GEOARCHEOLOGICAL INVESTIGATIONS AND NATIONAL REGISTER TESTING OF 57 PREHISTORIC ARCHEOLOGICAL SITES ON FORT HOOD, TEXAS: THE 1999 SEASON

Mehalchick, Killian, Caran, and Kibler

Fort Hood Archeological Resource Management Series

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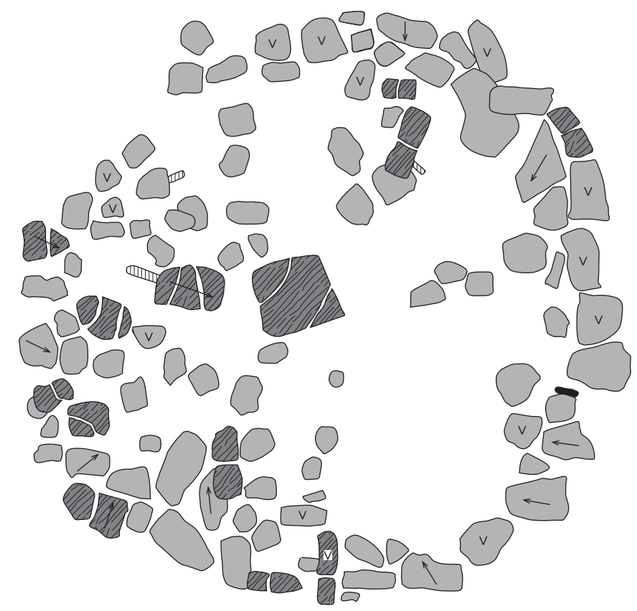
by
Gemma Mehalchick
Kyle Killian
S. Christopher Caran
and
Karl W. Kibler



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by

Gemma Mehalchick

Kyle Killian

S. Christopher Caran

Karl W. Kibler

with contributions by

Amy M. Holmes

Jay Barry

and

Phil Dering

United States Army Fort Hood
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In 1999, Prewitt and Associates, Inc., conducted archeological field investigations at 57 prehistoric sites on Fort Hood, Texas. Work included two different levels—geomorphic reconnaissance and shovel testing at 45 sites and formal National Register eligibility testing at 12 sites. The geomorphic reconnaissance defined discrete subareas for each site based on differing geomorphic contexts. Shovel tests and test units were later excavated in areas where potential for buried deposits existed. Sixty-six sites or subareas are identified at the 45 sites, and shovel tests or test units were dug at 27 sites or subareas. Five radiocarbon dates were obtained on charcoal from features or rockshelter deposits. Based on these investigations, 50 of the sites and subareas are recommended as not eligible for listing in the National Register, 13 are recommended as potentially eligible, and 3 are recommended as eligible.

National Register eligibility testing was done at 11 open sites and 1 rockshelter. Twenty-one radiocarbon dates establish the chronology for many of the sites, and 17 of these dates are on charcoal associated with cultural features. Five sites contain intact subsurface cultural components that are recommended as eligible for listing in the National Register.

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EXECUTIVE SUMMARY

Prewitt and Associates, Inc., of Austin, Texas, prepared this report for Fort Hood's Cultural Resources Management Program, Environmental Management Office, Directorate of Public Works. The work was done under contract with Fort Hood and in compliance with the installation's Cultural Resources Management Plan. Field investigations involved two different levels of work on 57 prehistoric sites scattered across the base. The archeological investigations were done to determine whether each site is eligible for inclusion in the National Register of Historic Places (NRHP) or needs more archeological investigation before such a determination can be made.

Limited investigations consisting of an archeological reconnaissance and shovel testing were performed on 45 sites. In some cases, particularly for rockshelters, test units were excavated in lieu of shovel tests. Of the 45 sites investigated at this level, 33 were found to have little or no archeological research potential and are recommended as not eligible for listing in the National Register. Twelve sites (or 16 subareas at 12 sites) were found to contain or possibly contain important archeological remains and are recommended as eligible for listing in the National Register. The sites or subareas that are recommended as eligible or potentially eligible are:

Site	Site Type	NRHP Assessment	Recommendation
41BL662-A	lithic scatter	potentially eligible	National Register testing
41BL662-C	lithic scatter	potentially eligible	National Register testing
41BL795-A	lithic scatter	potentially eligible	National Register testing
41BL797	rockshelter	eligible	protect or mitigate
41BL908-A	lithic scatter	potentially eligible	National Register testing
41BL909-A	lithic scatter	potentially eligible	National Register testing
41BL909-B	lithic scatter	potentially eligible	National Register testing
41BL918-A	open campsite	potentially eligible	National Register testing
41BL929-D	rockshelter	eligible	protect or mitigate
41BL931-B	open campsite-midden	potentially eligible	National Register testing
41BL931-D	open campsite	potentially eligible	National Register testing
41BL934	rockshelters (n = 2)	eligible	protect or mitigate
41BL935	burned rock midden	potentially eligible	National Register testing
41CV580-A	unknown	potentially eligible	National Register testing
41CV580-B	open campsite	potentially eligible	National Register testing
41CV1415	Paluxy	potentially eligible	National Register testing

More intensive archeological investigations at 12 sites included excavation of backhoe trenches and hand-excavated test units. Seven of these sites were found to have no significant archeological remains and are recommended as not eligible for inclusion in the National Register. Five of the sites were found to contain important archeological deposits and are recommended as eligible for National Register listing:

Site	Site Type	NRHP Assessment	Recommendation
41CV41-A	open campsite-midden	eligible	protect or mitigate
41CV579	open campsite-midden	eligible	protect or mitigate
41CV1443-A	open campsite	eligible	protect or mitigate
41CV1553	Paluxy	eligible	protect or mitigate
41CV1555	open campsite	eligible	protect or mitigate

ABSTRACT

In 1999, Prewitt and Associates, Inc., conducted archeological field investigations at 57 prehistoric sites on Fort Hood, Texas. Work included two different levels—geomorphic reconnaissance and shovel testing at 45 sites and formal National Register eligibility testing at 12 sites. The geomorphic reconnaissance defined discrete subareas for each site based on differing geomorphic contexts. Shovel tests and test units were later excavated in areas where potential for buried deposits existed. Sixty-six sites or subareas are identified at the 45 sites, and shovel tests or test units were dug at 27 sites or subareas. Five radiocarbon dates were obtained on charcoal from features or rockshelter deposits. Based on these investigations, 50 of the sites and subareas are recommended as not eligible for listing in the National Register, 13 are recommended as potentially eligible, and 3 are recommended as eligible.

National Register eligibility testing was done at 11 open sites and 1 rockshelter. Twenty-one radiocarbon dates establish the chronology for many of the sites, and 17 of these dates are on charcoal associated with cultural features. Five sites contain intact subsurface cultural components that are recommended as eligible for listing in the National Register.

Situated along a tributary to Owl Creek, 41CV41-A subsumes a series of alluvial terraces. Radiocarbon dates and diagnostic artifacts (engraved ceramics and arrow and dart points) indicate that the area was repeatedly occupied from the Late Archaic through the Late Prehistoric periods. These components yielded six burned rock features (including one midden) and stratigraphically discrete cultural deposits.

Excavations at 41CV579, on the Leon River, produced evidence of Late Archaic and Late Prehistoric (Austin phase) occupations, including a burned rock midden and a separate cultural component below. The midden contains dense cultural materials and a substantial faunal assemblage representing more than 20 different taxa and exhibiting spiral fractures indicating grease extraction.

Consisting of an occupation zone and hearth, a Late Archaic occupation on Clear Creek is buried at 41CV1443-A. These features were exposed in the cutbank, and the excavations reveal that the occupation zone is laterally extensive.

Located near Stampede Creek, 41CV1553 consists of three hearths, an occupation zone, and a burned rock concentration encountered in the Paluxy sediments at this site. Radiocarbon dates reveal utilization of the area during the Late Archaic period and toward the end of the Late Prehistoric period. The large cooking features produced a wide variety of charred macrobotanical remains.

Testing at 41CV1555, located on an unnamed tributary of House Creek, produced two hearths dated to the Late Prehistoric period (Austin phase). These hearths are associated with a buried cultural zone probably representing contemporaneous activities.

ACKNOWLEDGMENTS

After only three years at the helm of the Cultural Resource Management Program (CRMP) at Fort Hood, Kimball Smith died in October 1999. He had served as the Contracting Officer's Representative for much of the work reported herein. Our work on this project also was facilitated by Dr. Cheryl Huckerby, then the assistant Fort Hood Archeologist. At the time of Smith's death, Huckerby took over as Fort Hood's CRMP director. Her efforts during a time of awkward transition are greatly appreciated.

Other Fort Hood personnel helped coordinate, schedule, and conduct fieldwork. Mr. Larry Pohlman and Mr. Pat Hobson of the Maintenance Division, DPW, coordinated the field schedule and scheduling for the backhoe. Lester Duncan operated the backhoe in his typical efficient manner. Gil Eckrich with the Nature Conservancy of Texas and Billy Ray (B. R.) Jones with the Natural Resources Branch assisted in planning work in areas where there were endangered species habitat, caves, or sinkholes. Training Area Access and G3 Range Control issued vehicle permits and coordinated field schedules. Larry Ximenez with Range Control was particularly helpful in keeping us in line with various Army regulations on safety and access. All of these people have assisted us in our work for several seasons now, and their efforts are greatly appreciated.

This report was reviewed for the Archeology Division, Texas Historical Commission, by Ed Baker. Darrell Creel and Linda W. Ellis served as peer reviewers for this report.

Doug Boyd served as project manager and principal investigator. Ross Fields served as quality control officer and made inspections to ensure that the archeological work was done properly in the field and laboratory. Jeanine Cuellar, business manager and bookkeeper, coordinated daily operations in the field and lab. Laboratory Director Karen Gardner and Laboratory Assistants Susan Pierce-Rimbey and Ruth Marie conducted and supervised lab work. They kept track of the computerized provenience and artifact databases for the analysis phase and prepared all collections and records for curation. Boyd and Fields edited this report, and Melissa Keenan and Jane Sevier provided technical editing and produced it. Cartographers Brian Wootan and Sandy Hannum drafted the figures, and Jack Rehm took artifact photographs. Gregg Cestaro drew the illustrations of engraved sherds from 41CV41-A.

As project archeologist, I directed the fieldwork, analysis, and report preparation along with Assistant Project Archeologist Kyle Killian. Together we supervised field crews; directed the geomorphic reconnaissance and mechanical and hand excavations at sites; coordinated the project schedule with various Fort Hood departments and divisions; compiled and organized the testing records, photographs, and collections for each site; completed the site mapping and videotape documentation of each site; and planned and executed all phases of the artifact and data analysis. Field crew members for this project were Dennis Glinn, Weldon Hammond, Mark Holderby, Don Lloyd, Janée Taylor, and Mike Wilder. Karl Kibler served as project geomorphologist, along with Amy Holmes and S. Christopher Caran (Christopher Caran Consulting). Caran described profiles at the 12 tested sites, and Kibler and Holmes conducted geomorphic assessments at the 45 reconnaissance and shovel testing sites.

Several independent consultants conducted special studies. Brian Shaffer and Jay Barry (Zooarcheology Laboratory, Institute of Applied Sciences, University of North Texas) did faunal analysis. Dr. Phil Dering (Archeobotany Laboratory, Center for Ecological Archeology, Texas A&M University) analyzed macrobotanical remains.

A special study of ceramic sherds from sites on and near Fort Hood was done for this project and included petrographic and instrumental neutron activation analyses of a sample of 27 plain and decorated sherds from 11 sites. Tim Perttula, Sergio Iruegas, and Hector Neff carried out this work, which appeared as a separate chapter within the original draft of this report. It was later produced as a separate report and is published as Research Report 51 in the Fort Hood Archeological Resource Management Series. This study was supported in part by NSF grant 5BR-9802366 to the Research Reactor Center, University of Missouri. Special thanks go to Huckerby, Daniel McGregor (Fort Worth

District, U.S. Army Corps of Engineers), and Dr. Darrell Creel (Texas Archeological Research Laboratory, The University of Texas at Austin) for supporting this study and granting permission to sample the ceramic sherds.

Gemma Mehalchick
Project Archeologist
Austin, Texas

INTRODUCTION

Gemma Mehalchick

1

The Fort Hood military reservation (Figure 1.1), a 339.6-mi^2 (217,337 acres) area of Bell and Coryell Counties, Texas, has been the scene of intensive archeological investigations since the late 1970s. This report documents the 1999 investigations completed as part of Fort Hood's ongoing Cultural Resources Management Program.

Following regulations (36 CFR 800) of the National Historic Preservation Act [16 U.S.C. 470(f) and 470h-2(f)] of 1966 (as amended), Fort Hood has been engaged in a program to inventory and evaluate its cultural resources to determine the eligibility of historic properties for listing in the National Register of Historic Places (NRHP). Between 1977 and 1991, archeological surveys covering approximately 95 percent of the post documented more than 2,200 prehistoric and historic archeological sites. In 1990, Fort Hood entered into a programmatic agreement with the United States Army, the Texas State Historic Preservation Officer, and the Advisory Council for Historic Preservation. In accordance with this agreement, personnel from Fort Hood's Cultural Resources Management Program developed a five-year Historic Preservation Plan that was later renewed in 1994 as a five-year Cultural Resources Management Plan (CRMP). The Historic Preservation Plan (Jackson 1990) and the CRMP (Jackson 1994a) established long-range goals for managing Fort Hood's cultural resources. With the inventory of cultural resources essentially completed by 1990 (except for portions of the Live Fire and Permanent Dudded areas), the Fort Hood Cultural Resources Management Program began evaluating the prehistoric archeological sites. Mariah Associates, Inc. (now TRC Mariah), of Austin, Texas, initiated the testing program and began evaluating prehistoric archeological sites in 1991. Their work included preliminary evaluations of 571 prehistoric sites in an intensive resurvey and shovel testing program, followed by more-intensive mechanical and hand testing of 113 sites.

Prewitt and Associates, Inc. (PAI) , was contracted in 1995 to conduct archeological work at Fort Hood and continued to test and evaluate prehistoric archeological sites in accordance with the CRM Plan. In fiscal years 1995 (Mehalchick et al. 1999), 1996 (Kleinbach et al. 1999), and 1997 (Mehalchick, Kleinbach, et al. 2000) PAI tested a total of 83 prehistoric sites. The 1999 field season also included reconnaissance survey and shovel testing of 30 prehistoric sites. Fort Hood issued one delivery order to PAI in fiscal year 1998 to conduct reconnaissance survey and shovel testing of 45 prehistoric sites and another delivery order in 1999 for National Register testing at 12 prehistoric sites (Table 1.1). Results of the investigations at these 57 sites are presented in this report.

This report is organized into eight chapters and five appendixes. Chapter 2 presents general environmental background data for Fort Hood and archeological background information for the Central Texas region and the Fort Hood project area and discusses the research design that guided the site testing. Chapter 3 is an exhaustive discussion of the geomorphic reconnaissance survey and shovel testing conducted at 45 prehistoric sites.

Chapter 4 summarizes the 1999 National Register eligibility testing of 12 sites and describes the field, laboratory, and analytical methods used, and Chapter 5 describes the results of National Register site testing. In addition to providing information on site setting

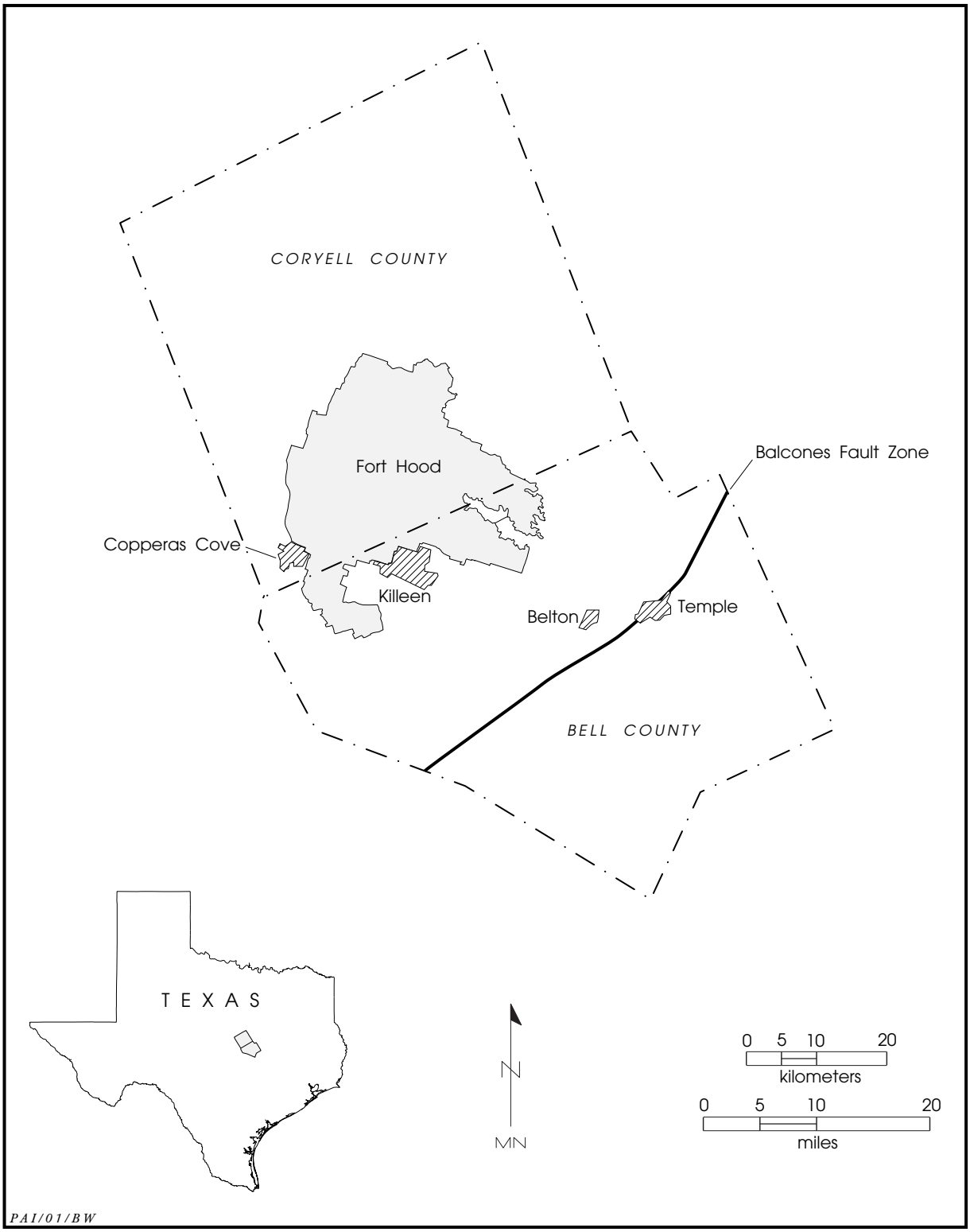

Figure 1.1. Location of Fort Hood.

Table 1.1. Prehistoric archeological sites investigated in 1999

National Register-Tested Sites	Geoarcheological Reconnaissance and Shovel-Tested Sites		
41BL192-A*	41BL195	41BL905*	41BL927*
41BL349	41BL239*	41BL906	41BL929*
41CV41-A	41BL337	41BL907*	41BL930
41CV94	41BL520	41BL908	41BL931
41CV579	41BL522	41BL909	41BL932
41CV668-B	41BL657	41BL911*	41BL933
41CV956-B	41BL658	41BL912*	41BL934*
41CV1441	41BL660	41BL914	41BL935
41CV1443-A	41BL662**	41BL915	41BL936
41CV1553	41BL665	41BL917*	41CV92
41CV1555	41BL795	41BL918	41CV405
41CV1556-B	41BL797*	41BL919	41CV580
	41BL802	41BL920	41CV1415***
	41BL902*	41BL925	41CV1553
	41BL904*	41BL926	41CV1540

Notes: Unless otherwise noted, all sites are open campsites.
*Site contains a rockshelter(s), cave, or sinkhole
**Site contains an extensive travertine mound
***Paluxy site

and previous archeological work, each site summary discusses the level of testing, artifacts recovered, features encountered, chronological assessment and geomorphic context of the cultural deposits, and interpretations of the cultural data. When appropriate, horizontally or vertically discrete cultural zones that are reasonably well dated are defined as separate analytical units.

Cultural materials recovered from the 12 National Register-tested sites are described in Chapter 6. Chapter 7 interprets the archeological data by comparing and contrasting geomorphic and cultural observations of National Register-eligible sites to groups of previously tested sites located in similar settings (e.g., Paluxy sites). A detailed comparative analysis of ceramics from Fort Hood and other Central Texas sites was conducted, and findings were published as a separate report by Perttula et al. (2003). That study combines descriptive analysis, petrographic analysis of thin sections, and instrumental neutron activation analysis (INAA) to examine decorated Caddoan and plainware pottery from the northeastern margin of Central Texas. Chapter 8 summarizes the testing results and presents National Register recommendations for all 12 sites. This final chapter also recommends appropriate strategies for data recovery or more-intensive testing before data recovery for all National Register-eligible sites. This chapter concludes with general recommendations for Fort Hood's Cultural Resources Management Program.

The appendixes provide a range of technical data from both phases of work. Appendix A summarizes the 21 radiocarbon dates obtained during testing and provides corrected radiocarbon ages and $\delta^{13}C$ values. Geological descriptions of selected stratigraphic profiles from backhoe trenches and test units are presented in Appendix B. The next two appendixes describe results of special studies of selected samples by technical consultants. An analysis of vertebrate faunal remains by Brian Shaffer and Jay Barry (North Texas State University) is presented in Appendix C, and an analysis of macrobotanical remains by Phil Dering (Texas A&M University) is presented in Appendix D. Finally, Appendix E provides detailed provenience data for all of the recovered artifacts.

ENVIRONMENTAL AND ARCHEOLOGICAL BACKGROUND

Karl W. Kibler and Gemma Mehalchick

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Fort Hood is situated in the Lampasas Cut Plain, a subprovince of the Grand Prairie (Hayward et al. 1996), and is bisected by the northeastern edge of the Edwards Plateau (Hill 1901). The area represents a transitional zone from the more humid east to the semiarid west, and the environmental gradient is steep enough that distinct changes in landscape and vegetation are observable from east to west across the base. Geologically, Fort Hood is situated west of the Balcones Fault Zone on lower Cretaceous carbonate rocks. A distinct escarpment does not exist along the fault zone in the Fort Hood area, but clear differences do exist between the soils and vegetation developed on the upper Cretaceous (Gulfian Series) rocks east of the fault zone and those developed on the lower Cretaceous (Comanchean Series) rocks to the west (Abbott 1995a:5).

