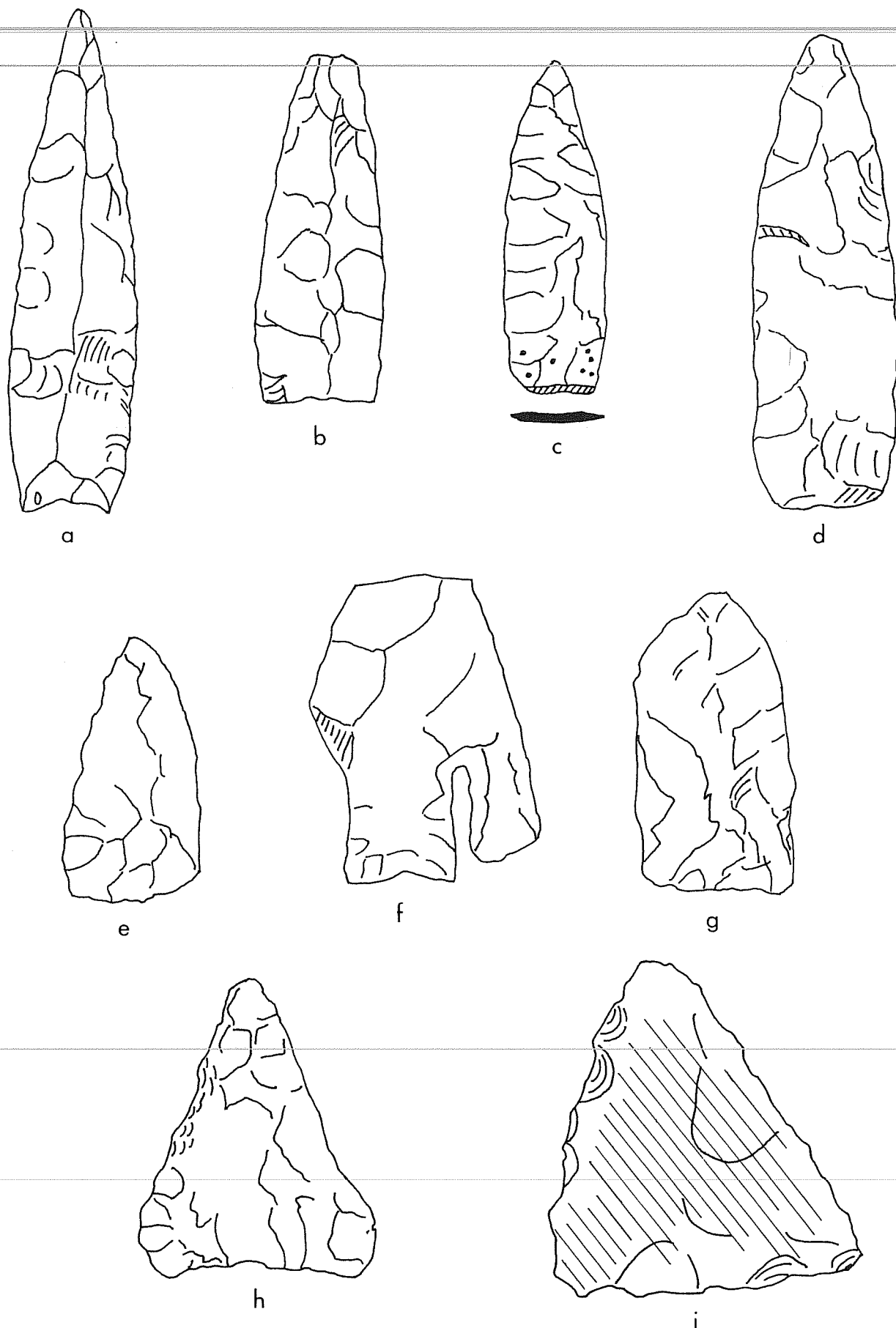


Figure 19. Artifacts from the W. L. Vernon Collection, 41 GD 21.
The dots on artifact "c" indicate the presence of asphaltum.