CLIMATE

The modern climate of the Fort Hood area is subtropical, characterized by hot, humid summers and relatively short, dry winters (Natural Fibers Information Center 1987:6). The prevailing wind blows from the south, reaching peak strength during the spring. Summer temperatures are high, with an overall average of 83˚F (28.3˚C) and an average daily maximum of 96˚F (35.5˚C) in Coryell County. In winter the average temperature is 49˚F (9.4˚C), but it tends to vary considerably because of periodic passage of cold fronts, resulting in a pattern of alternating cold and mild days (McCaleb 1985:3).

Annual precipitation is approximately 32.5 inches (82.6 cm) for Coryell County (Natural Fibers Information Center 1987:121). Although rainfall occurs year-round, it peaks in the late spring and early fall.

FLORA AND FAUNA

The flora and fauna of Fort Hood are typical of the Balconian and Texan biotic provinces (Blair 1950). The biotic assemblage represents a mix of species from the Blackland Prairie to the east and the Edwards Plateau to the west. Many specific ecological niches also exist across the base, depending on the local topography, slope aspect, soil, and geology. Dense juniper and oak forest and scrub characterize the eastern side of the facility, but upland areas to the west and south are generally more open. Grasslands are most common on the intermediate upland surfaces, and the high upland surface is typically covered by juniper and oak scrub. Riparian zones are common along drainages and exhibit a variety of hardwood species.

The Balconian faunal assemblage includes 57 species of mammals, but none are solely restricted to the Balconian province (Blair 1950:113). Eight of these species also inhabit the Texan province to the east and the interconnecting riparian zones (Blair 1950; Gehlbach 1991). Other native fauna include 36 species of snakes, 15 anuran species, and 16 species of lizards. Several prehistorically significant economic species once common to the area, such as bison and pronghorn antelope, were killed off in historic times.

GEOLOGY, GEOMORPHOLOGY, AND LATE QUATERNARY STRATIGRAPHY

The Fort Hood landscape consists of the dissected northeastern margin of the uplifted Edwards Plateau and reflects the variable resistances of underlying geologic formations to erosion. Structurally, the area is underlain by a deeply buried extension of the Paleozoic Ouachita Mountains, which divide the stable continental interior to the west from the subsiding Gulf basin to the southeast. During the Cretaceous period, this region consisted of a very broad shelf covered by a shallow sea. Limestones and marls were deposited on the shelf as the shoreline fluctuated for more than 80 million years. Occasionally, relatively thin deposits of sand derived from terrestrial sources also accumulated on the shelf, resulting in interbedded formations like the Paluxy Formation and Trinity Sands. The Gulf basin subsided during the Miocene, resulting in the development of the Balcones Fault Zone along the old Ouachita line and the uplift of the Edwards Plateau (Woodruff and Abbott 1986). West of the Balcones fault, the Cretaceous limestones and marls remain relatively horizontal and structurally unmodified, but the Cretaceous rocks to the east dip sharply Gulfward and are deeply buried by Gulfian and later lithological units.

Because Fort Hood is west of the fault zone, it is underlain by relatively flat-lying lower Cretaceous rocks exhibiting a two-tiered topography locally termed the Lampasas Cut Plain (Hayward et al. 1990). This landscape developed between the Brazos and Colorado Rivers and consists of large, mesa-like remnants of an early Tertiary planation surface surrounded by a broad, rolling pediplain formed during the late Tertiary and early Quaternary. These two surfaces differ by 25 to 40 m in elevation and form the "high" and "intermediate" uplands of Hayward et al. (1990) and the "Manning" and "Killeen" surfaces of Nordt (1992). Modern stream valleys are incised approximately 40–70 m into the pediplain surface.

The oldest exposed rocks at Fort Hood belong to the Trinity Group, which includes the Glen Rose Formation. This formation is surficially exposed on the western side of Fort Hood, where relatively deep incision of the landscape by Cowhouse Creek and its tributaries has removed the overlying rocks (Proctor et al. 1970; Sellards et al. 1932).

Resting on the Trinity Group are rocks of the lower Cretaceous Fredericksburg Group. The lowest unit is the Paluxy Formation, a terrigenous siliclastic unit of strandplain, fluvial, and deltaic deposits. The Walnut Clay, which is widely exposed at Fort Hood and forms the principal substrate of the Killeen surface, overlies the Paluxy Formation. Above the Walnut Clay lies the Comanche Peak Limestone, which forms the intermediate slopes of the higher Manning surface. The highest extensive lithological unit is the Edwards Group, including the Edwards Limestone that forms the resistant cap of the high upland mesas or Manning surface. Edwards Group formations also are an important source of high-quality chert (see Frederick and Ringstaff 1994; Frederick et al. 1994).

The stratigraphy and soil geomorphology of a number of larger Fort Hood streams have been studied in detail by Nordt (1992, 1993, 1995), who identifies six principal alluvial units in the study area. From oldest to youngest, these units are termed the Reserve alluvium, Jackson alluvium, Georgetown alluvium, Fort Hood alluvium, West Range alluvium, and Ford alluvium (Nordt 1992). The Reserve alluvium is a fill of middle to late Pleistocene age that forms the T_3 terrace of the Leon River. The Jackson alluvium is approximately 15,000 years old and consists of 3–4 m of gravelly and loamy deposits resting on a bedrock strath. It forms the T_2 terraces of the Leon River and Cowhouse Creek and its larger tributaries. The Georgetown alluvium is the oldest unit within the deeply entrenched Holocene valley of Cowhouse Creek and its larger tributaries. It is always buried below the T_1 terrace surface. Deposition of this unit began no earlier than 11,300 B.P. and terminated by 8,200 B.P. (Nordt 1992). The 4- to 6-m-thick fill consists of gravelly and loamy deposits. The Royalty paleosol, formed on top of the Georgetown alluvium, typically consists of a truncated Bk horizon containing secondary precipitates of calcium carbonate. The Fort Hood alluvium is the major Holocene unit by volume along Cowhouse Creek and most of its tributaries. It consists of 9–10 m of gravelly and loamy deposits that date between about 8,000 and 4,800 B.P. The West Range alluvium accumulated in two episodes between 4,300 and

600 B.P., with a brief erosional period between 3,000 and 2,000 B.P. The West Range unit is typically 9 m thick and partially truncates and buries the Fort Hood alluvium in some areas. The Fort Hood and West Range alluviums aggraded to the same elevation in many of the valleys, making the T_1 surface diachronic. Deposition of the Ford alluvium and construction of the modern floodplain (T_0) began 400–600 years ago and is continuing.

In addition to the alluvial deposits within the stream valleys, colluvial and slopewash sediments also comprise culturally relevant deposits within the base. These deposits occur both as relatively thick wedges of sediment at the base of steep slopes and as thin mantles on moderate to gentle slopes and level uplands. They commonly interdigitate with a number of alluvial fills at valley margins. Pedogenically altered late Pleistocene- and Holocene colluvial and slopewash sediments derived from the Paluxy Formation are particularly significant deposits, encapsulating prehistoric cultural materials and features along the upper margins of many Pleistocene valleys at Fort Hood. Also archeologically significant are rockshelters and their accompanying sedimentary fills. Rockshelters and small overhangs are very common on Fort Hood, and the nature of their fills varies from shelter to shelter. Abbott (1995b:Table 9.5) has defined and interpreted six types of rockshelter fills and their origins as follows:

- Type 1 Internally derived; decomposed shelter walls and roof
- Type 2 Internally derived; decomposed shelter walls and roof with redox reactions to intermittent saturation
- Type 3 Combination of internally derived weathered sediments and externally derived sediment redeposited from upland A horizon
- Type 4 Externally derived sediment redeposited from upland B+ horizon; washed in over bluff or through spring conduit
- Type 5 Tufa and Travertine formed by precipitation of ground water
- Type 6 Coarse lag or bare bedrock floor from flushing of sediments by overland flow or groundwater discharge

REGIONAL CULTURAL CHRONOLOGY AND PALEOENVIRONMENTAL RECONSTRUCTION

The prehistoric cultural sequence for Central Texas can be divided into three broad periods—Paleoindian, Archaic, and Late Prehistoric—although the terms Neoarchaic (Prewitt 1981, 1985) and Post-Archaic (Johnson and Goode 1994) have been used at times in place of Late Prehistoric. Black (1989:25–32), Collins (1995), and Hines (1993) provide thorough overviews of these periods, with Hines focusing more on the chronological sequence of the prehistoric cultural resources in the area surrounding Camp Bullis. Prewitt (1981, 1985) has delineated and defined a prehistoric cultural-historical framework incorporating discrete temporal and technological units. Johnson and Goode (1994) and Collins (1995) have presented revised cultural chronologies of the region and also discontinued use of the term "phase" to describe each cultural-historical unit; they have opted for named intervals or patterns based on diagnostic projectile point styles and associated radiocarbon assays (e.g., Martindale-Uvalde interval) within each period or subperiod. These three cultural chronologies are compared in Figure 2.1. Figure 2.2 compares paleoenvironmental reconstructions Johnson and Goode (1994) and Collins (1995) offered with paleoenvironmental models Nordt et al. (1994) and Toomey et al. (1993) offered for the Central Texas region. As a cautionary note, however, Ellis et al. (1995:411–416) suggest that current central Texas climatic models are too imprecise to be of much use for explaining prehistoric culture change.

The Paleoindian period (11,500–8,800 B.P.) represents the earliest known cultural manifestation in North America. Sites and isolated artifacts from this period are fairly common across Central Texas. The period is often characterized as a time when small but highly mobile bands of foragers were specialized hunters of Pleistocene megafauna. A more accurate view of Paleoindian life includes the use of a much wider array of subsistence resources. Recent investigations at the Wilson-Leonard site (41WM235) support this view and have challenged the fundamental defining criteria of the Paleoindian period, that of

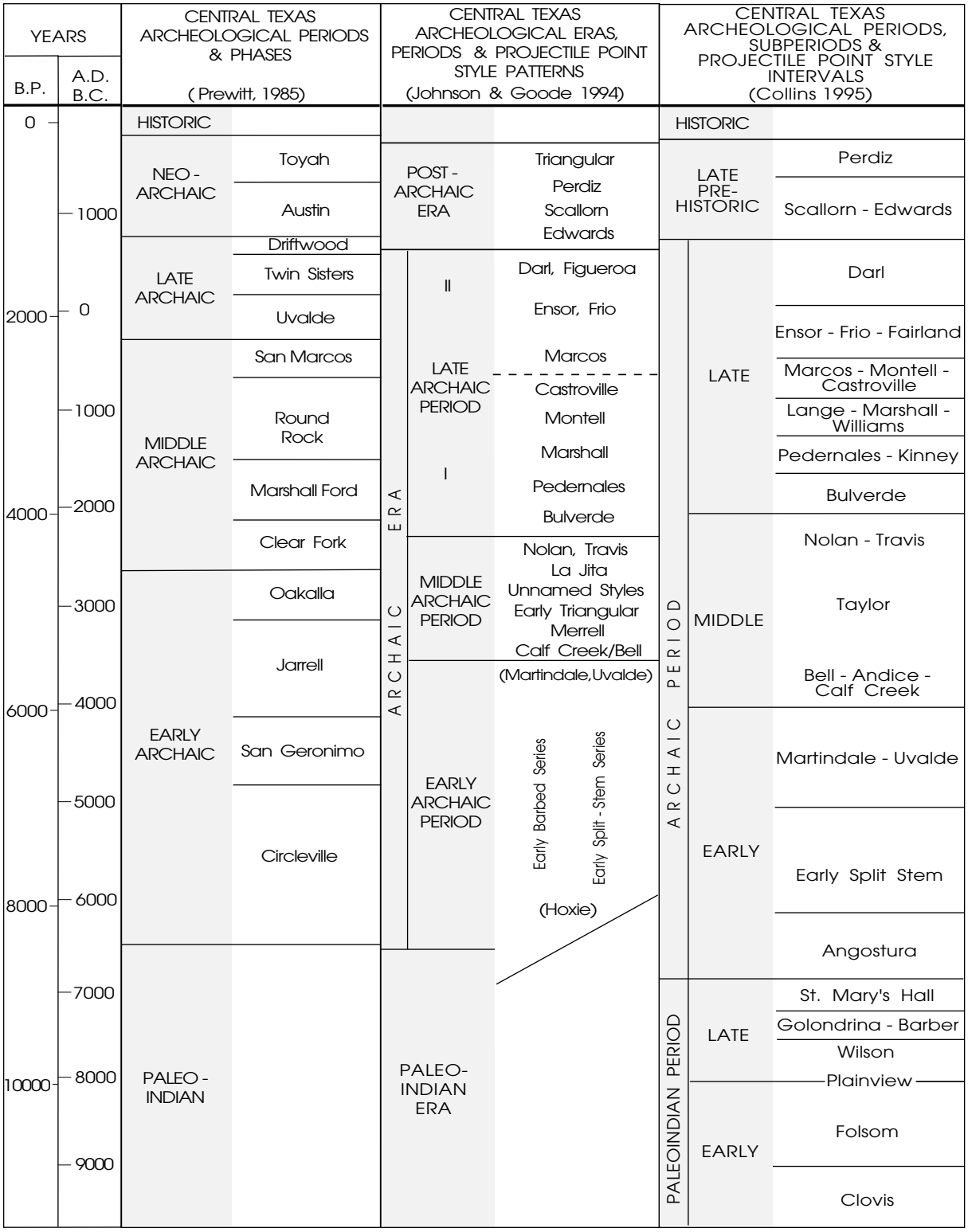

Figure 2.1. Prehistoric cultural sequences of Prewitt (1985:Figure 5), Johnson and Goode (1994:Figure 2), and Collins (1995:Table 2).

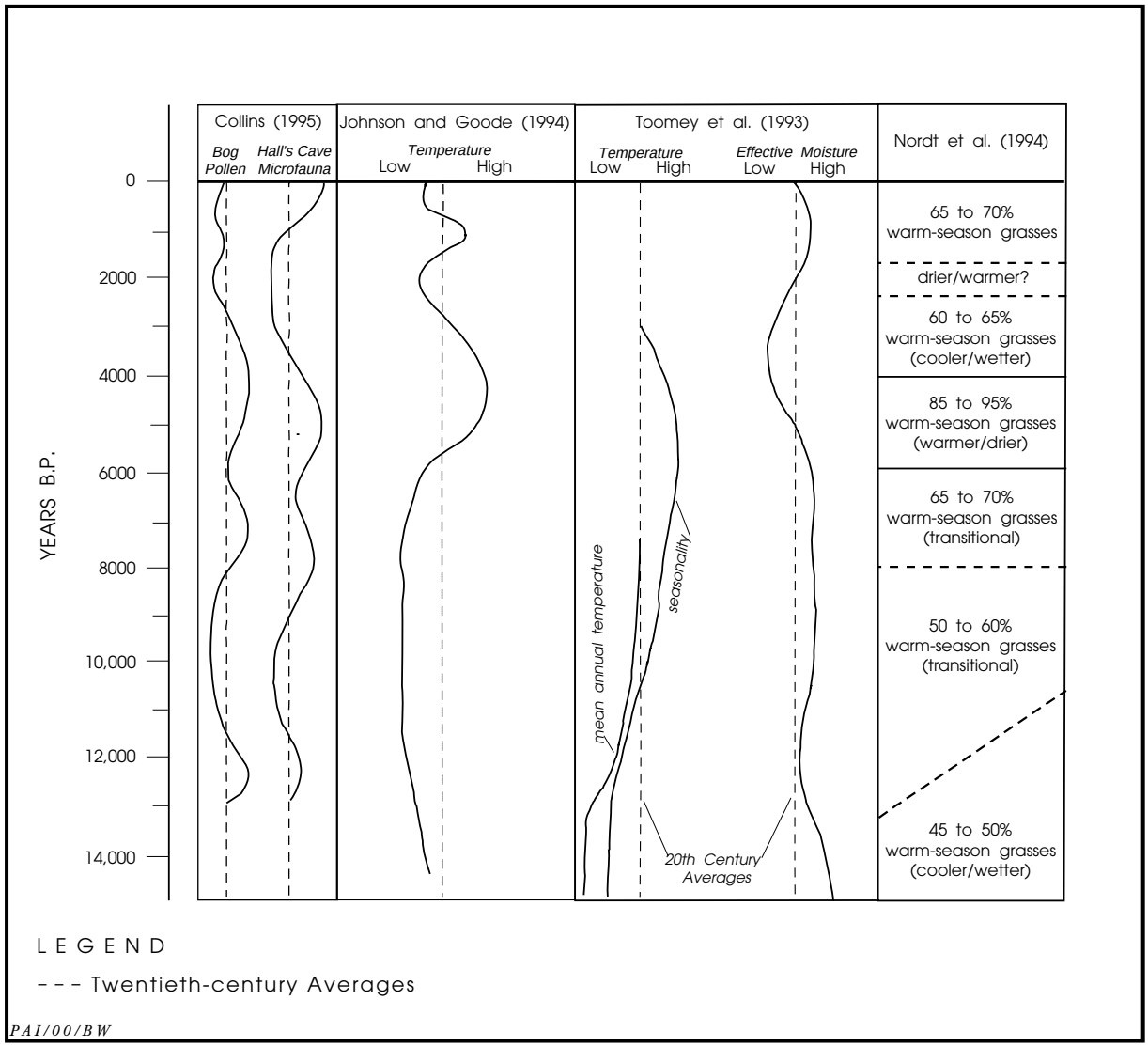

Figure 2.2. Late Pleistocene and Holocene paleoenvironmental records of Collins (1995:Table 2), Johnson and Goode (1994:Figure 2), Toomey et al. (1993:Figure 9), and Nordt et al. (1994:Figure 4).

artifacts in association with late Pleistocene megafauna (Masson and Collins 1995). Environmental conditions during the Paleoindian period were quite different from today, presenting the early inhabitants with a different array of resources. Nordt et al. (1994) view this period as a transition between cooler, moister late Pleistocene conditions and warmer, drier Holocene conditions. They estimate that warm-season, or C_4, grasses steadily increased in abundance throughout this period. Toomey et al. (1993) also see this time as a period of transition, with summer temperatures increasing rapidly but still 2–3°C below modern values. Toomey et al. (1993) suggest that a decrease in effective moisture beginning around 14,000 B.P. intensified and culminated ca. 10,500 B.P.

Collins (1995) divides the Paleoindian period into early and late subperiods. The early subperiod consists of two projectile point style intervals, Clovis and Folsom. It is notable that although evidence for pre-Clovis occupations in North and South American is mounting, there is as yet no credible evidence for any human activity earlier than Clovis in central Texas. Clovis chipped stone artifact assemblages, including the diagnostic fluted lanceolate Clovis point, were produced by bifacial, flake, and

prismatic-blade techniques on high quality and often exotic lithic materials (Collins 1990). Along with chipped stone artifacts, Clovis assemblages include engraved stones, bone and ivory points, stone bolas, and ochre (Collins 1995:381; Collins et al. 1992). Clovis artifacts suggest well-adapted, generalized hunter-gatherers who possessed the technology to hunt larger game but did not solely rely on it. In contrast, Folsom tool kits, consisting of fluted Folsom points, thin unfluted (Midland) points, large thin bifaces, and end scrapers, are more indicative of specialized hunting, particularly of bison (Collins 1995:382).

Spanning the late Paleoindian subperiod are several projectile point styles for which temporal, technological, or cultural significance is unclear. Plainview, a type name typically assigned to any unfluted, lanceolate Paleoindian point, is one example. Collins (1995:382) has noted that most of these points do not resemble the Plainview type-site points in thinness and flaking technology. Also problematic are the chronological position and cultural significance of Dalton and San Patrice dart points. The succeeding late Paleoindian subperiod includes three projectile point style intervals: Wilson (ca. 10,000–9,650 B.P.), Golondrina-Barber, and St. Mary's Hall (9,500–8,800 B.P.). Components and artifact and feature assemblages of these three intervals appear to be Archaic-like in nature and in many ways may represent a transition between the early Paleoindian and succeeding Archaic periods (Collins 1995:382).

The Archaic period (8,800 to 1,300–1,200 B.P.) is generally believed to represent a shift toward hunting and gathering of a wider array of animal and plant resources and a decrease in group mobility (Willey and Phillips 1958:107–108), although such changes may have been well under way by the beginning of the period. Throughout the ca. 7,600-year-long period, major climatic changes probably presented Archaic populations with varying subsistence challenges. The Archaic is generally subdivided into Early, Middle, and Late subperiods (Black 1989; Collins 1995; Story 1985:28–29). Each of the three Archaic subperiods includes several temporal-stylistic units or intervals based on diagnostic projectile point styles and associated radiocarbon assays (Collins 1995).

Early Archaic (8,800–6,000 B.P.) sites are small with very diverse tool assemblages (Weir 1976:115–122). This suggests that groups were highly mobile and population densities were low (Prewitt 1985:217). It has been noted that Early Archaic sites are concentrated along the eastern and southern margins of the Edwards Plateau (Johnson and Goode 1994; McKinney 1981). This distribution may indicate climatic conditions at the time, because these environments had many more-reliable water sources and a diverse subsistence base. Microfaunal records and sedimentary evidence from stream valleys and caves along the eastern Edwards Plateau depict a climatic regime in flux, from mesic conditions during the beginning of the Early Archaic to extremely xeric and back to mildly xeric conditions at the end of the subperiod (Collins et al. 1990; Toomey et al. 1993). Three projectile point style intervals are recognized: Angostura; Early Split Stem, including Gower and Jetta; and Martindale-Uvalde. Manos, metates, hammerstones, Clear Fork tools, and a variety of other bifacial and unifacial tools are common to all three intervals, but Guadalupe bifaces are commonly associated with the Martindale-Uvalde interval. Construction and use of rock hearths and ovens reflect a specialized subsistence strategy (exploitation of roots and tubers?) during the Early Archaic. These burned rock features most likely represent the technological predecessors of the larger burned rock middens used extensively later in the Archaic period (Collins 1995:383).

During the Middle Archaic period (6,000–4,000 B.P.) the number and distribution of sites, as well as site size, increased because of probable increases in population densities beginning ca. 5,000–4,500 B.P. (Prewitt 1981:73; Weir 1976:124,135). Macrobands may have formed at least seasonally, or more small groups may have used the same sites for longer periods (Weir 1976:130–131). The presence of burned rock middens toward the end of the Middle Archaic suggests a shift in the technology of processing plant foods, although tool kits still imply a strong reliance on hunting (Prewitt 1985:222–226). Three projectile point style intervals comprise the Middle Archaic: Bell-Andice-Calf Creek, Taylor, and Nolan-Travis. The Bell-Andice-Calf Creek and Taylor intervals reflect a shift in lithic technology from the preceding Martindale-Uvalde (Collins 1995:384).

Johnson and Goode (1994:25) suggest that the Bell-Andice-Calf Creek interval represents an influx of bison-hunting groups from the

Eastern Woodland margins into the Central Texas region during a slightly more mesic period. Bison disappeared or became scarce as more-xeric conditions returned during the later Nolan-Travis interval. The style change represents another shift in lithic technology (Collins 1995:384; Johnson and Goode 1994:27). Prewitt (personal communication 1997) postulates that production and morphology of Travis and Nolan points ressemble projectile points from the Lower Pecos region. Such characteristics as beveled stems and overall morphology may have originated in the Lower Pecos because their presence there predates their appearance in Central Texas. The accompanying change to more-xeric conditions bears witness to the construction and use of burned rock middens. Johnson and Goode (1994:26) speculate that dry conditions may have promoted the spread of xerophytic plants such as yucca and sotol and that late Middle Archaic peoples collected and cooked these plants in large rock ovens.

Both Collins (1995) and Johnson and Goode (1994) recognize a period of extreme aridity in Central Texas during the Archaic period, and construction and use of burned rock middens were probable responses to these xeric conditions. But although Collins (1995)—as well as Nordt et al. (1994) and Toomey et al. (1993)—views these xeric conditions as the culmination of a continual decrease in effective moisture since the end of the Pleistocene, Johnson and Goode (1994) do not. Johnson and Goode (1994) also believe the period of aridity (their Edwards interval) occurred slightly later, at ca. 4,250–2,550 B.P., compared to Collins's (1995) much longer Altithermal climate at 8,500–6,800 and 5,500–3,000 B.P. (cf. Nordt et al. [1994] and Toomey et al. [1993] in Figure 4).

During the succeeding Late Archaic period (4,000 to 1,300–1,200 B.P.), populations continued to increase (Prewitt 1985:217). The establishment of large cemeteries along drainages suggests strong territorial ties for certain groups (Story 1985:40). Xeric conditions continued but became more mesic around 3,500–2,500 B.P. The Late Archaic period encompasses six projectile point style intervals (Collins 1995:376): Bulverde, Pedernales-Kinney, Lange-Marshall-Williams, Marcos-Montell-Castroville, Ensor-Frio-Fairland, and Darl. Johnson and Goode (1994:29–35) divide the Late Archaic into two parts, Late Archaic I and Late Archaic II, based on increased population densities and evidence of Eastern Woodland ceremonial rituals and religious ideological influences. Middle Archaic subsistence technology, including the use of burned rock middens, continued into the Late Archaic period. According to Collins (1995:384), construction and use of burned rock middens reached a zenith during the Pedernales-Kinney interval and declined during the latter half of the Late Archaic. Mounting chronological data suggest, however, that midden formation and use culminated much later—during the Ensor-Frio-Fairland and Darl intervals—and that this high level of use continued into the early Late Prehistoric period (Black et al. 1997; Kleinbach et al. 1995:795). That burned rock midden use in the eastern part of Central Texas was prevalent after 2,000 B.P. is clear (Black et al. 1997:Figure 133). This scenario parallels the widely recognized occurrence of post-2,000 B.P. middens in the western reaches of the Edwards Plateau (see Goode 1991). The use of burned rock middens appears to have been a major part of the subsistence strategy because there may have been a decrease in the importance of hunting, implied by the low ratios of projectile points to other tools in site assemblages (Prewitt 1981:74).

The Late Prehistoric period (ca. 1,300–1,200 to 300 B.P.) is marked first by the introduction of the bow and arrow into the region and later by the appearance of ceramics. Population densities dropped considerably from their Late Archaic peak (Prewitt 1985:217). Subsistence strategies did not differ greatly from the preceding period, although bison became an important economic resource during the later part of the Late Prehistoric period (Prewitt 1981:74). The use of burned rock middens for plant food processing continued throughout the Late Prehistoric period (Black et al. 1997; Goode 1991; Kleinbach et al. 1995:795). Horticulture came into play very late in Central Texas and was of minor importance to the overall subsistence strategy (Collins 1995:385).

In Central Texas, the Late Prehistoric period is generally associated with the Austin and Toyah phases (Jelks 1962; Prewitt 1981:82–84), but both phases have a much wider application. Austin and Toyah phase markers—Scallorn-Edwards and Perdiz arrow points—are distributed across most of the state. Evidence of violence and conflict often mark the introduction

of Scallorn and Edwards points into Central Texas. Many excavated burials from this period contain these arrow tips in contexts indicating that they were the cause of death (Prewitt 1981:83). Subsistence strategies and technologies (other than the shift from dart to arrow points) did not change much from the preceding Late Archaic. This continuity is recognized by Prewitt's (1981) use of the term "Neoarchaic." In fact, Johnson and Goode (1994:39–40) and Collins (1995:385) state that the break between the Late Archaic and the Late Prehistoric could easily and appropriately be represented by the break between the Austin and Toyah phases.

Slightly more-xeric climatic conditions returned around 1,000–750 B.P., and bison came back to the region in large numbers (Huebner 1991; Toomey et al. 1993). Using this vast resource were Toyah-phase peoples equipped with Perdiz-tipped arrows, end scrapers, four-beveled knives, and plain bone-tempered ceramics. The technology and subsistence strategies of the Toyah phase represent a completely different tradition from the preceding Austin phase. Collins (1995:388) states that burned rock middens fell out of use as bison hunting and group mobility obtained a level of importance not witnessed since Folsom times. Although the importance of bison hunting and high group mobility cannot be disputed, cessation of burned rock midden use during the Toyah phase is tenuous. A recent examination of Toyah radiocarbon assays and assemblages by Black et al. (1997) suggests that their association with burned rock middens represents more than a "thin veneer" capping Archaic features. They demonstrate that burned rock midden use, although seemingly not as prevalent as in preceding periods, still played an important role in the adaptive strategies of Toyah peoples.

Bolton (1915), Campbell (1988), Campbell and Campbell (1981), Hester (1989), and Newcomb (1961) provide historical accounts of Native Americans and their interactions with the Spanish, the Republic of Mexico, the Texas Republic, and the United States throughout the region. Collins (1995:386) divides this period into three subperiods. Although initial European contact with Native Americans in Texas occurred in the sixteenth century, the late seventeenth and early eighteenth centuries mark an era of more-permanent contact between Europeans and Native Americans as the Spanish moved northward out of Mexico to establish settlements and missions on their northern frontier. There is little available information on aboriginal groups and their ways of life except for fragmentary data Spanish missionaries gathered. In the San Antonio and south Texas areas, these groups have been collectively referred to as Coahuiltecans because of an assumed similar lifestyle. But many individual groups undoubtedly existed (Campbell 1988). The inevitable and disastrous repercussions on native social structures and economic systems by disease and hostile encounters with Europeans and intruding groups such as the Apache were already under way at this time.

The second subperiod stretches from the establishment of the mission system in the 1720s to its ultimate demise around 1800. Some indigenous groups moved peacefully into mission life, giving up their nomadic hunting and gathering ways. Others were forced in or moved in to escape the increasingly hostile actions of southward-advancing Apaches and Comanches. By the end of this time, European expansion and disease had decimated many Native American groups. Intrusive groups such as the Tonkawa, Apache, and Comanche moved into the region to fill the void. Outside of mission sites, few sites attributable to these groups have been recognized and investigated. To complicate matters, some aspects of aboriginal lifestyles continued after Spanish contact. For example, many groups continued to manufacture stone tools after settling in the missions (Fox 1979). The third subperiod, from 1800 to the last half of the nineteenth century, witnessed the final decimation of indigenous groups and U.S. defeat and removal of the Apaches and Comanches to reservations.

Although the chronologies of Prewitt (1981, 1985), Johnson and Goode (1994), and Collins (1995) all have merit, Collins (1995) is used in this report because it appears to be the most precise in terms of its radiocarbon-dated projectile point sequence. An exception is use of Austin and Toyah phase names as designations for the two subperiods of the Late Prehistoric period. These phase designations, which correspond precisely with Collins's (1995) Scallorn-Edwards and Perdiz style intervals, are used in this report because they are very well defined and widely accepted by most researchers.

PREVIOUS ARCHEOLOGICAL RESEARCH AT FORT HOOD

The history of archeological investigations at Fort Hood has been discussed many times and is not revisited here. The reader is referred to Jackson (1994b), Trierweiler (1994a, 1994b), and Trierweiler et al. (1995) for brief summaries of archeological investigations conducted in and near Fort Hood. Black (1989), Black et al. (1997), Collins (1995), and Ellis et al. (1994) provide the best background information for understanding the broader history of archeological method and theory in Central Texas archeology. Selected previous investigations in the Fort Hood area are summarized in Table 2.1.

PREHISTORIC RESEARCH CONTEXT AND NATIONAL REGISTER SIGNIFICANCE CRITERIA

Significance testing for the National Register of Historic Places (NRHP), established by the National Historic Preservation Act of 1966, was not rigorous during early archeological investigations at Fort Hood. Through trial and error over the past 30 years, evaluating sites for National Register eligibility has become increasingly more formal, with a variety of research orientations, paradigms, and anthropological theories used at different times for measuring potential. In the early 1990s, Mariah Associates conducted an intensive study aimed at developing a prehistoric research design for Fort Hood. In the resulting document, Ellis et al. (1994) determined that the simplistic cultural-historical perspective that prevailed throughout the history of archeological research in Central Texas was not providing satisfactory results. They created a new framework for evaluating National Register eligibility of Fort Hood prehistoric sites that is both rigorous from a theoretical perspective and practical in terms of its implementation. This research design defines the ultimate goals of prehistoric archeological research at Fort Hood and establishes a set of National Register significance standards for judging the research potential of individual prehistoric sites.

The Fort Hood research design defines four fundamental research domains that "address the basic issues which underlie archeological analysis" (Ellis et al. 1994:100). It also identifies testable hypotheses that are categorized within a set of seven substantive research domains. These domains, ordered from simplest to most complex, provide meaningful questions that may be addressed using basic archeological knowledge and data sets established by the fundamental research domains. The ultimate goal is to begin modeling adaptive behavior based on the premise (or null hypothesis) that the prehistoric inhabitants of Fort Hood employed a foraging strategy. The fundamental and substantive research domains for Fort Hood archeological research are summarized in Table 2.2.

Within the substantive research domains, a series of 19 testable hypotheses are proposed; the types of archeological data needed to address these hypotheses are defined, and the test implications that determine when each hypothesis is falsified are discussed. Although these hypotheses, data needs, and test implications must be made explicit to define research goals, they are not practical for evaluating sites based on small amounts of archeological data obtained from limited testing. To bridge this gap, Ellis et al. (1994) boil down these research domains into a "Significance Model for Fort Hood," a series of questions that must be answered after each site is tested. These questions relate back to the fundamental research questions in that they define the types and quality of archeological data that a site possesses. The following questions about data needs must be addressed through prehistoric site testing:

1. Does the site (or subarea) have the potential to contain intact and undisturbed assemblages of artifacts and features?

2. Does the site (or subarea) have the potential to contain chronological indicators?

3. Does the site (or subarea) have the potential for stratigraphically separated (i.e., buried) deposits in primary context?

4. Does the surface assemblage have evidence of primary lithic procurement or lithic reduction activities (pertains to sites with surfacial evidence only)?

Table 2.1. Summary of selected previous archeological research in and near Fort Hood

Description of Research	Report
Prehistoric site excavations in Bell County by A. T. Jackson, ca. 1933	Unreported, see Young 1988
Ranney Creek Cave site excavation, Coryell County, early 1930s	Unreported, see Prewitt 1974
Prehistoric site investigations by Frank H. Watt in the 1930s, including excavation of Aycock Rockshelter (or Kell Branch Shelter #1) in Bell County	Aynesworth 1936; Watt 1936; see also Lawrence and Redder 1985 and Stephenson 1985
Belton Reservoir preliminary survey by Robert Stephenson, late 1940s	see Shafer et al. 1964
Belton Reservoir survey and excavations, 1950s and 1960s	Miller and Jelks 1952; Shafer et al. 1964
Stillhouse Hollow Reservoir survey and excavations, early 1960s	Johnson 1962; Sorrow et al. 1967
Youngsport site excavations, Bell County, 1960–1962	Shafer 1963
Hog Creek Reservoir investigations by Southern Methodist University, early 1970s	Larson et al. 1975; Larson and Kirby 1976
Hog Creek Reservoir investigations by the University of Tulsa, 1977	Henry et al. 1980
Early surveys of Fort Hood by the Fort Hood Archeological Society, 1960s and 1970s	Thomas 1978
Initial CRM surveys of Fort Hood by Science Applications, late 1970s	Skinner et al. 1981; Skinner et al. 1984
CRM surveys of Fort Hood by the Texas Archeological Survey, The University of Texas at Austin, early 1980s	Dibble and Briuer 1989; Dibble et al. 1989; Roemer et al 1989
Historic research and remote sensing studies at Fort Hood, 1981	Jackson and Briuer 1989
CRM surveys and limited site testing at Fort Hood by Texas A&M University, 1980s–early 1990s	Carlson 1993c; Carlson et al. 1986; Carlson et al. 1987; Carlson et al. 1988; Carlson et al. 1994; Ensor 1991; Koch et al. 1988; Koch and Mueller-Wille 1989a, 1989b Mueller-Wille and Carlson 1990a, 1990b; Thoms 1993
Analysis of military training impacts to archeological sites in West Fort Hood by Texas A&M University, 1981–1983	Carlson and Briuer 1986
Site testing at Fort Hood, by Texas A&M University Field Schools, 1990, 1991, and 1992	Carlson 1993a, 1993b, 1997
Geoarcheological studies of Fort Hood by Texas A&M University, 1989–1992	Nordt 1992, 1993
Development of NRHP significance standards for prehistoric sites on Fort Hood by Mariah Associates, 1993	Ellis et al. 1994
Intensive shovel testing of 571 prehistoric sites by Mariah Associates, 1991–1993	Trierweiler, ed. 1994
Edwards chert patination study by Mariah Associates, 1993–1994	Frederick et al. 1994
NRHP prehistoric site testing by TRC Mariah Associates, 1993–1994	Abbott and Trierweiler 1995a

Table 2.1, continued

Description of Research	Report
Archeological investigation of Native American medicine wheel by Mariah Associates, 1994	Quigg et al. 1996
NRHP prehistoric site testing by TRC Mariah Associates, 1994–1995	Trierweiler 1996
CRM survey of 164 acres adjoining Fort Hood; land Fort Hood later acquired	Largent 1995
NRHP prehistoric site testing by Prewitt and Associates, 1995	Mehalchick et al. 1999
NRHP prehistoric site testing by Prewitt and Associates, 1996	Kleinbach et al. 1999
Geoarcheological investigations and NRHP prehistoric site testing by Prewitt and Associates, 1997	Mehalchick, Kleinbach et al. 2000
NRHP testing and reassessment of 41CV1423 by Prewitt and Associates, 1998	Arnn et al. 2000
NRHP testing and reassessment of the Clear Creek Golf Course site, 41CV413, by Prewitt and Associates, 1999	Mehalchick, Killian et al. 2000
Archeological survey of 1,729 acres in Live Fire Area by Prewitt and associates, 1999	Killian and Blake 2001
Geological investigations and NRHP prehistoric site testing by Prewitt and Associates, 1999	this report

Note: Some of the early investigations relate to an area approximately 100 km in diameter centered around Fort Hood, but most relate specifically to archeological investigations on the military reservation.

Table 2.2. Summary of fundamental and substantive research domains for prehistoric archeological research at Fort Hood

Fundamental Research Domains	Chronological markers: - temporally diagnostic artifacts - geomorphic dating Paleoenvironmental research: - paleoclimate - paleotopography - paleoecology - paleoenvironmental synthesis	Subsistence bases: - flora - fauna Technological apparatus: - tool production - tool use - consumables in the technological system
Substantive Research Domains	Site function I: identifying the apparatus of subsistence and nonsubsistence technologies Site function II: spatial organization of individual technologies Stability and change in technology and subsistence Identifying adaptations I: temporally specific arrays of technologies and subsistence resource bases Identifying adaptations II: adaptive strategies Fort Hood in regional context Explaining adaptation and adaptive change	

5. Do currently available technical procedures allow temporal separation of unstratified palimpsest assemblages (pertains to sites with surfacial evidence only)?

6. Does the site meet any or all of the key data needs to test cultural hypotheses? Presence or absence of key data is determined by the following questions:

    - Does the site contain prehistoric bone or shell specimens that can be identified and dated?
    - Does the site contain prehistoric macrobotanical specimens that can be identified and dated?
    - Does the site contain features that may contain economic and chronometric samples or that may imply economic activities?
    - Does the site contain multiple and spatially separated features?
    - Does the site contain burned rock features, including middens or mounds?
    - Does the site contain unique, unusual, or nonlocal artifact types, artifact materials, concentrations of artifacts, feature types, or constellations of these?

The archeological research must address each of these questions, in order, for each site investigated. Questions 1, 2, and 3 assess contextual integrity; question 6 assesses content integrity. Questions 4 and 5 pertain to sites with surfacial (or very shallowly buried) cultural evidence only and need not be considered for sites with buried cultural deposits. For a site with buried deposits, the answers to questions 1, 2, 3, and 6 must all be yes to meet the requirements for National Register eligibility; if the answer to any is no, the site is considered to have a fatal flaw.

The model of site significance Ellis et al. (1994) proposed helps researchers identify whether a site contains discrete, stratified layers of cultural occupation (or *gisements* as described by Collins [1995:374]). Archeologists must look for sites with sufficient context (i.e., containing stratigraphically discrete evidence of cultural occupation or use) and content (i.e., intact features, assemblages of associated artifacts, and datable and interpretable organic remains) to allow one to test hypotheses about cultural behavior. These types of archeological sites are worthy of being eligible for listing in the National Register because they are likely to yield archeological data useful for addressing the prehistoric research problems identified for Fort Hood (Ellis et al. 1994:103–171). Such sites are considered eligible under Criteria D because they "have yielded, or are likely to yield, information important in prehistory or history" (National Park Service 1995:2).

SITE TYPES ON FORT HOOD

Over the years, a variety of different prehistoric site types have been described. The more recent studies define nine major prehistoric site types (see Boyd et al. 2000: Table 6) that are based on significant differences in geologic settings and archeological remains. These site types are defined in Table 2.3.

Table 2.3. Definitions of site types on Fort Hood

Site Type	Description	Typical Setting and Research Potential
Burned Rock Midden*	A massive accumulation of burned rocks thought to be related to cooking/ processing of plant remains. They are extremely variable in terms of associated artifact assemblages (i.e., quantity and quality of associated artifacts, ceramics, bone, and shell). Large burned rock features for which no morphology is discerned are classified as Middens; thus, a completely buried Burned Rock Mound would be classified as a Midden until its morphology was revealed through test excavations.	May be isolated or occur as a component of an Open Campsite, May be exposed on the surface, but generally has some portion that is buried in colluvial or alluvial sediments.
Burned Rock Mound*	A massive accumulation of burned rocks with a distinctive dome-shaped or mounded morphology. The shape appears to be related to formation, with a mass of fractured burned rock representing debris discarded out of a central earth oven feature. Like Middens, Mounds are extremely variable in terms of associated artifact assemblages.	May be isolated or found as a component of an Open Campsite (or Paluxy site). Isolated Mounds are almost always found in nondepositional upland and slope settings.
Cave/Sinkhole	Karst feature where an erosion-resistant ledge formed protective layers (i.e., roofs or ceilings) when the underlying layers of limestone dissolved or were washed away. A Cave is a naturally occurring cavity at least 5 m in length or depth; it differs from a Rockshelter in that the dimension of the entrance is smaller than its length or depth. A Sinkhole is solution cavity; a depression in the ground surface or a cavity below the ground surface formed by solution processes (i.e., the underlying rock/soil dissolves away to form the cavity).	While hundreds of caves and sinkholes are known to exist on Fort Hood, they are recorded as natural/biological features and their archeological potentials are generally not known. The geographic/geomorphic distribution of caves and sinkholes with archeological potential has not been studied.
Lithic Resource Procurement Area**	Location where natural outcrops of chert are exposed and exhibit evidence of use by prehistoric peoples. Lithic sources can be primary outcrops (i.e., cherts embedded in limestone) or secondary deposits (i.e., lag gravels on uplands, exposed alluvial gravels). Diagnostic artifacts are cores, tested cobbles, flakes.	Upland and slope nondepositional settings with little or no potential for buried deposits.
Lithic Scatter	Surfacial scatter of lithic artifacts (tools and debitage) in areas where no natural cherts crop out. One distinctive feature is the absence of burned rock features and the general scarcity of burned rocks. Lithic scatters differ from Open Campsites in that they exhibit a small range of cultural activities related only to the manufacture/use of chipped stone tools.	Upland and slope settings with low potential for buried deposits.
Open Campsite	Site containing a diversity of artifacts (e.g., chipped stone, ground stone, bone, shell) along with burned rock features or scattered burned rocks indicative of heating/cooking activities. The diagnostic feature is that the artifacts, burned rocks, and features indicate a range of different types of prehistoric activities.	May occur in nondepositional settings (e.g., uplands), but commonly found in alluvial or colluvial settings with good potential for buried deposits.

Table 2.3, continued

Site Type	Description	Typical Setting and Research Potential
Paluxy Site	A special type of Open Campsite that contains cultural materials buried within predominantly sandy sediments derived from the Cretaceous-age Paluxy Formation.	Located on gently sloping Killeen surfaces immediately downslope from Paluxy Formation outcrops that occur only in the western portion of Fort Hood. Cultural materials may be surfacial, but can also occur as deep as 2 m in the redeposited sediments.
Rock Art	Locations where images were carved into (petroglyphs) or painted onto rock surfaces by Native Americans.	Rare in Central Texas because the climate (extreme seasonal variations in rainfall and temperature), along with limestone rock surfaces that tend to spall, are not conducive to preservation.
Rockshelter	Karst feature where an overhanging erosion-resistant ledge formed along a valley wall when underlying layers of limestone dissolved or were washed away. The area beneath the overhang contains evidence of human occupation/use. Generally, Rockshelters contain cultural materials and features buried in sediment (i.e., some combination of internally or externally derived fill).	Occur primarily around the margins and slopes of the high Manning surface in the northern two-thirds of the installation. Rockshelter fill is extremely variable in its nature and origin, as well as in thickness and potential for containing intact buried cultural deposits.