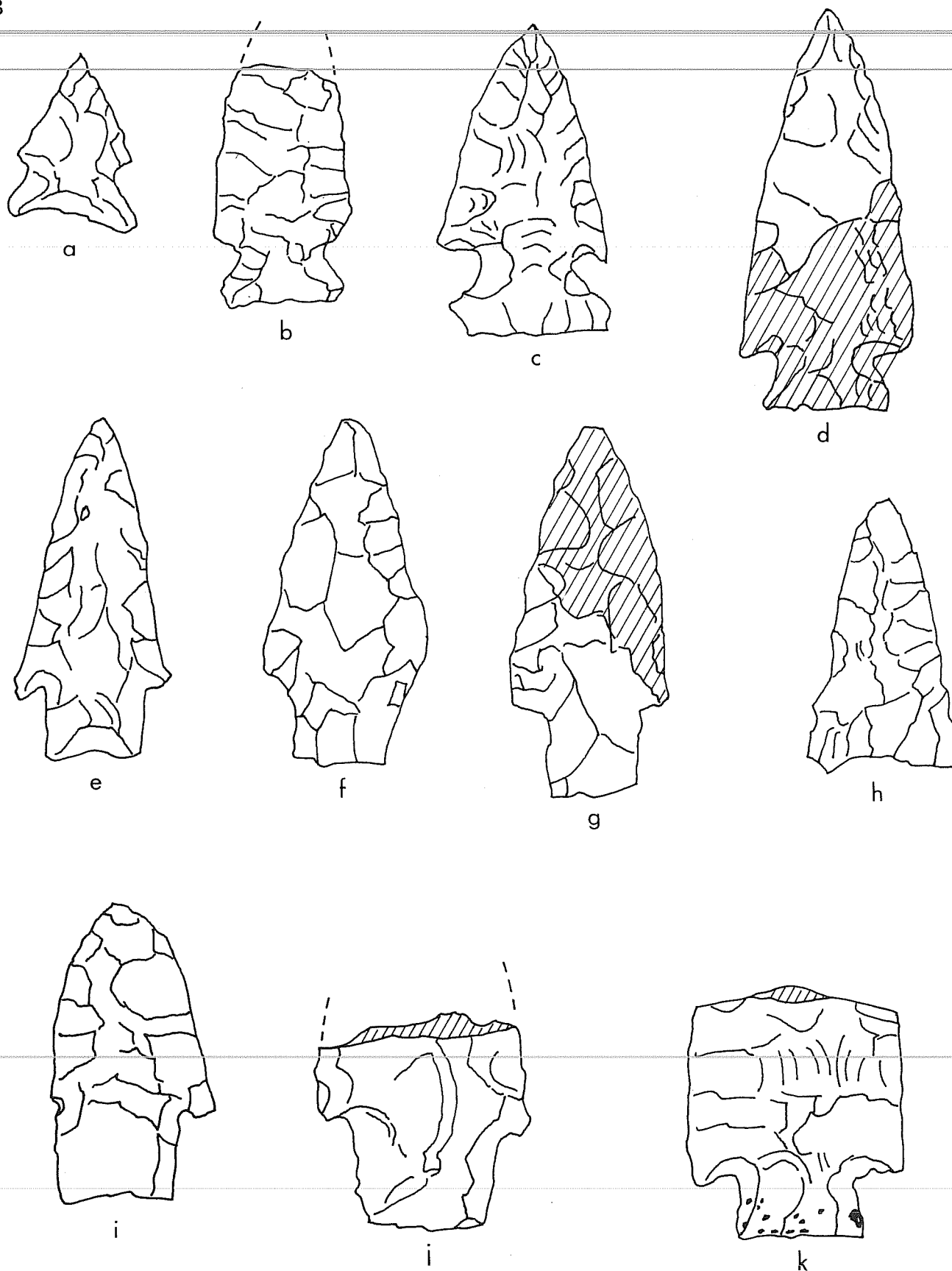


Figure 20. Artifacts from the W. L. Vernon Collection, 41 GD 21. The dots on the base of artifact "k" indicate the presence of asphaltum.

APPENDIX II

PRIVATE COLLECTION FROM SITE 41 GD 30

The artifacts illustrated in Fig. 21 are part of a collection from 41 GD 30 loaned to the Center for Archaeological Research by Ed Vogt of Victoria. Mr. Vogt has collected artifacts along Coletto Creek for a number of years and has kindly shared his information and knowledge of the area for the benefit of these investigations.