*Burned rock middens and mounds are types of features but may also be considered as site types. Combination site types, such as open campsite/midden, do occur.

**The designation of lithic resource procurement area has been used inconsistently at Fort Hood. For many years, the standard practice was to classify all upland sties larger than 75,000 m^2 as lithic resource procurement areas even if there were no natural chert outcrops present. This inappropriate definition was dropped in the 1990s (see Boyd et al. 2000:17–21; Trierweiler, ed. 1994:101–123.)

GEOMORPHIC RECONNAISSANCE AND TESTING OF 45 SITES

Kyle Killian, Gemma Mehalchick, and Karl W. Kibler

3

Forty-five prehistoric sites were reassessed during the 1999 field season. For each site revisited, an archeological and geomorphic reconnaissance was the first step. For 24 sites, this was the only work done. When sites had the potential to contain buried intact archeological deposits, the reconnaissance was followed by shovel testing of the entire site or selected subareas. Following this, formal testing through hand excavation (usually 1x1-m or 1x0.5-m test units) was done at some of the smaller sites or subareas, particularly rockshelters. At some small rockshelters, one or more test units were excavated in lieu of shovel tests. At the 21 small tested sites, a total of 122 shovel tests and 23 test units were excavated in 27 different subareas.

This chapter summarizes the methods used and the results of these investigations. The investigations at each site are then discussed in detail, along with a summary of observations, work accomplished, and cultural materials recovered. Finally, the sites are grouped according to site type for comparative interpretations, the research potential for each site is evaluated relative to others of the same type, and management recommendations are made.

METHODS

The field investigations followed the same basic methods previous investigators employed (Mehalchick et al. 1999:24–28; Trierweiler, ed. 1994:75–84). The primary difference is that in some cases, particularly for rockshelters, the reconnaissance and testing phases of investigations were carried out on the same visit. This was done in circumstances in which difficulty of access and small site size made repeated trips to the same site impractical.

The reconnaissance team visited and visually inspected the surface of each site and compared current conditions with those recorded previously. Sites were divided into subareas when there were two or more geomorphic surfaces present (e.g., a terrace and a hill). A site or subarea may also have been further divided when there were indications of differing archeological potential (e.g., a burned rock mound on one portion of the site) or when management considerations dictated subdivisions (e.g. one rockshelter was considered eligible for National Register listing, but another on site was not). Descriptive and quantitative archeological and geomorphic forms were completed for each site or subarea, and when necessary, an existing site map was modified or redrawn. If present, chert outcrops were noted and described, and samples were collected. These samples were typed according to the Fort Hood chert typology discussed in detail in previous reports (Abbott and Trierweiler 1995b; Mehalchick et al. 1999:Appendix E; Trierweiler, ed. 1994: Appendixes A and C). Diagnostic surface finds also were collected.

Based on the findings of the reconnaissance, shovel testing was initiated at sites or subareas with potential to contain discrete buried cultural deposits or intact Holocene sediments. Because of differing characteristics, shovel testing varied from site to site. Cutbank exposures were scraped and inspected for cultural materials. Shovel tests might then be concentrated in a specific area where a feature was exposed or at feature locations indicated in previous site records. On sites or subareas where large expanses of undisturbed sediments existed,

shovel tests were excavated on a systematic grid pattern, with tests spaced ca. 30 m apart across the surface. In most cases, shovel testing sampled the full vertical extent of the Holocene deposits. Some sites had the potential to contain significant intact sediments below the depth of shovel testing (i.e., 75–80 cm below the surface).

Two outcomes were possible after a site's reconnaissance or shovel testing. If no determination could be made on the presence or absence of intact archeological deposits, the area was considered to be potentially eligible for listing in the National Register and avoidance or formal NRHP testing was recommended. When investigations demonstrated that there were no intact cultural remains present, the area was recommended as ineligible for listing in the National Register, and no further management was recommended. The field investigations relied heavily on their past experience on Fort Hood and previous geomorphic work by Nordt (1992), Abbott (1995b), Frederick and Ringstaff (1994), and Kibler (1999).

In some selected small sites, primarily rockshelters, when reconnaissance or shovel testing resulted in a determination of potential eligibility, formal National Register testing was carried out. At these sites, difficulty of access made trips to the site for different phases of work inefficient and costly. For the rest of the sites, recommendations are made for minimum levels of effort during a formal testing phase.

The analytic and laboratory methods used for the geomorphic reconnaissance and shovel testing of these 45 sites were the same as those employed for the National Register testing of 12 sites (see Chapter 4).

RESULTS

A total of 66 sites and subareas are designated within the 45 investigated sites (Table 3.1). The excavations were distributed among 27 subareas as follows: 15 subareas with shovel tests only (n = 98), 9 subareas with shovel tests (n = 24) and test units (n = 19), and 3 subareas with test units only (n = 3). Shovel tests excavated at individual sites range from a single test at 5 of the sites to a high of 21 at 41BL931-B. The 22 test units excavated at individual sites range from a single unit at most sites to a high of 5 at 41BL911 and Subarea A, 41BL929.

SITE DESCRIPTIONS

41BL195

Site Setting

Site 41BL195 is an open campsite located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. The site is situated on an upland Manning surface approximately 40 m west of a rockshelter (41BL3) and 60 m west of Belton Reservoir. As confirmed in 1999, the maximum site dimensions are 110x95 m, or 10,450 m^2. Site elevation is 277 m above mean sea level.

Previous Work

White and Thomas (Fort Hood Archeological Society) first recorded the site as a lithic scatter with burned rocks on 17 December 1978. The sketch map indicated that the site measured 100x85 m. Debitage, utilized flakes, cores, bifaces, hammerstone and mano fragments, and snail and mussel shells were observed. Four dart points described as Fairland, Marcos, Pedernales, and untyped were collected. They observed Uvalde gravels and shallow sediments that overlay bedrock. Vehicular traffic and erosion impacted an estimated 30 percent of the site.

On 10 January 1986, Moore and Strychalski (Texas A&M University) monitored the site. Site boundaries were expanded slightly to 110x95 m. Dense amounts of debitage, several lithic tools, and mussel shells were noted. Arrow and dart points were collected. Researchers noted that erosion and a road had affected 20 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 28 April 1999. The site size and dimensions were not altered. The 1986 site map was found to be accurate, so no new site map was made. Because the site is situated on the Manning surface (Nordt 1992) and no intact deposits were present, shovel testing was not warranted.

Discussion

This open campsite is located on a severely

Table 3.1 Summary of geomorphic and archeological investigations for 45 prehistoric sites

Site	Subarea	Site-Subarea Type	Landform	Features	No. of Shovel Tests	No. of Test Units[1]
41BL195	–	open campsite	upland	–	–	–
41BL239	–	cave	slope	–	1	2[2]
41BL337	A	lithic scatter	Pleistocene terrace	–	–	–
	B	lithic scatter	slope	–	–	–
41BL405	–	lithic scatter	terrace	–	2	–
41BL520	–	lithic scatter	slope	–	–	–
41BL522	–	lithic scatter	upland	–	–	–
41BL657	–	lithic scatter	upland	–	–	–
41BL658	–	lithic scatter	upland	–	–	–
41BL660	–	lithic scatter	upland	–	1	–
41BL662	A	undefined*	flood plain (T_0)	–	–	–
	B	lithic scatter	terrace (T_1)	–	6	–
	C	lithic scatter	Pleistocene terrace with travertine	–	2	–
	D	lithic scatter	slope	–	–	–
41BL665	–	open campsite	slope	–	–	–
41BL795	A	lithic scatter	Holocene terrace	–	13	–
	B	open campsite	Pleistocene terrace	–	–	–
	C	lithic scatter	upland	–	–	–
41BL797	–	rockshelter	rockshelter	F1: burned rock midden	2	1
41BL802	–	lithic scatter	upland	–	–	–
41BL902	–	rockshelter	bluff	–	–	1
41BL904	–	cave	bluff	–	1	1
41BL905	–	rockshelter	bluff	–	–	1[3]
41BL906	–	lithic scatter	upland	–	–	–
41BL907	A	cave	upland	–	–	–
	B	lithic scatter	upland	–	–	–
41BL908	A	lithic scatter	Holocene terrace	–	17	–
	B	lithic scatter	Pleistocene terrace	–	–	–
	C	lithic scatter	slope	–	–	–
41BL909	A	lithic scatter	terrace (T_1)	–	4	–
	B	lithic scatter	terrace (T_0)	–	5	–
41BL911	–	rockshelters	bluff	–	2	5[4]
41BL912	–	rockshelter	bluff	–	2	1
41BL914	–	LRPA	upland	–	–	–
41BL915	–	LRPA	midslope bench	–	–	–
41BL917	A	cave	upland	–	–	–
	B	lithic scatter	upland	–	–	–
41BL918	A	open campsite	Holocene terrace	–	11	–
	B	lithic scatter	Pleistocene terrace	–	–	–
	C	lithic scatter	toeslope/slope	–	–	–
41BL919	–	lithic scatter	upland	–	–	–
41BL920	–	lithic scatter	slope	–	–	–
41BL925	–	lithic scatter	slope	–	–	–
41BL926	–	lithic scatter	midslope bench	–	–	–
41BL927	–	rockshelter	bluff	–	4	1

Table 3.1, continued

Site	Subarea	Site-Subarea Type	Landform	Features	No. of Shovel Tests	No. of Test Units[1]
41BL929	A	rockshelters	bluff	–	3	5[5]
	B	open campsite	bench	F1: hearth	5	1[6]
	C	lithic scatter/LRPA	upland	–	–	–
	D	rockshelter	bluff	F2: soil discoloration; F3: burned rock concentration	–	1
41BL930	–	lithic scatter	bench	–	–	–
41BL931	A	lithic scatter	Pleistocene terrace	–	–	–
	B	open campsite with burned rock midden	toeslope	F1: midden; F2: midden	21	–
	C	LRPA	slope	–	–	–
	D	open campsite	terrace	–	4	–
41BL932	–	lithic scatter	upland	–	–	–
41BL933	A	open campsite	upland	–	–	–
	B	LRPA	upland	–	–	–
41BL934	–	rockshelters	bluff	–	4	3
41BL935	–	burned rock midden	terrace (T_0)	–	3	–
41BL936	–	lithic scatter	slope	–	–	–
41CV92	–	LRPA	Pleistocene terrace	–	–	–
41CV580	A	unknown**	terrace	–	1	–
	B	open campsite	toeslope	–	1	–
41CV1415	–	Paluxy	slope-Paluxy	F1:burned rock concentration	8	–
41CV1553	–	lithic scatter	upland	–	–	–
41CV1540	A	open campsite	bench	–	–	–
Total					122	24

*Site type is not defined because no cultural materials are present.
**Site type is unknown because testing did not recover any archeological materials, but potential is good.
[1]All test units are 1x1 m unless otherwise stated.
[2]Includes one 1.5x0.5-m test unit and one 1x0.5-m unit.
[3]0.5x0.5-m unit.
[4]Includes two 0.5x0.5-m test units.
[5]Includes one 1x3.5-m test unit.
[6]1.6x1.6-m test unit.

denuded upland Manning surface. Ground exposures were limited to a few clearings within generally heavy scrub oak and juniper woodland. The soils consisted of thin residual sediment underlain by bedrock, but minor vegetation clearing and extensive sheet erosion disturbed the area. Observed cultural materials consisted of a thin scatter of lithic tools and debitage, accompanied by sparse amounts of mussel shells and burned rocks. Quartzite cobbles were observed on the surface and may represent an exploitable resource. No features or buried deposits were observed, and no cultural materials were collected. Although there were cultural materials present, the site had no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL195 has negligible potential for containing stratigraphically discrete cultural

deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL239

Site Setting

Site 41BL239 is a cave located in training area 3. It is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. The site is situated just below the edge of a northeast-facing escarpment about 525 m southwest of Owl Creek and less than 20 m east of a major pipeline. This cave is situated high on the valley wall of Owl Creek ca. 3–4 m below the edge of the Manning surface and is formed in the Edwards limestone. There are several large boulders in front of the cave and downslope, residue of earlier episodes of shelter collapse and brow retreat. Vegetation outside the drip line of the shelter and down the talus slope includes hackberry, chinquapin oak, red oak, cedar elm, and Carolina buckthorn. Site elevation is approximately 320 m above mean sea level.

Previous Work

Bandy (Texas Archeological Survey) first recorded the site on 6 February 1980. Though no cultural materials were collected, animal bone was observed on the surface and a pile of rocks was described as a possible cairn. Deposits of an unknown depth were noted, and site condition was considered good.

On 11 March 1987, McReynolds and Strychalski (Texas A&M University) revisited the site. A site map was produced, and the site boundary established at 20x10 m on a northwest-southeast axis. Sparse cultural materials were observed on the surface, but a dart point described as a Gary was collected. Though the possible cairns observed in 1980 seem not to have been re-located in 1987, a "recent short limestone rock alignment" was observed. Deposits were estimated at less than 20 cm. At this time, looting activities had disturbed about 20 percent of the site. Erosion, animal activity, and disturbance associated with nearby pipeline construction had disturbed an additional 40 percent of the site.

On 9 February 1988, Mesrobian (Texas A&M University) monitored the site. The site condition was reported not to have changed significantly. Debitage, bone, shell, and charred wood were noted inside the cave and flakes, a biface, and a mandible (not identified) were noted outside. No additional looting was recorded.

Work Performed

On 6 April 1999, Mehalchick and Killian (Prewitt and Associates) assessed the site and tested it for National Register eligibility. The site map was modified to show recent looting and other changes on site (Figure 3.1). A videotape and photographic records were made of the site and work accomplished. In addition, Kibler (Prewitt and Associates) performed a geomorphic assessment on 9 December 1999.

Because the site's small size and difficult access made separate reconnaissance and testing phases impractical, one shovel test and two test units were excavated during the assessment visit. Shovel Test 1 was placed by the vandalized area to assess the nature of the disturbed deposits and the extent of that disturbance. Shovel Test 1 was excavated in 20-cm levels to a depth of 40 cm before bedrock was encountered. The presence of modern trash in the top 10 cm indicated that the top layer was spoil from the adjacent potholes. No prehistoric cultural materials were recovered.

Test Unit 1 was placed within the cave behind an area where a possible cairn was noted on previous visits. The cairn was no longer visible, but ca. 7.5 m inside the cave, the ground surface abruptly rose 10 cm. The unit was placed such that the southeastern portion of the excavation was on this small rise; it was excavated to a depth of 60 cm, where it was terminated on bedrock and large unmovable limestone rocks. Several large pieces of roof fall were encountered. Level 1 was only a partial level because of the rise noted above.

Test Unit 2 (1x0.5 m) was placed east of Test Unit 1 and beside the northern 50 cm of Test Unit 1. This position was selected because the presence of a large intact knife in the northern half of Test Unit 1 suggested the possibility of a human burial. Because of the slope of the cave floor and the decision to use the same datum for both Test Unit 1 and Test Unit 2, excavation in Test Unit 2 began at 17 cm. The excavation was

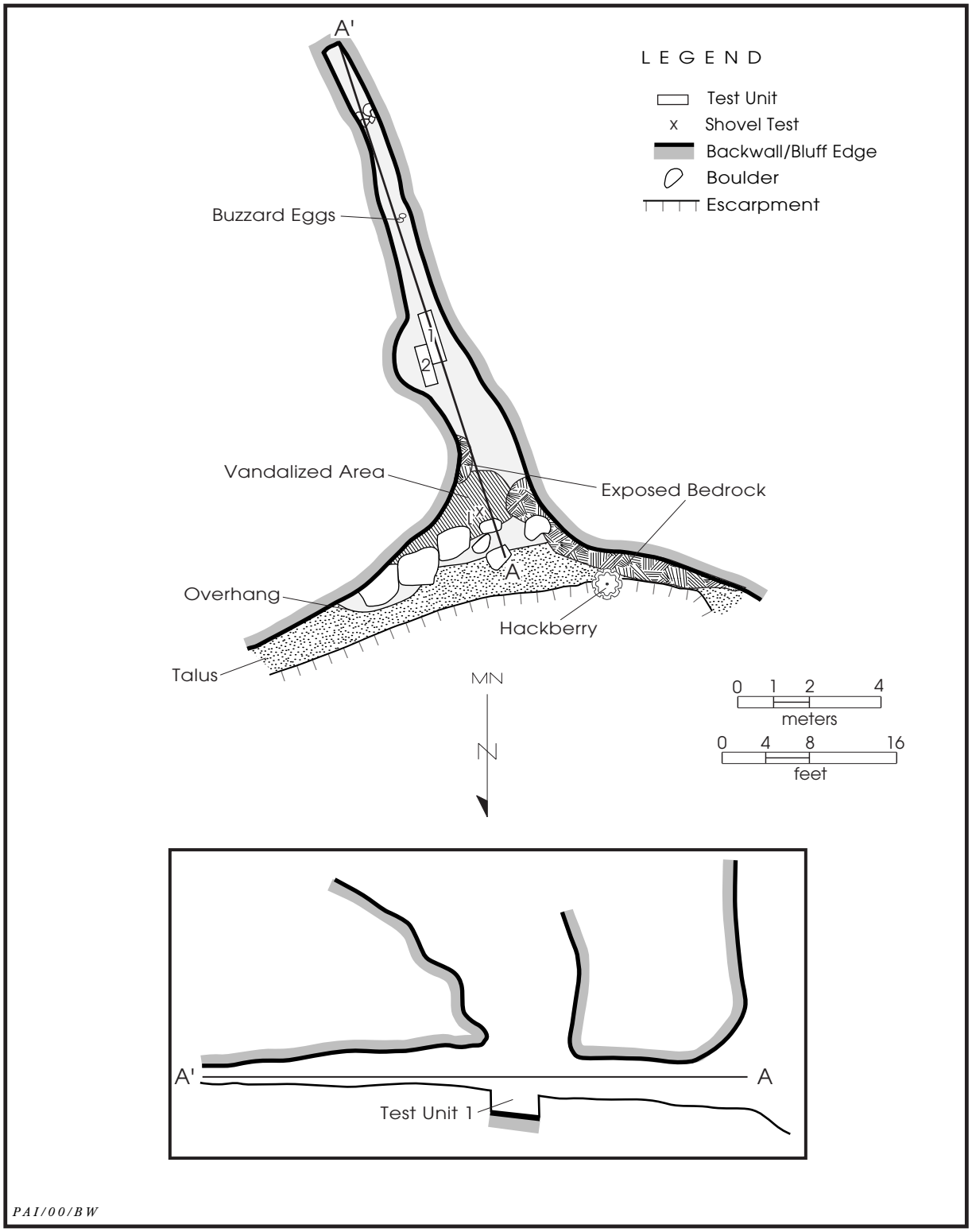

Figure 3.1. Cave plan and profile, 41BL239 (modified from the site file, Cultural Resource Management Office, Fort Hood).

terminated when bedrock was encountered, sloping from 70 cm at the north end of the unit to 80 cm at the southern end.

Extent and Depth

Maximum site dimensions are 20x10 m, or 200 m^2. The cave is long and narrow in plan, tapering in width from 5 m at its mouth to about 50 cm where roof fall chokes the cave 15 m from the entrance. The profile is irregular; the height at the mouth is 2 m, but the ceiling drops quickly to about a meter. A vertical solution cavity rises sharply to an unknown height ca. 4 m into the cave. Nine meters into the cave, this cavity ends. At this point, the ceiling height is 1 m, and it gradually drops toward the back of the cave. The floor of the cave is covered with small pieces of roof fall. Patches of smaller gravel indicate active drainage and deposition within the cave.

A narrow, flat bench, 20 m long and partially covered with roof fall, is present outside the cave. It is 1.5 m at its widest in front of the cave and narrows to less than 10 cm along the length of the escarpment. Beyond the bench, the surface slopes sharply down into a drainage 5–10 m below. Small piles of tools were observed on the surface outside the cave. These are probably related to recent looting activities. Otherwise, surface cultural materials were sparse.

The overall integrity of the fill, though disturbed somewhat by a looter's pit, appears to be good. The line of boulders outside the drip line has prevented sediments from being flushed out. The observed disturbance is primarily limited to the upper late Holocene sediments because the older reddish brown sediments appear to be in place and undisturbed.

Overall, looters had disturbed about 30 percent of the site, but backdirt piles at the mouth of the cave appeared to be very recent. Empty cans of insect repellant, water bottles, and food cans had been left. In 1999, erosion or pipeline construction did not seem to have significantly disturbed the cave itself, although a continuance of the bench to the west was buried under roof fall. The rock wall recorded in 1987 and the cairns reported in 1980 were not observed.

Sediments and Stratigraphy

The sedimentary fill of the cave was examined in the profiles of Test Units 1 and 2. Two zones were identified. Zone 1 (0–25 cm) is a black (7.5YR 2.5/1), slightly hard silty clay loam with 20 percent subangular granule-sized rock fragments and 30 percent pebble to cobble-sized rock fragments. It has a moderate medium subangular blocky structure. Zone 1 has a clear smooth lower boundary and is typical of Abbott's (1995b: Table 9.15) Type 3 shelter fill.

Zone 2 (25–30+ cm) is a brown (7.5YR 4/4) clay loam with 15 percent small rock fragments and 20 percent large subangular pebble-sized rock fragments. It has a moderate medium angular blocky structure. Zone 2 is typical of Abbott's (1995b:9.15) Type 4 shelter fill.

These zones appear to represent separate episodes of shelter filling. Both fills are probably derived from upland soil mantles brought into the cave by runoff through a series of solution cavities and pipes in the ceiling of the cave. Zone 1 is believed to also consist of some internally derived sediments, however. Zone 1 is probably late Holocene, but the color and structure of Zone 2 indicate it may be of greater antiquity.

Cultural Materials

The materials recovered from 41BL239 consist largely of a faunal assemblage, accompanied by three pieces of unmodified debitage and a bifacial knife made from a recycled Castroville dart point (see Cultural Materials Recovered). The knife was lying flat at 25 cm with the distal end pointing toward the back of the cave. All excavated levels in Test Units 1 and 2 contained faunal remains, but the artifacts were limited to Levels 2 and 3 in Test Unit 1.

The faunal assemblage is composed of 119 specimens, 31 (26.1 percent) of which were complete (see Appendix C). All of the specimens show light weathering, and 87 (73.1 percent) also exhibit acid etching. The assemblage is dominated by unburned bones (n = 109, 91.6 percent) with angular breaks (n = 87, 73.1 percent). Only 1 specimen is spirally fractured, and 10 (8.4 percent) have been burned. The taxa represented are primarily medium-sized mammals (n = 51, 42.9 percent), with raccoon being the most frequent identifiable species (n = 19, 16.0 percent) (Table 3.2). None of the

raccoon bones exhibited spiral fractures, burning, or other characteristics that may indicate human agency in their accumulation. The raccoon bone assemblage only represents portions of the head and lower limbs, bones from the body and upper limbs being absent (see Appendix C).

Discussion

Though a large knife was buried in sediments inside the cave, no other cultural materials appeared to be in primary context. The faunal assemblage exhibits interesting characteristics, particularly in the specific body parts represented by the raccoon bones. None of these remains could be linked securely to human activity, however, and the percent age of the assemblage showing either burning or spiral fracturing is small. Also, at the time of current investigations, buzzards were actively roosting in the back of the cave. This, and other animal activity, may account for some or all of the faunal remains recovered during excavation. The soils appear to be externally derived, having washed in through the crevice from the upland above, and it is therefore likely that the sparse cultural materials recovered are not in primary context, with the exception of the large knife. The knife's position (i.e., lying flat and pointed toward the back of the cave) and the fact that it does not show the kind of battering and damage one might expect on an artifact transported by violent erosional episodes through several meters of solution cavity suggest that it is in primary context.

Recommendation

Site 41BL239 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL337

Site Setting

Site 41BL377 is a lithic scatter located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle and is located on aerial photo sheet 62. It is located 350 m south of Bear Creek and 60 m north of a

Table 3.2. Summary of faunal remains from 41BL239

	Vertebrata	Anura	Aves	Mammalia	*Sylvilagus* sp.	Rodentia	Sciuridae	Carnivora	*Procyon lotor*	Total
TEST UNIT 1										
Level 2 (10–20 cm)	1	–	–	–	–	–	–	–	2	3
Level 3 (20–30 cm)	4	–	–	4	–	–	1	–	1	10
Level 4 (30–40 cm)	8	–	4	4	–	–	–	–	5	21
Level 5 (40–50 cm)	2	–	–	5	–	–	–	1	–	8
Level 6 (50–60 cm)	–	–	–	1	–	–	–	–	1	2
Subtotal	15	0	4	14	0	0	1	1	9	44
TEST UNIT 2										
Level 2 (10–20 cm)	–	–	–	3	–	–	–	–	1	4
Level 3 (20–30 cm)	7	–	–	6	–	1	–	1	3	18
Level 4 (30–40 cm)	–	–	–	11	1	–	–	–	1	13
Level 5 (40–50 cm)	7	1	–	8	–	–	–	1	6	23
Level 6 (50–60 cm)	3	–	–	6	–	–	–	–	3	12
Level 7 (60–70 cm)	–	–	–	2	–	–	–	–	–	2
Level 8 (70–80 cm)	2	–	–	1	–	–	–	–	–	3
Subtotal	19	1	0	37	1	1	0	2	14	75
Total	34	1	4	51	1	1	1	3	23	119

small lake or pond. Moderate to dense stands of juniper cover much of the site. As confirmed in 1999, maximum site dimensions are 150x40 m, or 6,000 m^2. Site elevation is approximately 194 m above mean sea level.

Previous Work

Thomas (Texas A&M University) originally recorded the site on 8 January 1982. He observed lithic tools, debitage, and burned rocks, and collected a mano-pestle. Some cultural materials were noted washing downslope, and other materials were exposed on terraced benches below the pond dam. Depositions were described as a combination of slopewash and alluvium less than 1 m deep. Site dimensions were not recorded. An old pond and a road were noted as disturbances to the site, and the condition was described as fair.

On 4 August 1987, Rotunno and Mesrobian (Texas A&M University) revisited the site. At this time, the site boundaries were established as 150x40 m on a northwest to southeast axis. The site was truncated by a minor drainage that feeds a tributary to Bear Creek. Dense flakes, tools, and burned rocks were observed on benches above the lake or pond, and one dart point was collected. The depth of deposits was estimated at less than 30 cm. Erosion, animal activity, and military activity had disturbed an estimated 35 percent of the site.

Work Performed

Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site on 4 August 1999. The site size and boundaries were not altered, but based on differing geomorphic context and archeological potential, the site was subdivided into Subareas A (Pleistocene terrace) and B (slope). The site map was revised to indicate this subdivision. Because there were no intact deposits present in either subarea, shovel testing was not warranted.

Discussion

Subarea A subsumes a late Pleistocene terrace that stands ca. 5–6 m above the channel. Underlying deposits were observed through a ca. 50-m-long exposure along a roadcut. The 1-m-thick exposure consists of a reddish brown silty clay, slightly cemented by $CaCO_3$ and correlating to Nordt's (1992) Jackson alluvium. The cultural materials observed on the surface consist of a sparse scatter of lithic debitage and burned rocks. The alluvial terrace is severely beveled due to erosion. Though chert cobbles were observed on the surface, these appear to have been redeposited from the upland surface above the site. A roadcut running along the length of the subarea has caused locally heavy erosion. Moderate sheet erosion has caused disturbance across all of Subarea A. The level of disturbance and age of the terrace preclude it from yielding any buried or intact cultural materials.

Subarea B comprises a slope of the valley wall. No good exposures of the colluvial toeslope deposits were observed, but the slope appeared to be generally mantled by a thin (<20 cm), discontinuous blanket of gravelly loam and leaf litter overlying bedrock. Cultural materials observed in this subarea consisted of lithic debitage and tools in a secondary context that may represent an Archaic occupation based on a dart point collected in 1987. Chert cobbles redeposited from the upland surface above the site are also present. Sheet erosion has caused moderate to heavy disturbance across the subarea. Although there are cultural materials present, Subarea B does not have the potential to contain buried archeological components in primary context.

Recommendation

Both Subareas A and B of 41BL337 have negligible potential for containing stratigraphically discrete cultural deposits. The site is therefore considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL405

Site Setting

Site 41BL405 is a lithic scatter located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 44. This site is situated on the T_1 terrace north of Owl

Creek, which stands ca. 4–5 m above the channel and extends ca. 200 m north to the valley wall. A manmade berm parallels a gravel road on the northern margin of the site. As defined in 1999, maximum site dimensions are 60x10 m, or 600 m^2. Site elevation is approximately 198 m above mean sea level.

Previous Work

On 2 November 1982, Thomas (Texas A&M University) recorded this site, noting that it was eroding out of a steep embankment and was truncated by Owl Creek Road. Site size and boundaries were not established, and no map was produced. Observed lithic artifacts consisted of debitage, a chert hammerstone, bifaces, and unifaces. No cultural materials were collected. A roadcut and erosion along Owl Creek disturbed an estimated 20 percent of the site.

Work Performed

Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site on 30 March 1999. This site is in Coryell County, but its trinomial indicates Bell County, and it is listed in the Fort Hood database and site files under this site number. The site size was determined to be 60x10 m along an east-west axis, and a site map was produced. The cultural materials observed on the surface consist of a thin scatter of lithic tools and debitage. Chert cobbles were noted in the streambed. Because deposits were present, two shovel tests were excavated to assess the potential to contain intact archeological deposits.

Shovel Test 1 was placed on the west end of the site and excavated to a depth of 40 cm. The soil consisted of brown sandy clay with gravel inclusions. Level 1 (0–20 cm) contained six flakes, *Dasypus novemcintus* (armadillo) bones, and one burned rock. Nothing was recovered from Level 2 (20–40 cm).

Shovel Test 2 was placed on the east end of the site and excavated to 80 cm. From 0 to 70 cm the soil was gray brown silty clay loam. At 70 cm, the soil changed to brown silty clay with dense gravel. Level 2 (20–40 cm) contained charcoal, metal fragments, and fence staples. No cultural materials were recovered from any of the other levels.

Cultural Materials

Shovel Test 1 contained six unmodified flakes and seven armadillo bones at 0–20 cm. The bones were unburned, lightly weathered specimens; six are complete dermal armor plates, and one is an ulna fragment (see Appendix C). The bones are recent in origin. Shovel Test 2 contained fence staples and wire at 20–40 cm but did not contain any prehistoric cultural materials.

Discussion

Deposits below the T_1 surface were examined along a ca. 60-m-long cutbank exposure. No in situ artifacts or features were observed in the cutbank profile. A few artifacts were observed eroding out of the slightly beveled cutbank edge, but their original provenience or context is not known. Two alluvial fills were observed in the profile—a brown silty clay loam with a few dispersed gravels (upper West Range) laterally inset to a gravelly alluvium (lower West Range). The upper West Range alluvium displays an A-Bw soil profile. The A horizon is a 60-cm-thick dark grayish brown silty clay loam, and the Bw horizon is a 20+-cm-thick brown silty clay loam.

The surfacial deposits have been subjected to some disturbances. A few push piles of debris are present next to the berm and gravel road that traverse the site. These disturbances are not extensive and are spatially limited. Though intact buried archeological remains are potentially present in the upper West Range deposits, shovel testing recovered negligible buried cultural materials, and no cultural materials were observed below 20 cm. The armadillo bones and recent historic materials recovered from the upper 40 cm indicate that the deposits are heavily disturbed and unlikely to contain intact archeological deposits. The gravel road, berm, and erosion have disturbed at least 20 percent of the site.

Recommendation

Site 41BL405 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL520

Site Setting

Site 41BL520 is a lithic scatter located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 52. The site is situated on slope approximately 40 m north of Bear Creek. As confirmed in 1999, the maximum site dimensions are 140x340 m, or 47,600 m^2. Site elevation is 201 m above mean sea level.

Previous Work

On 31 January 1984, Ensor (Texas A&M University) recorded the site as a light lithic scatter. The site boundary was established at 140x340 m along an east-west axis. Researchers described deposits as dark brown silty loam mixed with gravel of an unknown depth. Two dart points and a biface were collected, and tools and debitage were observed. Erosion, a borrow pit, and burning had disturbed an estimated 45 percent of the site.

Work Performed

Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site on 30 March 1999. Site size was not altered. The 1984 site map was found to be accurate, and no new site map was made. Because no intact deposits were present, shovel testing was not warranted.

Discussion

The sloping surface encompassing 41BL520 is ca. 4–10 m above the Bear Creek channel and is covered by short grasses and small clusters of junipers. Bedrock outcrops at the lower and upper ends of the site suggest that the entire site is situated on a thin mantle of colluvium. Two small gullies provide exposures of the colluvial mantle that blankets the site. This ca. 20-cm-thick mantle consists of a gravelly dark loam imprinted with an A-C soil profile. It is probably late Holocene. In some areas of the site the surface is somewhat deflated, and lag gravels and smaller gullies are common.

No diagnostic artifacts were observed in 1999, but two dart points collected in 1984 suggest the cultural materials in this unsealed deposit originated in an Archaic context. Cultural materials observed in 1999 consist of a thin scatter of debitage, bifaces, and edge-modified flakes concentrated in and around road cuts and bulldozing activity. All of the deposits are in secondary context with poor integrity. The bulldozing activity, borrow pit construction, and burning observed in 1984 were still obvious in 1999, and continued erosion and vegetation clearing were evident. Overall, these disturbances have affected approximately 45 percent of the site. Although there are cultural materials present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL520 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL522

Site Setting

Site 41BL522 is a lithic scatter located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle and is also located on aerial photo sheet 53. It is situated on an upland Manning surface approximately 250 m north of Bear Creek. As confirmed in 1999, maximum site dimensions are 210x140 m, or 29,400 m^2. Site elevation is 231 m above mean sea level.

Previous Work

On 30 January 1984, Moore (Texas A&M University) recorded the site as a sparse lithic scatter located on a bluff top. Site dimensions were 210x140 m along a northwest-southeast axis. Bifaces and flakes were noted, and two side-notched dart points were collected. Investigators observed shallow deposits and estimated that erosion disturbed 5 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and

Associates) assessed the site on 6 April 1999. Site size and boundaries were not altered. The 1984 site map was found to be accurate, and no new site map was made. Because no intact deposits were present, shovel testing was not warranted.

Discussion

Site 41BL522 is located on a severely denuded upland surface. The cultural materials observed on the surface consisted of a thin scatter of lithic tools and debitage. These materials were observed in a secondary context with poor integrity. No diagnostic artifacts were observed in 1999, but two dart points collected in 1984 suggest that these unsealed cultural deposits originated in an Archaic context. No cultural materials were recovered from this site.

Site sediments consist of isolated patches of thin residual soils among bedrock exposures. No features or buried deposits were observed. Cedar has been cleared across most of the site and disturbances from vehicle traffic and extensive sheet erosion were observed.

Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context. Further, clearing and earthmoving activities have severely disturbed the site.

Recommendations

Site 41BL522 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL657

Site Setting

Site 41BL657 is located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. The site is located 300 m southeast of a tributary to Bear Creek. This lithic scatter is situated on an upland surface south of a tributary to Bear Creek between two small drainages. Vegetation consists of dense juniper and scrub oak woodland with a thick understory. Maximum site dimensions are 200x140 m, or 28,000 m^2. Site elevation is 201 m above mean sea level.

Previous Work

On 14 April 1984, Turpin and Bradle (Texas A&M University) recorded the site as a lithic scatter. Researchers observed bifaces, scrapers, and flakes. In addition, three dart points and a scraper were collected. A chert outcrop was noted along the northern site margin. Site dimensions were given as 200x140 m. A road, erosion, and vegetation clearing disturbed an estimated 67 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 5 April 1999. The chert outcrop noted in 1984 was not relocated in 1999. Site size remained unchanged, but the site map was revised to indicate that there is no chert outcrop present. Because no intact deposits were present, shovel testing was not warranted.

Discussion

The site is located on a severely denuded upland surface. Deposits consist of thin dark gray and reddish brown clay loams exhibiting an A-B+-R idealized profile. Bedrock was exposed across much of the surface. A sparse scatter of lithic tools and debitage was noted on the surface. No diagnostics were observed in 1999, but three dart points collected in 1984 suggest an Archaic occupation. The cultural materials observed were in a secondary context with poor integrity. No features were observed, and no cultural materials were recovered from this site. Overall, 67 percent of the site has been disturbed by a combination of vehicle traffic, vegetation clearing and blading, and erosion. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL657 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have

limited research potential and is recommended as not eligible for listing on the National Register. No further management is recommended.

41BL658

Site Setting

Site 41BL658 is a lithic scatter located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. It is located 300 m northeast of Bull Branch beside a major tank trail that runs northwest to southeast across the quad. The vegetation on site consists of dense juniper and scrub oak woodland with a thick understory. As confirmed in 1999, maximum site dimensions are 300x400 m, or 120,000 m^2. Site elevation is 237 m above mean sea level.

Previous Work

On 14 January 1984, Turpin and Bradle (Texas A&M University) recorded this lithic scatter. Site dimensions were established as 300x400 m along a north-south axis. Because the area had been extensively disturbed, boundaries were described as "extremely arbitrary." The depth of deposits was estimated to be less than 10 cm. Bifaces, scrapers, and debitage were observed, and two dart points were collected. Vegetation clearing, burning, and vehicle activity had disturbed an estimated 55 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 14 April 1999. The site size and boundaries were not altered in 1999. The 1984 site map was found to be accurate, so no new site map was made. Because there were no intact deposits present, shovel testing was not warranted.

Discussion

This site is situated on a deflated high upland Manning surface. The deposits consist of thin dark gray and reddish brown clay loams showing an A-B+-R idealized profile. A thin scatter of stone tools and debitage were noted on the surface. No diagnostic artifacts were observed, but two dart points recovered in 1984 indicate Middle to Late Archaic occupation. The cultural materials are in an unsealed secondary context with poor integrity. No features or buried deposits were observed, and no cultural materials were recovered. Overall, 55 percent of the site has been disturbed by a combination of vehicle traffic, tank trails, vegetation clearing and burning, and erosion. Disturbance is heavy in some locations. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL658 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL660

Site Setting

Site 41BL660 is a lithic scatter located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. Situated at the head of a tributary to Bear Creek and near a major tank trail, 41BL660 is on a high upland Manning surface with dense scrub oak and juniper vegetation. As confirmed in 1999, the maximum site dimensions are 460x300 m, or 138,000 m^2. Site elevation is approximately 245 m above mean sea level.

Previous Work

On 14 April 1984, Turpin and Bradle (Texas A&M University) recorded the site as sparse concentrations of bifacial and unifacial tools, cores, and lithic debitage. One end scraper and two dart points were collected. Site size was established as 460x300 m along an east-west axis. Soils were described as shallow. A sinkhole was plotted on the site map but not discussed on the site form. Bulldozing, military activity, and erosion had disturbed an estimated 20 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 14 April 1999. The site size was not altered. One shovel test was excavated in the depression identified as a sinkhole in 1984, and the 1984 site map was revised to indicate that the depression was not a sinkhole. Because no intact deposits were present on the rest of the site, further shovel testing was not warranted.

Discussion

The upland soils at 41BL660 are dark gray clay loam with depths of ca. 20 cm. Large patches of bedrock are exposed across the site. A thin scatter of stone tools and debitage was noted on the surface. No diagnostic artifacts were observed, but two dart points recovered in 1984 indicate an Archaic occupation. The cultural materials are in an unsealed secondary context with poor integrity. No features were observed and no cultural materials were recovered.

The results of Shovel Test 1 demonstrate that the depression is shallow (i.e., 56 cm below present surface) and is not a sinkhole, as previously thought. There were only 20 cm of deposits in the bottom of the depression. Examination of the site revealed that this depression is only one of several small depressions.

The presence of pull-top cans on the surface suggests that they are associated with recent dumping activity, but they may also be from military activities (i.e., foxholes). Overall, 20 percent of the site has been disturbed by a combination of vehicle traffic, vegetation clearing, burning, and erosion. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendations

Site 41BL660 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL662

Site Setting

Site 41BL662 is an open campsite located in training area 6. It is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. The site is situated approximately 40 m north of Bear Creek, and is overlain by historic site 41BL661. As redefined in 1999, the maximum site dimensions are 110x260 m, or 28,600 m^2. Site elevation is 198 m above mean sea level.

Previous Work

On 15 April 1984, Turpin and Bradle (Texas A & M University) recorded this site as a flake and burned rock scatter. Though low densities of lithic debitage, mussel shells, and burned rocks were observed, no diagnostics were recorded. Site size was recorded as 110x175 m along a northeast-southwest axis. Erosion, potholes, historic occupation, and military activities had disturbed an estimated 37 percent of the site.

Work Performed

On 8 April 1999, Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site. The historic remains (41BL661) and potholes were re-located. A large travertine mound also was observed on the southeast portion of the site. Based on differing geomorphic contexts, the site was divided into Subareas A (floodplain), B (Holocene terrace), C (Pleistocene terrace with travertine mound), and D (slope). The terrace that defines Subarea B continues 80 m west of the original site boundary, ending at the confluence of two tributaries, and site boundaries were enlarged to 110x260 m to include the rest of this terrace. The site map was modified to show the revised site boundary and the four subarea divisions (Figure 3.2). A videotape and photographic record was made of the site and the work accomplished.

Subarea A is in the northeastern portion of the site. It includes the modern floodplain (T_0) of a tributary to Bear Creek that bisects the site and consists largely of gravel bars. This surface is less than 1 m above the channel bottom. The deposits are in secondary context and have

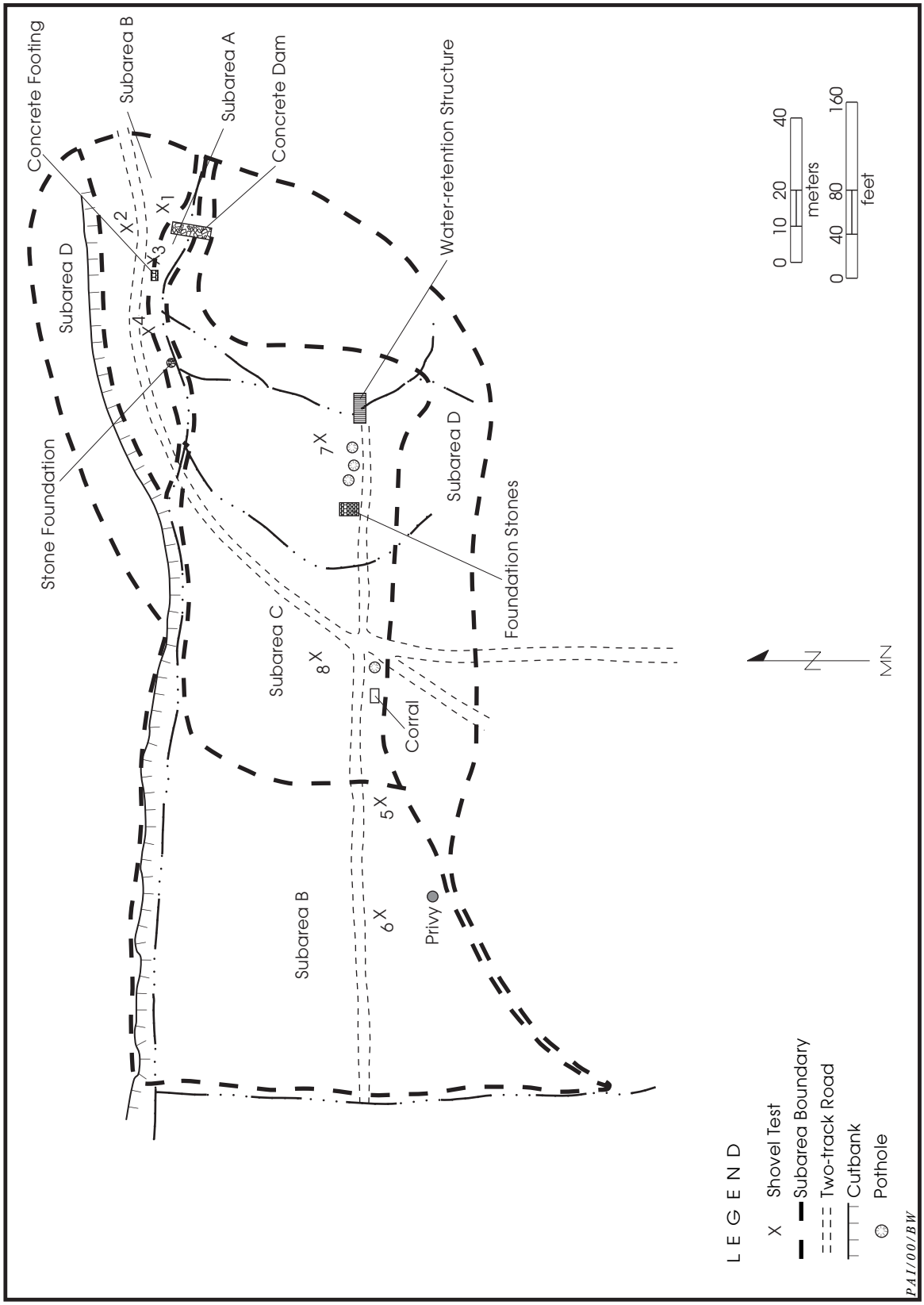

Figure 3.2. Site map of 41BL662 (modified from 1984 site map by Texas A&M University). Note that the historic features are recorded as 41BL661.

extremely poor integrity. The surface is severely scoured and no prehistoric cultural materials were observed. Because Subarea A had low potential for intact archeological deposits, no shovel tests were excavated in this subarea.