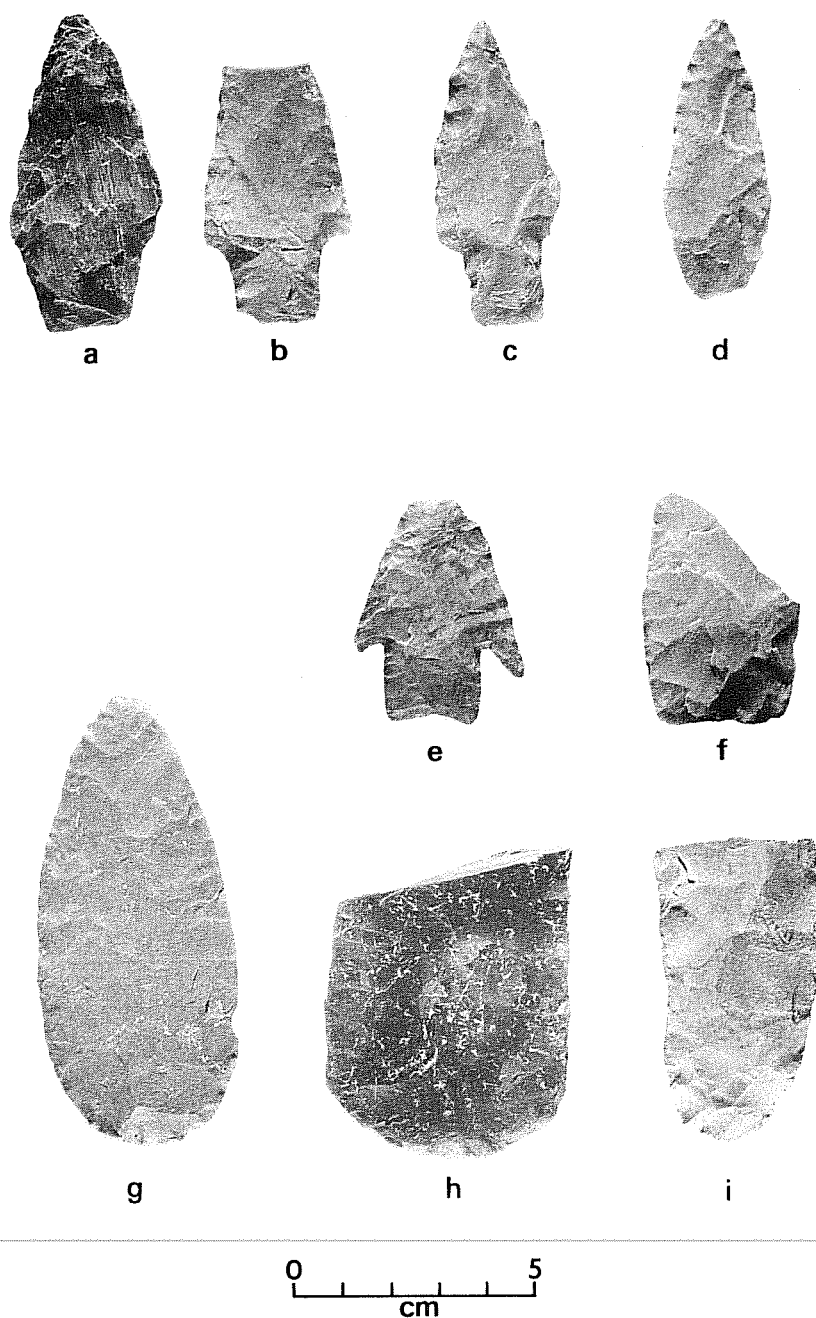


Figure 21. *Selected Artifacts from the Ed Vogt Collection, 41 GD 30A. a, Bulverde; b, Morhiss; c, Travis; d, Lerma; e, Marshall; f-h, thin bifaces; i, Clear Fork tool.*

APPENDIX III

SOIL ANALYSIS

During test excavations at 41 GD 21 and 41 GD 30, a number of soil and pollen samples were collected. Two samples from 41 GD 30A and one from 41 GD 21 were submitted to the Anthropological Research Laboratories at Texas A&M University for analysis. Dr. Vaughn Bryant completed a preliminary pollen analysis, and the Agricultural Extension Service completed a soil test.

Of the 41 GD 30A samples, Sample 1 (30 cm below surface) contained no fossil pollen in spite of a relatively high organic content (1.4%) and pH (8.5). Bryant (letter to Anne Fox, 7/1/77) indicated this was unusual as pollen is generally preserved in soils containing more than 1% organic matter. Sample 2 (120 cm below surface) did contain a few pollen grains of oak and grasses, as well as several other types not readily identified. This sample contained a far lower organic content (0.3%) and a slightly higher pH (8.7). Bryant suggested the pollen found in this sample could have been introduced from atmospheric contamination during collection procedures. The only types of pollen present in Sample 3 (from the second level of 41 GD 21) were those of grass. Bryant further stated pollen content was too small to permit statistically valid sample analysis.

The soil tests conducted by the Agricultural Extension Service suggest some potential for archaeological interpretation. Each sample was tested for pH, calcium, magnesium, predicted nitrogen level, phosphorus, potassium, organic matter and salinity hazard. In addition to pH and organic matter, the samples differed in phosphorus and potassium levels. Sample 1 contained more than 640 pounds per acre of phosphorus and 590 pounds per acre of potassium. Sample 2 contained a somewhat inverse proportion, 143 pounds per acre of phosphorus and 830 pounds per acre of potassium. Archaeologists working in other Texas sites have utilized phosphorus and other chemical tests to isolate areas of intensive occupation or specific utilization (Gunn and Mahula 1977; Fox and Livingston 1978). It is possible soil samples recovered from a large area of these sites as well as from adjacent culturally sterile control sample areas may allow cultural inferences to be made.

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