Subarea B encompasses two discontinuous sections of the T_1 terrace of the stream valley on the east and west ends of the site. The terrace surface is ca. 2 m above the channel bottom and is covered by junipers, sycamores, oaks, with a dense cover of grasses in open areas. The eastern section of terrace is a narrow strip along the north edge of the main tributary and east of the travertine mound, and the western section is a broader terrace south of the main tributary and west of the travertine mound. Light localized surface scatters of burned rocks were observed as well as sparse scatters of lithic debitage. No features were observed, but a 10–15-cm-thick buried soil is evident in cutbanks in the eastern section. A road cuts through the center of this area, causing locally heavy erosion. Historic structures and activities also have caused undetermined amounts of disturbance in localized areas. Because Subarea B had the potential for intact cultural deposits, six shovel tests were excavated—four in the eastern section and two in the western.

Subarea C represents the remnants of a late Pleistocene terrace (T_2) that rises 5–6 m above the channel bottom. It is largely preserved on the south side of the valley because only a small wedge of the terrace is preserved against the northern valley wall. The T_2 terrace alluvium is comprised of reddish brown fine-grained sediments that are slightly cemented. These sediments are believed to correlate to Nordt's (1992) Jackson alluvium. Two large travertine mounds associated with a large spring obscure much of the T_2 terrace on the south side of the valley. The mound surfaces are 7–8 m above the stream channel bottom. The western mound is inactive or stable, but the eastern mound is currently the locus of spring water discharge or runoff and actively precipitating calcium carbonate. The mounds and the T_2 terrace support dense vegetation in some areas.

A sparse scatter of debitage and burned rock were observed in roads that crossed Subarea C. Otherwise, there were no prehistoric features evident. There are, however, several historic features, mostly modifications to manage the water flow from several spring vents on site. Roads and historic occupation have caused locally heavy disturbance to the travertine deposits, but most of the deposits appear in excellent condition. The travertine deposits are likely to preserve excellent paleoenvironmental data.

On 30 June 1999, Mehalchick, Boyd, Kibler, Caran (Prewitt and Associates), and Winsborough revisited the site to evaluate the paleoenvironmental potential of the travertine mound. Because Subarea C had the potential to contain subsurface deposits, two shovel tests were excavated. One was placed in the active eastern travertine mound, and one in the stable western mound. These two tests excavated on the top of the Subarea C travertine mounds revealed that the deposits are at least 102 cm thick. Sediments, presumably derived from in situ weathering at the mound, are loosely consolidated at the top but become more consolidated with depth. There may be intact travertine deposits several meters thick present beneath this layer. Exposures of travertine along the creek indicate that deposits 3–4 m thick are likely.

Subarea D represents the slopes of the valley wall on the north and south of the site. Dense stands of junipers and oaks cover the area, and leaf litter is heavy. Very little sediment has accumulated on this steep gradient surface. A sparse scatter of lithic debitage was observed on the surface. These cultural materials were observed in unsealed, secondary deposits with poor integrity. The depth of deposit was estimated to be less than 20 cm, and bedrock was exposed in many places. Because Subareas D had low potential for intact archeological deposits, no shovel tests were excavated in this subarea.

Subarea B

CULTURAL MATERIALS

Four of the six shovel tests produced a total of 9 unmodified flakes, 8 at 0–40 cm, and 15 burned rocks (Table 3.3). Seven of these flakes were recovered from Shovel Test 6. Historic materials also were observed at 20–40 cm in Shovel Test 5 and at 0–20 cm in Shovel Test 6.

DISCUSSION

Cutbank exposures indicate that at least two alluvial fills comprise this terrace. The upper

Table 3.3. Summary of shovel test results, 41BL662

Shovel Test No.	Subarea	Stratigraphic Observations	Cultural Materials Recovered
1	B (east)	–	1 unmodified flake; 3 burned rocks
2	B (east)	–	3 burned rocks
3	B (east)	paleosol at 60–72 cm	–
4	B (east)	paleosol at 63–70+ cm	–
5	B (west)	–	1 unmodified flake; 1 burned rock; recent historic materials
6	B (west)	–	7 unmodified flakes; 2 burned rocks; recent historic materials
7	C	weathered travertine deposits	mussel shell fragments
8	C	weathered travertine deposits	burned rocks

fill of the T_1 is ca. 50-cm-thick and consists of dark loamy sediments with gravel stringers. The sediments are imprinted with an A-Bw soil profile and are probably equivalent to Nordt's (1992) Ford unit. The lower fill of the T_1 is 150+ cm thick and consists of a dark gravelly loam that displays a 2Ab-2Bwb soil profile. This alluvial fill is equivalent to Nordt's (1992) late Holocene West Range alluvium. The lateral migration of the stream channel represents the principal disturbance to portions of Subarea B. Additional disturbance is attributed to the presence of a two-track road that traverses the T_1 surface.

Shovel testing indicates that subsurface cultural materials are present, but parts of the subarea have been disturbed to an unknown degree by historic activities and construction of water management features. These disturbances are evident in the presence of historic materials in the upper 40 cm of shovel tested deposits. A paleosol at 40–70 cm below the surface, evident in two shovel tests and cutbank exposures (see Table 3.3), indicates a buried Holocene surface below the levels of observed disturbances. Though no artifacts were found in association with this buried soil during shovel testing, there is still considerable potential for intact archeological deposits at or below this depth.

Subarea C

CULTURAL MATERIALS

One shovel test produced one flake and five burned rocks. The other shovel test contained mussel shell fragments at 90–102 cm (see Table 3.3).

DISCUSSION

Much of the T_2 terrace has been removed from the valley by channel incision and migration, but it is believed that a fairly large remnant of the terrace is preserved below the travertine mounds. The travertine mounds have also suffered some disturbances in the form of a roadcut that crosses the inactive mound, construction of a water retention feature and other structural foundations, and looter's holes. The mounds, if cyclically active and inactive, might themselves contain intact cultural materials.

Not only are buried cultural deposits present in Subarea C, but the travertine mounds are large and appear to have accumulated over a long period of time. Although the archeological potential of Subarea C is not known, the paleoenvironmental potential of the travertine deposits is very good. "Travertine is a well-cemented deposit formed by the precipitation of $CaCO_3$ from spring waters that have high dissolved CO_2 concentrations" (Winsborough et al. 1996). Caran and Winsborough, both geo-archeological researchers with previous experience with travertine and related carbonate precipitate deposits, determined during their site visit that the travertine mounds at 41BL662 have considerable potential to yield valuable paleoenvironmental data. Previous research has shown that many forms of paleoenvironmental evidence (i.e., organic and chemical evidence such as pollen, phytoliths, diatoms, plant and animal macrofossils, and stable isotopes of carbon, hydrogen, oxygen, nitrogen, and sulphur) may be trapped and preserved within layers of travertine (e.g.,

Pedley 1994). Carbonates encapsulated in these layers also may be accurately radiocarbon dated (e.g., Caran et al. 1995; Winsborough et al. 1996). Consequently, travertine has proven to be one of the best sources of data for reconstructing paleoenvironmental conditions.

Summary and Conclusion

Subarea A is located on a high-energy flood plain and has no potential to contain intact archeological deposits. Subarea B is a Holocene terrace that contains subsurface artifacts and portions of a paleosol, but the nature and integrity of subsurface archeological deposits is unknown. Subarea C is composed of a Pleistocene terrace covered by extensive travertine mounds that contain buried cultural materials and significant paleoenvironmental data. Subarea D is located on a partially deflated slope that has no potential to contain stratified cultural deposits in primary context.

Recommendation

Subareas A and D at 41BL662 have negligible potential for stratigraphically discrete cultural deposits. Subareas A and D therefore are considered to have limited research potential and are recommended as not eligible for listing in the National Register. No further management is recommended.

Subarea B at 41BL662 contains potentially intact cultural deposits of unknown significance that may be eligible for National Register listing. It should be avoided, but if avoidance is not possible, then formal testing is recommended to determine eligibility. Minimum testing should include 5 m^2 of hand excavation and 5 backhoe trenches.

Investigations in Subarea C at 41BL662 reveal potentially intact cultural deposits of unknown significance that may be eligible for National Register listing. It should be avoided, but if avoidance is not possible, then formal testing is recommended to determine eligibility. Minimum testing should include a core sample of the travertine mound and as much as 4 m^2 of hand excavation to sample the deposits. The travertine deposits also should be intensively investigated in a pilot study to obtain paleoenvironmental data.

41BL665

Site Setting

Site 41BL665 is an open campsite located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. The site is located on an upland Manning surface approximately 15 m from a tributary of Bear Creek. The ground surface was largely covered by juniper with a thick understory; bedrock was exposed in some places. Maximum site dimensions are 75x25 m, or 1,875 m^2. Site elevation is 225 m above sea level.

Previous Work

On 23 April 1984, Meiszner and Bradle (Texas A&M University) recorded this small site as a lithic scatter with burned rocks and mussel shells. Lithic artifacts consisted of cores, debitage, bifaces, and scrapers, and one dart point was collected. Site dimensions were established at 75x25 m along a north to south axis. An estimated 15 percent of the site was affected by erosion.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 5 April 1999. The site size and boundaries were not altered. The 1984 site map was found to be accurate, and no new site map was made. Because there were no intact deposits present, shovel testing was not warranted.

Discussion

The cultural materials observed on the surface consisted of a thin scatter of lithic tools, debitage, and burned rocks. Though no diagnostic artifacts were observed in 1999, a dart point collected in 1984 may indicate an Archaic occupation. No features or buried deposits were observed, and no cultural materials were recovered. Erosion has disturbed approximately 15 percent of the site. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL665 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL795

Site Setting

Site 41BL795 is located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. This open campsite is situated between Bear Creek and one of its tributaries and encompasses the valleys of both streams and the interfluvial ridge between them. The maximum site dimensions as confirmed in 1999 are 425x250 m or 106,250 m^2. Site elevation is 201 m above mean sea level.

Previous Work

On 23 March 1987, Rotunno and Masson (Texas A&M University) recorded site 41BL795 and established its boundaries as 425x250 m on a north-south axis. One dart point base described as an Angostura was collected. Bifacial tools, unifacial tools, debitage, and a light scatter of burned rocks also were observed. The site was estimated as 65 percent disturbed—tracked and wheeled vehicles had disturbed 25 percent of the site, and historic habitation, including plowing, had disturbed another 15 percent. Pipeline construction and erosion were estimated to have damaged another 25 percent of the site.

Work Performed

On 31 March 1999, Kibler, Mehalchick, and Killian (Prewitt and Associates) assessed the site. Site size was not altered, but the site was divided into Subareas A (Holocene terrace), B (Pleistocene terrace), and C (upland) based on differing geomorphic contexts and archeological potential. Because only part of the 1987 site map was available, a new site map was produced that redefines site boundaries and shows subarea divisions and shovel test locations (Figure 3.3).

Subarea A consists of isolated segments representing two constructional surfaces along Bear Creek and one surface within the tributary valley. Along Bear Creek, these surfaces are the modern floodplain (T_0) and a Holocene terrace (T_1). The surface of the floodplain is 1–1.5 m above the channel and displays flood scour or chute channels. An arboreal community of sycamore, oak, walnut, and hackberry with a dense understory of vines and brush occupies the floodplain. The T_1 terrace surface is 2 m above the channel and supports clusters of juniper and live oak with open areas of short grasses. The surface was subject to light erosion, but the integrity of the deposits appeared good. Because Subarea A had the potential to contain buried cultural deposits, a crew excavated a total of 13 shovel tests ranging in depth from 40 to 100 cm.

Subarea B is an open camp on a Pleistocene terrace (T_2). The terrace surface is 4–6 m above the channel and is present in both stream valleys. The fill below this surface consists of rubified gravelly and fine-grained alluvium, characteristic of the Jackson alluvium. A thin scatter of unifacial tools, debitage, and burned rocks were observed. A dart point described as an Angostura dart point was recovered in 1984, and a Darl dart point with a ground lateral edge was recovered in 1999, indicating a mixed occupation. But these cultural materials were observed in secondary deposits with poor integrity. Historic occupation, including shallow plowing along Bear Creek and along the western margin of the site, has caused an unknown amount of disturbance. Roads crossing the site have caused locally heavy erosion. There is also evidence of some vegetation clearing and light sheet erosion. Because Subarea B had no potential to contain cultural material in primary context, shovel testing was not warranted.

Subarea C is the upland divide or interfluvial ridge between Bear Creek and its tributary. This sloping to rolling surface ranges from ca. 9 to 20 m above the valley floors. Much of this subarea has been subjected to severe erosion because limestone bedrock is exposed across most of the upper slopes. On the lower slopes of Subarea C, there is a thin (< 15 cm) gravelly mantle present. Sparse debitage is

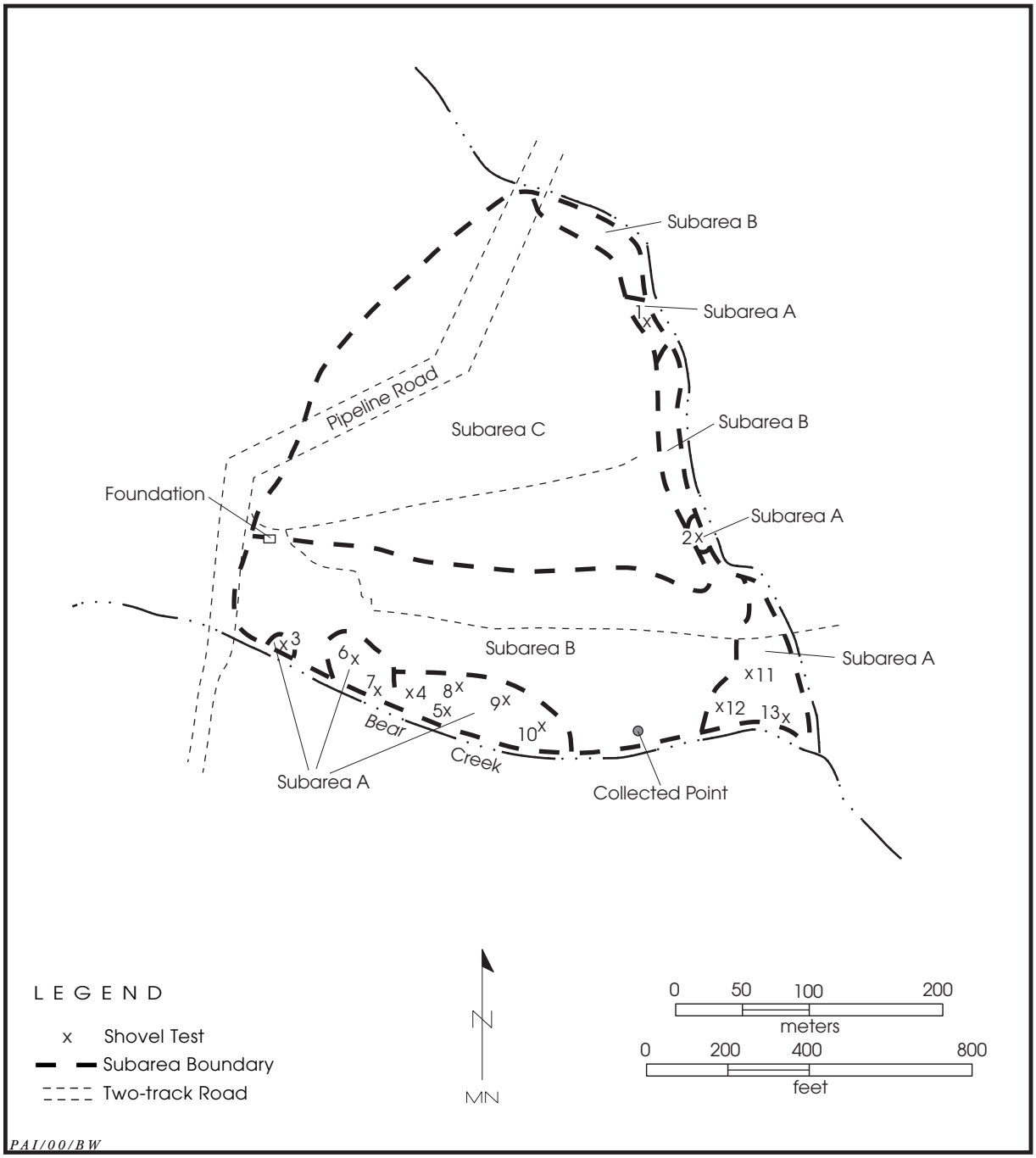

Figure 3.3. Site map of 41BL795 (modified from 1987 site map by Texas A&M University).

scattered across the subarea, which is highly disturbed by sheet erosion, historic occupation, pipeline construction, and clearing. The deposits are in secondary context and have extremely poor integrity. Because Subarea C had no potential to contain cultural materials in primary context, shovel testing was not warranted.

Subarea A

CULTURAL MATERIALS

Three of the 13 shovel tests (Shovel Tests 6, 12 and 13) produced a total of four flakes, including one edge-modified flake at 40–80 cm.

Charcoal was noted at 20–40 cm in Shovel Test 13.

DISCUSSION

Based on cutbank exposures, this terrace consists of late and early Holocene alluvium. The late Holocene alluvium consists of dark brown loamy deposits with gravel stringers and more common gravelly facies. The finer-grained facies are imprinted with an A-Bw-C soil profile. This late Holocene fill is probably correlative to Nordt's (1992) West Range. The early Holocene alluvium appears to be preserved only as a small wedge below the T_1 terrace surface. It is a yellowish brown silty clay loam, characteristic of the Georgetown alluvium. Within the tributary valley, the T_1 terrace is ca. 1.5 m above the channel and is also comprises the West Range and Georgetown alluvia. Subarea A encompasses Holocene deposits of varying depths that contain buried cultural materials and may contain intact archeological deposits, but the nature and integrity of these deposits is unknown.

Recommendation

Subarea B and C at 41BL795 have negligible potential for stratigraphically discrete cultural deposits. Subareas B and C therefore are considered to have limited research potential and are recommended as not eligible for listing in the National Register. No further management is recommended for the subareas.

Subarea A at 41BL795 contains potentially intact cultural deposits of unknown significance that may be eligible for National Register listing. It should be avoided, but if avoidance is not possible, then formal testing is recommended to determine eligibility. Minimum testing should include as much as 4 m^2 of hand excavation and six backhoe trenches.

41BL797

Site Setting

Site 41BL797 consists of an east-facing rockshelter located within training area 3. The site is plotted on the Bland 7.5 minute quadrangle and aerial photo sheet 58. This rockshelter is located high on the wall of a tributary canyon of Bear Creek, ca. 5 m below the edge of the Manning surface. It is formed in the Edwards limestone. There are several large boulders and cobbles in front of the shelter and downslope, representing earlier episodes of shelter collapse and brow retreat. Vegetation outside the drip line of the shelter and down the talus slope includes hackberry, chinquapin oak, cedar elm, bigtooth maple, and Carolina buckthorn. As defined in 1999, maximum site dimensions are 25x15 m, or 375 m^2. Site elevation is 240 m above mean sea level.

Previous Work

Micheals, Bradle, and Mesrobian (Texas A&M University) recorded the site on 8 August 1985. The site size of 25x15 m encompassed the rockshelter and its talus slope. Although the upper portions of the deposits had been vandalized, the potential for intact deposits was considered good because of the estimated thickness (1.5–2 m) of the sediments. It was thought that looter's backdirt piles could have covered undisturbed portions of the shelter. Bifaces, flakes, cores, a dart point, burned rocks, mussel shells, and bones were observed, and one Perdiz arrow point was collected. A screen for sifting deposits, left behind by the looters, also was observed. Looting and erosion impacted an estimated 25 percent of the site.

Work Performed

From 12 to 15 April 1999, Mehalchick and Killian (Prewitt and Associates) assessed and formally tested 41BL797 for National Register eligibility. Dimensions established in 1985 were unchanged, but the site map was modified to record roof fall, seeps, and looter's backdirt piles around the previously recorded potholes (Figure 3.4). The previously recorded looting was noted. Several buckets were observed in addition to the previously noted screen, but there appeared to be no new digging since 1985. Kibler and Holmes (Prewitt and Associates) conducted a geomorphic assessment of the site on 9 December 1999.

Because the site's small size and difficulty of access made separate reconnaissance and testing phases impractical, two shovel tests and one test unit were excavated during the same

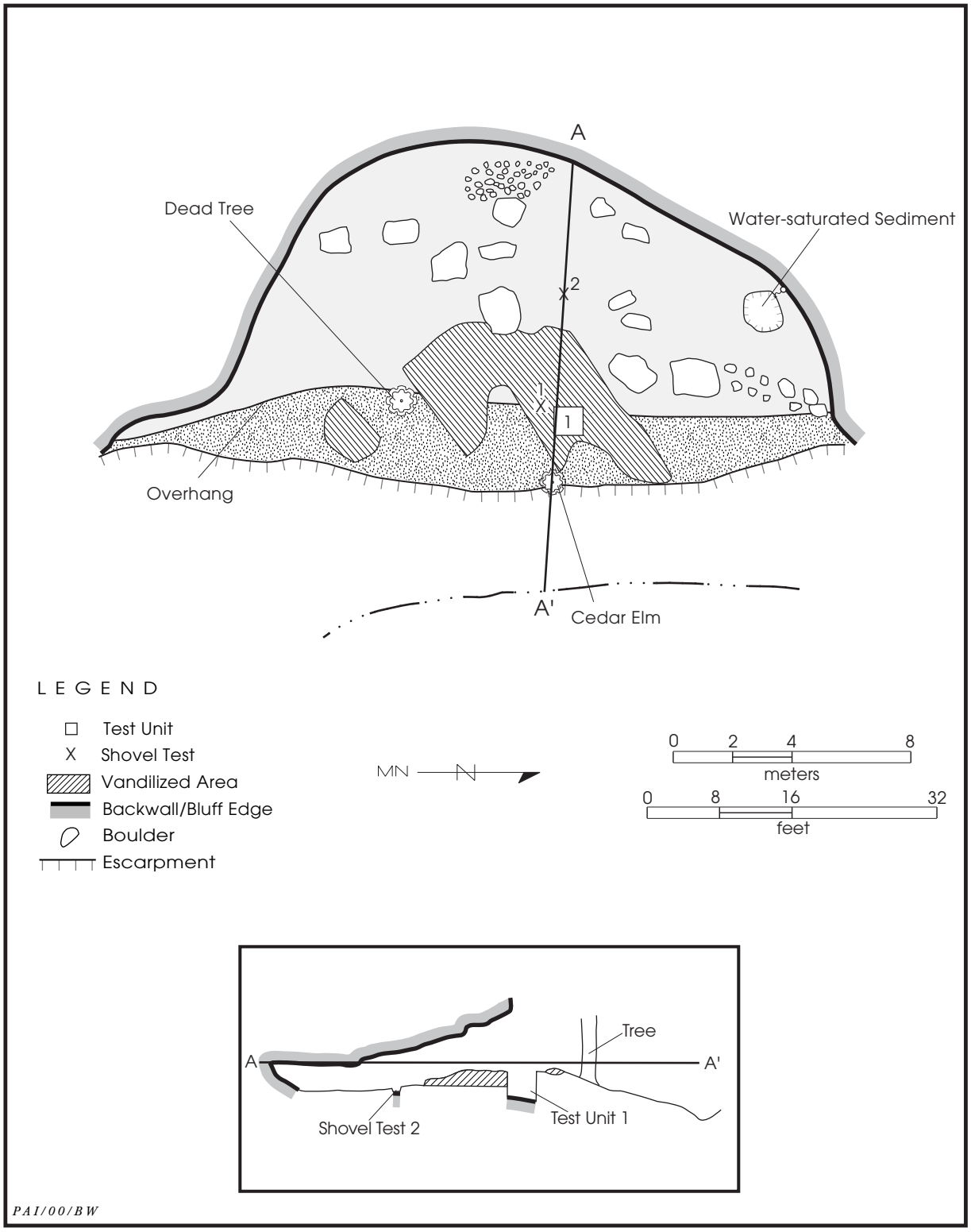

Figure 3.4. Rockshelter plan and profile, 41BL797 (modified from 1985 site map by Texas A&M University).

visit. Shovel Test 1 was placed under the edge of the overhang at the center of the shelter. Located in a vandalized area, the upper 40 cm of deposit consisted of looter's backdirt that was removed but not screened. Dense burned rocks and debitage, as well as mussel shells, bones, charcoal, a mano fragment, and a dart point were observed, but no materials were collected. Undisturbed talus midden deposits, designated as Feature 1, were encountered beginning at 40 cm, and cultural materials were collected from this point on. Immovable unburned rocks were encountered at 75 cm, and the excavation was halted.

Test Unit 1 was placed just north of Shovel Test 1, with most of the unit outside the overhang. Test Unit 1 was located on a backdirt pile, so 12–29 cm of the obviously disturbed fill was removed and not screened. Excavation began with Level 2 at 12–20 cm, but it became apparent that all of the sediments to 40 cm were disturbed vandalized deposits. The matrix was extremely unconsolidated and contained cigarette butts. There were dense cultural materials from 12 to 40 cm that included the medial section of a dart point, a Scallorn arrow point, and an extremely worn human adult or subadult premolar (at 30–40 cm). None of these cultural materials were collected. At 30 cm, one large piece of roof fall was centrally located in the unit, so only half of the unit could be excavated. This large slab extended into the following levels, and was finally removed when the excavation reached 50 cm. Intact midden deposits (Feature 1) were encountered beginning at 40 cm and continuing to 90 cm. Bedrock was encountered across 75 percent of the unit at 100 cm, and was fully exposed between 91 and 109 cm (sloping from west to east).

Shovel Test 2 was excavated within the rockshelter approximately 4 m west of Shovel Test 1. It was placed deeper inside the rockshelter—away from Feature 1 and the area disturbed by looting—to determine the nature and integrity of nonmidden deposits within the shelter. It was terminated on weathered bedrock at 16 cm.

Extent and Depth

The site subsumes an east-facing rockshelter that has maximum internal dimensions of 25x12x2.1 m and an associated talus slope. Looting has occurred along the edge of the talus to just inside the overhang, and an estimated 40 percent of the deposits have been disturbed. The integrity of the sedimentary fill inside the shelter, except where disturbed by looter pits, appears to be good. Bones, mussel shells, and *Rabdotus* snail shells—as well as dense burned rocks and debitage—were exposed in potholes and on backdirt piles. The quantity of burned rocks suggests that there may be subsurface features present. Larger pieces of roof fall and limestone spalls occur within the overhang, and a spring seep and water-saturated sediment occur adjacent to the back wall near the north end of the shelter.

Excavations indicate that the depth of deposits within the rockshelter is shallow (i.e., less than 20 cm), but there are deposits in excess of 100 cm at the edge of the overhang and on the talus slope. In general, only the upper 30–40 cm of these deeper deposits are disturbed by looting, leaving over 50–60 cm of undisturbed cultural deposits.

Sediments and Stratigraphy

The shelter fill was examined through the profile of Test Unit 1. Two zones were identified within the profile. Zone 1 (0–37 cm) is a very dark grayish brown (10YR 3/2) silty loam with 10 percent angular limestone rock fragments (ca. 10–20 mm in size). Zone 1 represents the backdirt from a looter's pit. Its lower boundary is abrupt and wavy. Zone 2 (37–100+ cm) is a very dark gray (10YR 3/1) silty loam with 10 percent angular limestone rock fragments (ca. 10–20 cm in size). At 70–100 cm, the rock fragments increase in frequency (50 percent) and in size (ca. 20–200 mm). Zone 2 displays a weak medium subangular blocky structure and is typical of Abbott's (1995) Type 3 shelter fill.

Portions of the upper deposits, particularly those at and just outside the drip line, appear to be severely mixed and disturbed from looting activities. The lower deposits are less disturbed and are probably late Holocene.

Cultural Materials

The nonfeature portions of 41BL797 produced 452 flakes, the distal fragment of an unidentified projectile point, 3 edge-modified flakes, 2 miscellaneous unifaces, 1 miscellaneous

biface, 1 late stage to finished biface, 1 early- to middle-stage biface, an unidentified projectile point fragment, and the proximal end of a unifacial Scallorn arrow point with a ground base (Table 3.4). The majority of these lithic artifacts, including all of the tools, were recovered from Shovel Test 1. The nonfeature portions of Test Unit 1 also contained 22 burned rocks (1.25 kg).

Feature 1 yielded 544 burned rocks (65.5 kg), 52 stone tools, 2 cores, 2,141 flakes, 1 hammerstone, 214 burned and unburned bones, 2 mussel shell umbos, and hundreds of *Rabdotus* shells. Three arrow points recovered from Feature 1 include 1 complete Scallorn arrow point and the distal tip of an untypeable arrow point. Three dart points also were recovered from Feature 1. The dart points are a nearly complete Figueroa dart point with a double burin blow, the proximal end of a Darl dart point with a ground stem and lateral edges, and a nearly complete Fairland dart point with a reworked and ground base (see Cultural Materials Recovered). Fourteen bifaces (4 early to middle-stage, 5 late-stage to finished, and 5 miscellaneous bifaces) were recovered from Feature 1. The proximal end of one late-stage to finished biface exhibited a utilized lateral edge.

The faunal assemblage is composed of 247 specimens, only 1 of which is complete (see Appendix C). All of the specimens show light weathering. Most of the bones could not be more specifically identified than *Vertebrata* (n = 148, 59.9 percent), with medium sized mammals being the next most frequently represented taxa (n = 97, 39.3 percent). The assemblage is dominated by unburned bones (n = 149, 60.3 percent) with angular breaks (n = 188, 76.1 percent). Fifty-eight (23.5 percent) specimens are spirally fractured and 98 (39.7 percent) have been burned. One bone shows an impact fracture, positively associating at least part of this assemblage with human activity. Most of the faunal remains (n = 214, 87.9 percent) were recovered from Feature 1 where flotation samples had been collected.

The mussel shell assemblage from this site consists of three umbo fragments, one of which was eroded. The identified species are *Quadrula patrina* and *Amblema plicata*; the eroded specimen is probably *Leptodea* sp. Two of the mussel shells were from Feature 1.

Cultural Features

Feature 1 is interpreted as a talus midden measuring at least 12 m north-south by 4 m east-west based on vandal's exposures and topography. During excavation, the 50-cm-thick midden extended across all of Test Unit 1, and was visible in all four walls. Cultural materials were recovered from all excavated levels of the feature (i.e., from 40 to 90 cm). Charcoal or flotation samples also were recovered from each level. The vast majority of the burned rocks were less than 5 cm in size, with a few larger than 15 cm. At greater depth, the burned rocks were soft, possibly from water saturation. Flotation samples from Feature 1 yielded charred oak and juniper wood, hickory nutshell fragments, and black locust seed (see Appendix D). One charcoal sample collected at 80–90 cm yielded a radiocarbon age of 1510 ± 50 B.P. (Beta-136823, see Appendix A).

High frequencies of cultural materials also were observed in the disturbed upper 40 cm of deposits. Though no substantial looting appears to have taken place since the 1985 site recording, looting had disturbed approximately 40 percent of the midden.

Discussion

Two arrow points recovered in the midden deposits and one recovered from a nonfeature area indicate occupation of this site at the beginning of the Late Prehistoric period. Three dart points recovered from the same levels of the midden as the arrow points may reflect reuse of Archaic materials by later peoples. The radiocarbon samples from Feature 1 returned a calibrated date of A.D. 530–615 (1 sigma), however, suggesting occupation near the end of the Late Archaic, which coincides with the dart point types recovered from Feature 1. Because middens often represent a palimpsest of cultural occupations, it is possible that the cultural materials at this site represent more than one component. Another possibility is that the cultural materials represent continual use from the end of the Late Archaic to the beginning of the Late Prehistoric time periods.

Though looting had severely disturbed the upper 30–40 cm, testing indicates that significant portions of the site are still intact. The disturbed and undisturbed portions are stratigraphically distinct and easily separated.

Table 3.4. Summary of cultural materials from 41BL797

Provenience	Untypeable projectile point	Arrow points	Dart points	Late-stage to finished bifaces	Early- to middle-stage bifaces	Miscellaneous bifaces	Miscellaneous unifaces	Spokeshave	Edge-modified flakes	Unmodified debitage	Cores	Hammerstone	Unmodified bones	Unmodified shells	Total
SHOVEL TEST 1															
Feature 1 (40–60 cm)	–	1	–	1	–	–	1	–	2	255	–	–	23	–	283
Feature 1 (60–75 cm)	–	–	–	–	–	1	1	–	–	67	–	–	10	1	81
Subtotal	0	1	0	1	0	1	2	0	3	322	0	0	33	1	364
SHOVEL TEST 2															
Level 1 (0–16 cm)	–	–	–	–	–	–	–	–	–	23	–	–	–	–	23
TEST UNIT 1*															
Feature 1 (40–50 cm)	–	–	–	–	–	1	–	–	7	206	–	–	21	1	236
Feature 1 (50–60 cm)	–	1	–	1	1	–	–	1	5	432	1	1	61	–	504
Feature 1 (60–70 cm)	–	1	2	1	1	3	–	–	10	733	–	–	98	1	85
Feature 1 (70–80 cm)	–	–	1	3	1	1	1	–	2	363	–	–	29	–	401
Feature 1 (80–90 cm)	–	–	–	–	1	–	1	–	5	407	1	–	5	–	421
Level 10 (90–100 cm)	1	–	–	–	–	–	–	–	–	104	–	–	–	–	105
Level 11 (100–110 cm)	–	–	–	–	1	–	–	–	–	3	–	–	–	–	4
Subtotal	1	2	3	5	5	5	2	1	29	2,248	2	1	214	2	2,520
Total	1	3	3	6	5	6	4	1	32	2,593	2	1	247	3	2,907

* Sediments from 0 to 40 cm were looter's backdirt and were removed but not screened.

Recommendation

Investigations at 41BL797 reveal the presence of significant cultural deposits recommended as eligible for National Register listing. Accordingly, this site should be preserved and protected from disturbance. If protection is not possible then mitigation through data recovery is recommended.

41BL802

Site Setting

Site 41BL802 is a lithic scatter located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 61. The site is situated on an upland Manning surface ca. 500 m west of an unnamed tributary to Bear Creek. Ground cover consists of short grasses with scattered live oak and juniper trees. As confirmed in 1999, maximum site dimensions are 190x160 m, or 30,400 m^2. Site elevation is approximately 250 m above mean sea level.

Previous Work

On 28 January 1986, Moore and Strychalski (Texas A&M University) recorded the site and established the site dimensions as 190x160 m along a north-south axis. They observed sparse debitage and occasional lithic tools dispersed across an open field. One dart point with a ground edge was collected and considered potentially Paleoindian. Roads, erosion, and military activity had disturbed an estimated 50 percent of the site.

Work Performed

Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site on 31 March 1999. The 1986 site map depicting site size as 190x160 m was found to be accurate, and no new site map was made. Because there were no intact deposits present, shovel testing was not warranted.

Discussion

Soil deposits are thin (<20 cm) gravelly reddish brown clay, deflated in situ and underlain by bedrock. The cultural materials observed on the surface consist of a thin scatter of lithic tools and debitage. Quartzite cobbles were observed on the surface and may represent an exploitable resource. No features or buried deposits were observed, and no cultural materials were recovered from this site. Roads, cattle, military activity, and erosion disturbed approximately 50 percent of the site.

The site is located on a severely denuded upland surface that has been heavily impacted. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL802 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL902

Site Setting

Site 41BL902 is a rockshelter located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. This rockshelter is situated high on the valley wall of a tributary canyon of Bear Creek. The shallow shelter is ca. 4–5 m below the edge of the Manning surface and was formed in the Edwards limestone. The talus slope in front of the shelter is littered with limestone boulders (from brow retreat) and smaller rock fragments contained within a dark loamy matrix. Vegetation outside the drip line of the shelter includes juniper, red oak, and mountain laurel. Maiden hair ferns grow on the shelter's back wall, where there are several small water seeps. Site elevation is 221 m above mean sea level.

Previous Work

Dureka and Rotunno (Texas A&M University) first recorded the site on 10 March 1987. Site dimensions were given as 20x55 m along a northeast-southwest axis. The site

boundary included the rockshelter and a narrow strip of steeply sloping talus. Observed cultural materials included a light scatter of burned rocks and debitage, a core, and unifacial tools. Animal bones were also observed but considered to be recent. The depth of deposits was estimated to be 80 cm. Erosion had damaged an estimated 5 percent of the site. Otherwise, the site was reported to be in excellent condition.

Work Performed

On 19 April 1999, Mehalchick and Killian (Prewitt and Associates) assessed and formally tested the site for National Register eligibility. The scale of the 1987 site map was to be off, with the shelter found to be only half as large. The small size of the site and the difficulty of access made separate reconnaissance and testing phases impractical, so a 1x1-m test unit was excavated to determine the nature and integrity of the deposits. The site map was modified to more accurately record the outside edge of the overhang, areas of bedrock exposures, and the shelter's size and orientation. A profile of the rockshelter was also drawn (Figure 3.5). A videotape and photographic record was made of the site and work accomplished.

Test Unit 1 (1x1 m) was placed on the bench along the drip line behind a row of boulders. The surface of Test Unit 1 slopes 4 cm from west to east. The unit was excavated to a depth of 40 cm, where weathered bedrock was encountered. At 0–10 cm, a large burned rock projected into the northern edge of the unit. Small amounts of root activity were encountered at 10–20 cm. At 20–30 cm about 40 percent of the matrix was unburned limestone pieces ranging in size from small (<5 cm) to large (25 cm).

Extent and Depth

Maximum dimensions of the shelter and talus are 27x6 m, or 162 m^2. The maximum internal dimensions of the rockshelter are 27x3 m and 1.6 m high. There is also a large solution cavity and a conduit 20–25 cm wide that extends at least 270 cm back into the escarpment near the center of the back wall. Outside the rockshelter, a level strip forms a narrow bench between the outside edge of the overhang and a line of boulders. On the other side of the roof fall, the ground surface slopes sharply down to a drainage. A light scatter of burned rock and debitage was observed on the surface of this bench.

Subsurface exposures indicate the fill is up to 40 cm thick. Disturbances to the shelter fill appear to be limited because the line of boulders in front of the shelter have prevented the sediments from being extensively flushed. Bioturbation by tree roots is somewhat prevalent, however.

Sediments and Stratigraphy

The shelter fill was examined through the profile of Test Unit 1. One zone, a 42-cm-thick black (10YR 2/1) loam with 30 percent angular limestone cobbles, was identified. It displays a weak medium granular structure. The fill is typical of Abbott's (1995) Type 3 shelter fill. It is probably late Holocene.

Cultural Materials

In Level 1 (0–10 cm), 5 unmodified flakes, 2 bison-sized *Artiodactyla* incisors (see Appendix C), and 14 burned rocks weighing 2 kg were recovered. In Level 2 (10–20 cm), 5 unmodified flakes, charcoal, and 15 burned rocks weighing only 1 kg were recovered. One flake was recovered in Level 3 (20–30 cm), and no cultural materials were recovered from Level 4 (30–40 cm).

Discussion

Based on the results of Test Unit 1, the majority of cultural materials at 41BL902 occur in the upper 20 cm of deposit. Because the fill is unconsolidated and the rockshelter is the exposed, it is unlikely that these sediments represent intact archeological deposits. Further, the cultural materials are sparse and intermixed with faunal remains that are probably of recent origin. Because the bench is narrow, the overhang is shallow and bedrock is exposed in many areas; the total area where intact deposits may exist is small.

Recommendation

Site 41BL902 has negligible potential for containing significant amounts of stratigraphically discrete cultural deposits. The site therefore is considered to have very limited

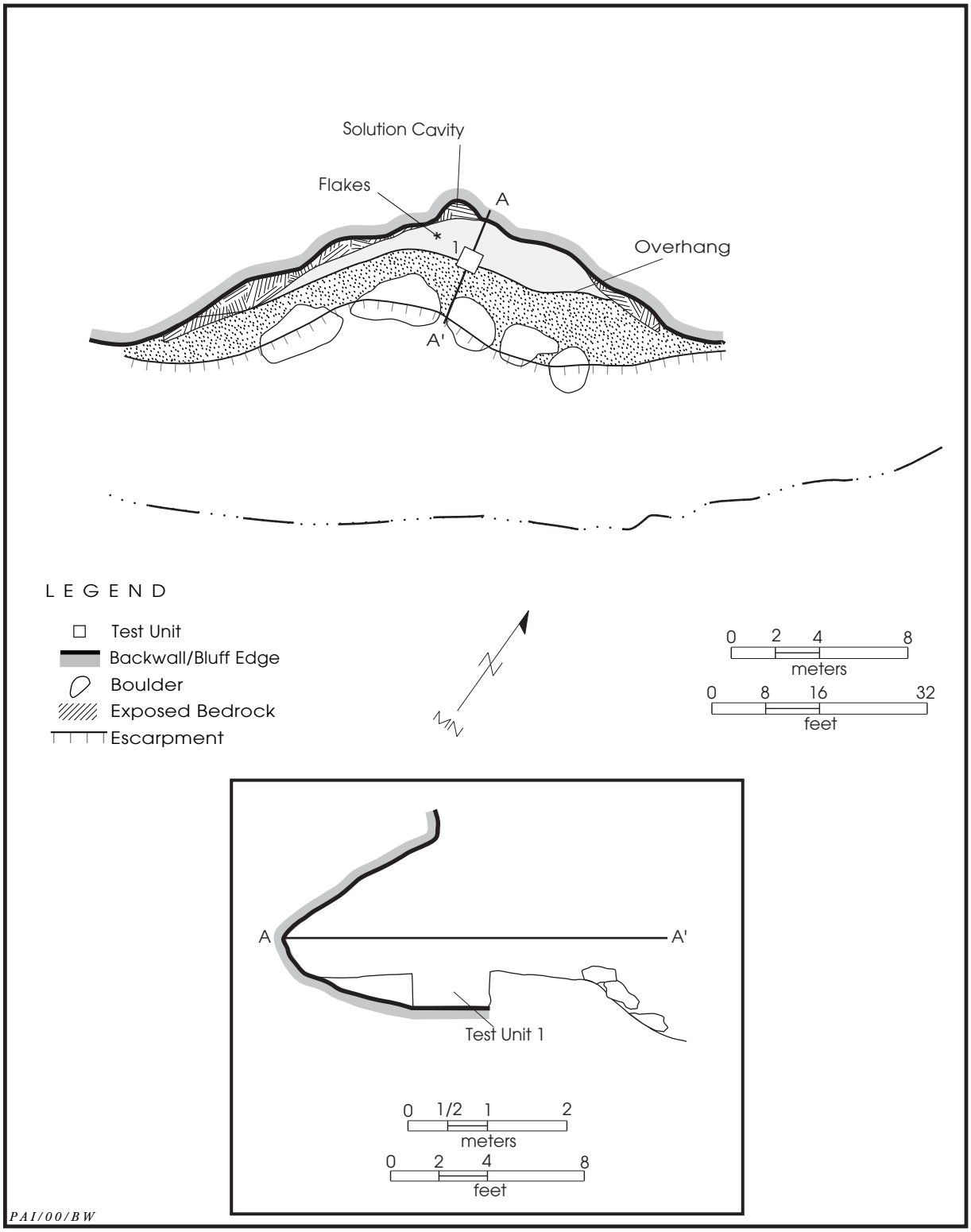

Figure 3.5. Rockshelter plan (modified from 1987 site map by Texas A&M university) and profile, 41BL902.

research potential and is recommended as not eligible for listing in the National Register. No further management is warranted.

41BL904

Site Setting

Site 41BL904 is a cave in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. This cave is located high on the valley wall of a tributary canyon of Owl Creek. The cave has developed in the Edwards limestone and is ca. 5–6 m below the edge of the Manning surface. There are several crevices in the ceiling and a large vertical solution cavity near the back of the cave probably flows water during wet periods. Water was seeping from the walls of this crevice during the 1999 site visit. The talus slope in front of the shelter dips steeply to the valley floor below. Vegetation outside the drip line and down the talus slope includes juniper, mountain laurel, live oak, chinkapin oak, and red oak. As confirmed in 1999, maximum site dimensions are 15x12 m, or 180 m^2. Site elevation is 314 m above mean sea level.

Previous Work

On 12 April 1987, Demarcay and Dureka (Texas A&M University) recorded the site. The site dimensions were established as 15x12 m along a northwest-southeast axis, and a site map was produced. A light scatter of debitage (concentrated just inside the overhang), a light scatter of burned rock, and a core were observed. The deposits were characterized as clay loam with limestone inclusions and estimated to be 15 cm thick. Site condition was reported to be excellent; almost no disturbance was noted.

Work Performed

On 5 April 1999, Mehalchick and Killian (Prewitt and Associates) assessed and formally tested 41BL904 for National Register eligibility. Looters have seriously damaged the site since it was recorded in 1987. There is a looter's excavation approximately 3 m in diameter and 20–30 cm deep at the mouth of the cave. The small size of the site and the difficulty of access made separate reconnaissance and testing phases impractical, so one shovel test and one 1x1-m test unit were excavated during the same visit. A videotape and photographic record was made of the site and work accomplished. Though the site boundaries were not altered in 1999, the site map was revised to show bedrock exposures, record subsequent looting, and more accurately plot the overhang and talus edge (Figure 3.6). In addition, Kibler (Prewitt and Associates) performed a geomorphic assessment on 14 December 1999.

Shovel Test 1 was placed in the looted area to assess the nature of the deposits that were disturbed and the extent of that disturbance. The shovel test was excavated to a total depth of 15 cm where bedrock was encountered. Test Unit 1 (1x1 m) was placed toward the back of the cave just north of the vertical crevice. It was excavated in 10 cm levels to a depth of 36 cm where bedrock was encountered across the unit.

Extent and Depth

The cave is 9.5 m deep, and the width tapers from about 5 m at the cave mouth to a point in the back of the cave. The height of the cave decreases from 2.75 m at the mouth to 1.5 m near the back. There is also a large solution cavity in the ceiling that starts 6 m from the outside edge of the overhang and continues to the back of the cave. The height of the cavity is not known. Water seeps intermittently from the walls and ceiling in several places and is actively depositing tufa. There is an oblong, 12x4-m bench outside the overhang running along the foot of the escarpment. Two large roof fall boulders border the site on the west.

The extent of the site outside the cave is apparent in exposures from extensive looting. To either side of the looter's backdirt, concentrations of lithic artifacts and a quartzite mano were observed. Flakes were observed inside the cave, and a light scatter of burned rock and some fragments of mussel shell were observed on the talus. Outside the drip line, bioturbation due to tree roots and sheetwash have also disturbed the deposits.

Sediments and Stratigraphy

The sedimentary fill of this shelter was observed in the profile of Test Unit 1. One zone—

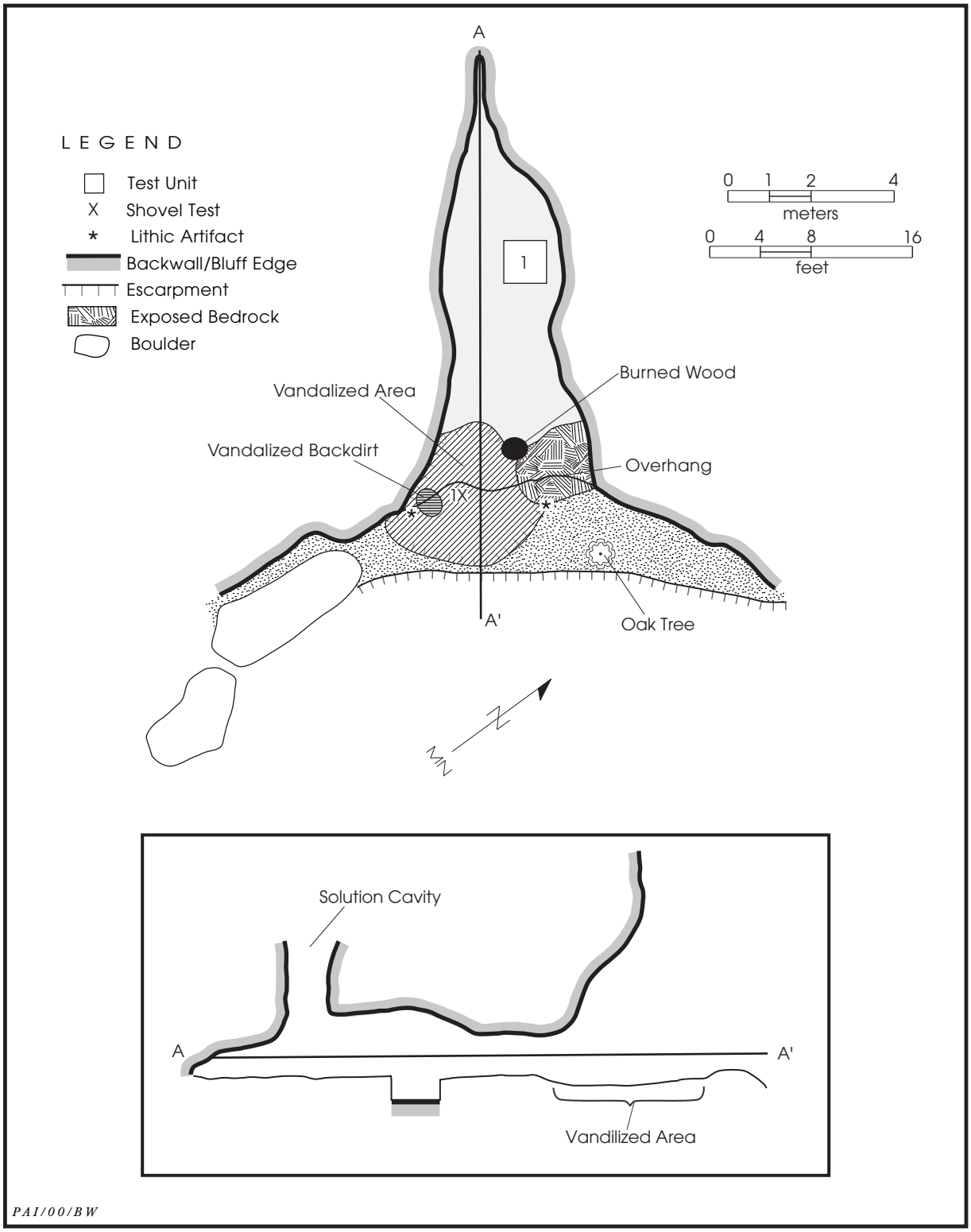

Figure 3.6. Cave plan and profile, 41BL904 (plan is modified from 1987 site map by Texas A&M University).

a ca. 30-cm-thick very dark brown (10YR 2/2) silty clay loam with 25 percent angular limestone rock fragments—was identified. The zone displays a weak fine subangular blocky structure. The fill rests on the limestone bedrock floor of the shelter and is typical of Abbott's (1995) Type 3 shelter fill. Such sediments are believed to be largely derived from the internal weathering of the cave's ceiling and walls and are probably late Holocene.

Cultural Materials

The lithic assemblage is composed of a nearly complete Wells dart point, the distal tip of an early to middle-stage biface, an end scraper, and 10 unmodified flakes. The Wells dart point has ground lateral stem edges and a minor amount of cortex near the distal tip. In addition to the lithic artifacts, two fragments of a bone awl that fit together were recovered. All of these materials were recovered from Test Unit 1, primarily from 10 to 20 cm.

Most of the cultural materials recovered from this cave were faunal remains, totaling 28 specimens (see Appendix C). All exhibit light weathering, and 27 (96.4 percent) exhibit acid etching. Almost all of the assemblage is unburned (n = 26, 92.9 percent), and most of the bones exhibit angular breaks (n = 21, 75 percent). Seven (25 percent) specimens were spirally fractured, and only 2 (7.1 percent) are burned. The taxa represented are dominated by Mammalia bone (n = 14, 50 percent), followed by Vertebrata (n = 10, 35.7 percent). The one mussel shell recovered is the right valve of an immature *Quadrula* sp.

Discussion

Though sparse, the cultural materials recovered from this site constitute an interesting assemblage. The Wells dart point is an Early Archaic type dating 6,000 B.P. The dart point is heavily patinated, however, and without corroborative evidence, it is difficult to assert that it was recovered in an Early Archaic context. Also, the recovery of two fragments of a bone awl from the same excavation would require remarkable preservation in an Early Archaic deposit. It is likely that the cultural deposits are actually much later, probably Late Prehistoric.

The site has been heavily vandalized; the cultural materials, occurring primarily in the upper 20 cm of deposit, are unlikely to retain a high degree of integrity and have probably been displaced by water flowing through the cave periodically. It is evident from observation and testing that looting has largely destroyed the cultural deposits at 41BL904. The probability that there are significant intact archeological deposits extant is minimal.

Recommendation

Portions of site 41BL904 may have once had the potential to contain stratigraphically discrete cultural deposits but have now been extensively disturbed. Few, if any, of these deposits remain intact. Therefore, 41BL904 is considered to have limited research potential and is recommended as not eligible for listing inn the National Register. No further management is recommended.

41BL905

Site Setting

Site 41BL905 is a rockshelter located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. This rockshelter is located high on the valley wall overlooking Owl Creek. The shelter has formed in the Edwards limestone and is ca. 5–6 m below the edge of the Manning surface. The talus slope in front of the shelter dips steeply to the valley floor below. Vegetation at the site includes juniper, mountain laurel, red oak, scrub oak, and Carolina buckthorn. As confirmed in 1999, maximum site dimensions are 17x15 m, or 255 m^2. Site elevation is 312 m above mean sea level.

Previous Work

On 12 April 1987, Dureka and Demarcay (Texas A&M University) recorded this rockshelter. Site dimensions were established at 18x15 m along a northeast-southwest axis and a site map was produced. The site boundary included a deep rockshelter with a narrow extension of the shelter floor outside the overhang. No cultural materials were observed. The

site condition was reported to be excellent, with the only vandalism noted being initials carved into the rock near the outside of the overhang.

Work Performed

On 5 April 1999, Mehalchick and Killian (Prewitt and Associates) assessed and formally tested the site for National Register eligibility. The small size of the site and the difficulty of access made separate reconnaissance and testing phases impractical. Therefore, one 50x50-cm test unit was excavated during the site visit. Though site boundaries were not altered, the site map was revised to record bedrock exposures and areas with thicker deposits (Figure 3.7). A videotape and photographic record was made of the site and the work accomplished. In addition, Kibler (Prewitt and Associates) performed a geomorphic assessment on 14 December 1999.

Test Unit 1 was placed inside the rockshelter in an area that appeared to have the deepest deposits. Bedrock was reached at 10 cm and no cultural materials were recovered from the test unit.

Extent and Depth

Although its maximum interior dimensions are approximately 15x15 m, this rockshelter appears quite deep compared to its length. The shelter constricts in the central area, giving the appearance of greater depth, but no more than 12 cm of deposits are present anywhere inside the rockshelter. A narrow strip of the shelter floor extends outside the overhang and has extremely shallow deposits, with bedrock exposed in places. The sediments are derived from the weathering of the shelter's walls and ceiling and appear to be very recent. Beyond the shelter floor, the talus slopes steeply down to Owl Creek. The fill is very loose and easily disturbed, and there is evidence of animal burrowing. Outside the drip line, tree roots and sheetwash disturbed the area.

Sediments and Stratigraphy

The shelter fill was examined in the profile of Test Unit 1. The fill is thin (12 cm) and rests on the limestone bedrock floor of the shelter. One zone, a pale yellow (2.5Y 8/4) structureless silt with 10 percent angular limestone rock fragments, was identified. The thin, patchy fill is typical of Abbott's (1995) Type 1 shelter fill.

Cultural Materials

No cultural materials were observed or recovered from this site.

Discussion

Site 41BL905 is a rockshelter with shallow unconsolidated deposits that are minimally disturbed by erosion and recent animal activity, but Test Unit 1 indicates that the rockshelter does not contain cultural materials.

Recommendation

The rockshelter has negligible potential for stratigraphically discrete cultural deposits. Site 41BL927 therefore is considered to have very limited research potential and is recommended as not eligible for listing in the National Register. No further management is warranted.

41BL906

Site Setting

Site 41BL906 is a lithic scatter located in training area 3. It is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. The site is located on a high upland Manning surface 180 m southwest of an unnamed tributary of Bear Creek. Ground cover consists primarily of juniper with a thick understory. As confirmed in 1999, maximum site dimensions are 115x30 m, or 3,450 m^2. Site elevation is 228 m above sea level.

Previous Work

On 11 May 1987, Rotunno, Strychalski, and Masson (Texas A&M University) recorded this site as a light lithic scatter extending 115x30 m along a northwest-southeast axis. Researchers observed debitage, bifaces, and unifaces. One distal tip of a projectile point with alternate beveling on the blade was collected. A light scatter of burned rocks was also observed. Erosion, a jeep trail, animals, and military activity damaged an estimated 45 percent of the site.

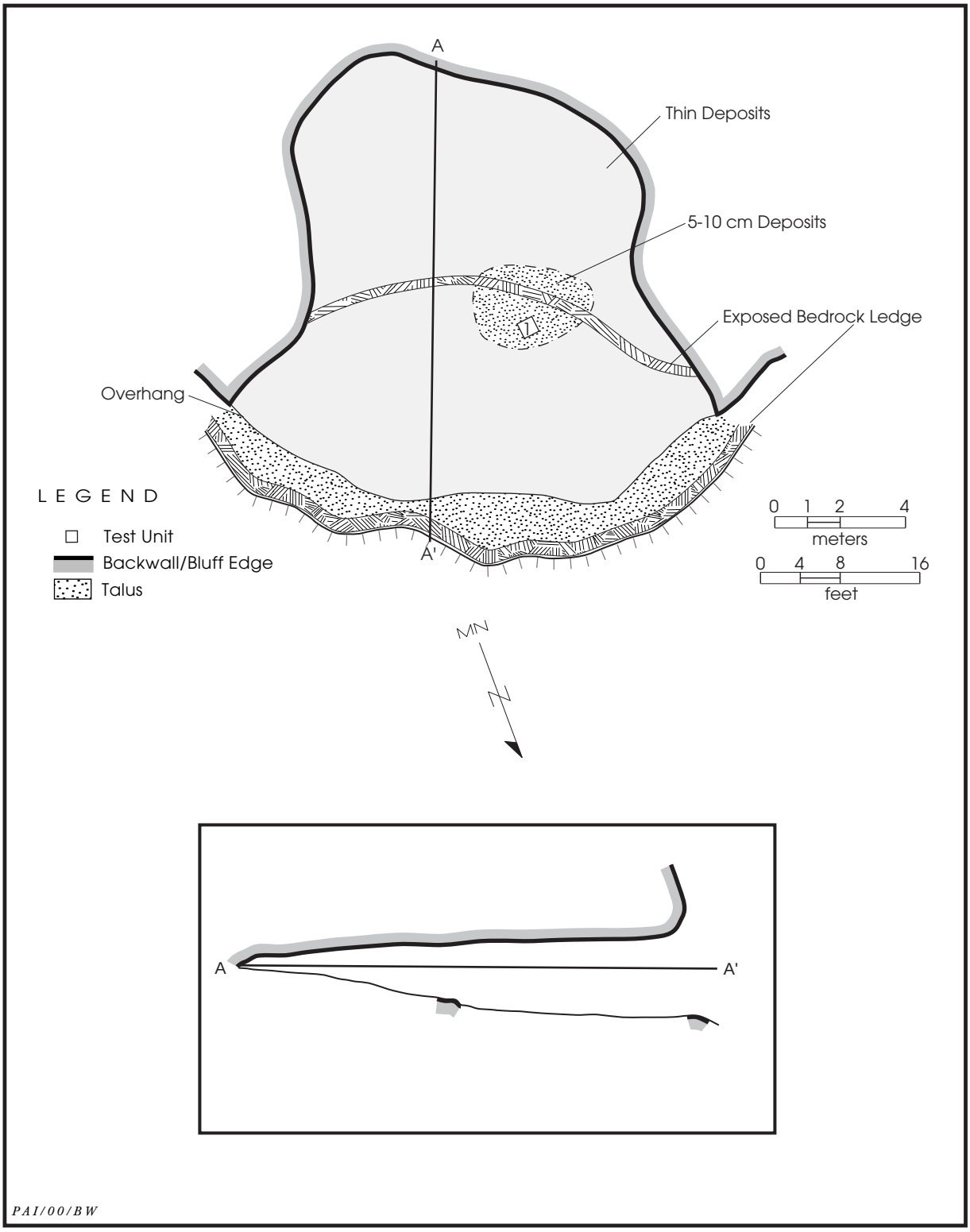

Figure 3.7. Rockshelter plan and profile, 41BL905 (plan modified from 1987 site map by Texas A&M University).

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 6 April 1999. The site boundaries were not changed and no new site map was made. Because no intact deposits were present, shovel testing was not warranted.

Discussion

Soil deposition consists of a thin (<10 cm) mantle of dark brown loam underlain by bedrock. Bedrock is exposed in large expanses over most of this upland site. The deposits are severely deflated. Cultural materials noted on the surface consist of a thin scatter of lithic tools and debitage. No features or buried deposits were observed, and no cultural materials were recovered. The site's surface is approximately 45 percent disturbed by roads, cattle, military activity, and erosion. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL906 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL907

Site Setting

Site 41BL907 is a cave and lithic scatter located on an upland Manning surface in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. The site is situated 50 m west of a major drainage to Bear Creek. As confirmed in 1999, maximum site dimensions are 80x70 m, or 5,600 m^2. Site elevation is 246 m above mean sea level.

Previous Work

On 15 March 1987, Rotunno, Strychalski, and Masson (Texas A&M University) recorded 41BL907 and established site boundaries as 80x70 m along an east-west axis. The depth of deposits around the cave was estimated to be less than 5 cm. A concentration of lithic debitage was noted around the cave, as well as bifacial tools, unifacial tools, and a core. At this time, the site was estimated to be 37 percent disturbed, primarily by erosion.

On 28 0ctober 1994, Warton et al. (Mike Warton and Associates) produced a profile and plan of the cave. The opening was recorded at approximately 4 ft (1.21 m) and the depth at 90.2 ft (27.5 m). At this time, the cave was named Bumelia Well Cave and was cleaned out and gated.

Work Performed

On 5 April 1999, Mehalchick and Killian (Prewitt and Associates) assessed the site. The site map produced in 1987 was accurate, so no modifications were necessary, but the site was divided into two subareas. The cave was designated Subarea A, and the upland lithic scatter was designated Subarea B. Subarea A was gated, and no shovel testing was possible. Subarea B did not contain intact deposits, so shovel testing was not warranted.

Discussion

Because gating made Subarea A inaccessible gating, no direct observations were made. When the cave entrance was cleared and gated in 1994, however, the deposits at the bottom of the sink were described as shallow, and no cultural materials were observed. Also, two intersecting underground streamways flow through the bottom of the cave and have undoubtedly disturbed deposits that might have been present. Though Subarea A was inaccessible, previous investigations suggest that it does not have significant deposits of any kind and is unlikely to contain archeological remains in primary context.

Subarea B consists of a moderate scatter of lithic debitage on a high upland Manning surface. Vegetation consists of oak and juniper woodland, and bedrock is exposed across 30 percent of the subarea. Soil deposits are thin (<20 cm), are deflated in situ, and have an A-B+-R idealized profile. Heavy erosion has disturbed this area, as have vegetation clearing and pipeline construction less severely. Although cultural materials are present, these deposits

are in secondary context with poor integrity. Subarea B has no potential to contain stratified cultural deposits in primary context.

Recommendation

Both Subarea A and Subarea B of 41BL907 have negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have very limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL908

Site Setting

Site 41BL908 is a lithic scatter in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. It is situated along the north edge of Bear Creek. The maximum site dimensions as confirmed in 1999 are 1,050x400 m or 420,000 m^2. Site elevation is 192 m above mean sea level.

Previous Work

On 4 October 1987, Masson, Strychalski, and Dureka (Texas A&M University) recorded 41BL908 and established site boundaries as 1,050x400 m on a northwest-southeast axis. A moderate scatter of debitage, lithic tools, and cores was observed. Also, chert ridges were observed north of the site on the intermediate upland that extends south to Bear Creek. No diagnostics were observed and no artifacts were collected. Plowing, clearing, road cuts, animals, and military activities damaged an estimated 55 percent of the site.

Work Performed

On 31 March 1999, Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site. Site boundaries were not altered, but based on differing geomorphic contexts and archeological potentials, the site was divided into Subareas A (Holocene terrace), B (Pleistocene terrace), and C (slope). The site map was modified to record subarea divisions and shovel test locations (Figure 3.8).

Subarea A consists of the floodplain (T_0) and Holocene terrace (T_1) along the north edge of Bear Creek. The floodplain surface is 1–1.5 m above the creek, and the terrace surface is 3 m above the creek. The meandering of Bear Creek has eroded an unknown amount of the Holocene terrace, leaving only three distinct wedges between narrows strips where the Pleistocene terrace (Subarea B) almost touches the cutbank. Only sparse amounts of debitage were noted on the surface of Subarea A, but moderately dense vegetation rendered ground visibility poor. Though the surface was subject to light erosion and bioturbation, the integrity of the deposits appeared good, as did the potential for preservation of perishable material. Because Subarea A had potential to contain intact cultural deposits, a crew excavated 17 shovel tests on 1 April 1999 and 9 June 1999. Tests ranged in depth from 35 to 100 cm, and dense channel gravels were encountered at the base of the tests.

Subarea B is the T_2 terrace of Bear Creek. The T_2 surface stands ca. 4–5 m above the channel and is underlain by the late Pleistocene Jackson alluvium. This alluvium comprises gravelly and rubified fine-grained deposits. The T_2 terrace surface gently merges downslope with the T_1 surface. The terrace extends north from the edge of Bear Creek as far as 200 m and is separated from Bear Creek on the eastern three-quarters of the site by Subarea A. Ground cover consists of clusters of juniper and short grasses. The deposits presumably predate the presence of humans in North America, and sheet erosion, road cuts, vegetation clearing, and possibly agricultural activity have damaged Subarea B. Because Subareas B had no potential to contain buried cultural materials in primary context, shovel testing was not warranted.

Subarea C represents the valley slopes and uplands that stand ca. 6–10 m above the Bear Creek channel. Although few good exposures were observed, Subarea C is mantled by a thin (<20 cm) gravelly loam that is deflated to bedrock in many places. Sparse debitage is scattered across the subarea. Ground cover includes short grasses and juniper. Sheet erosion, gullying, and vehicle traffic have disturbed the subarea substantially. The deposits are in secondary context and have extremely poor integrity. Because Subareas C had no potential to contain cultural material in primary context, shovel testing was not warranted.

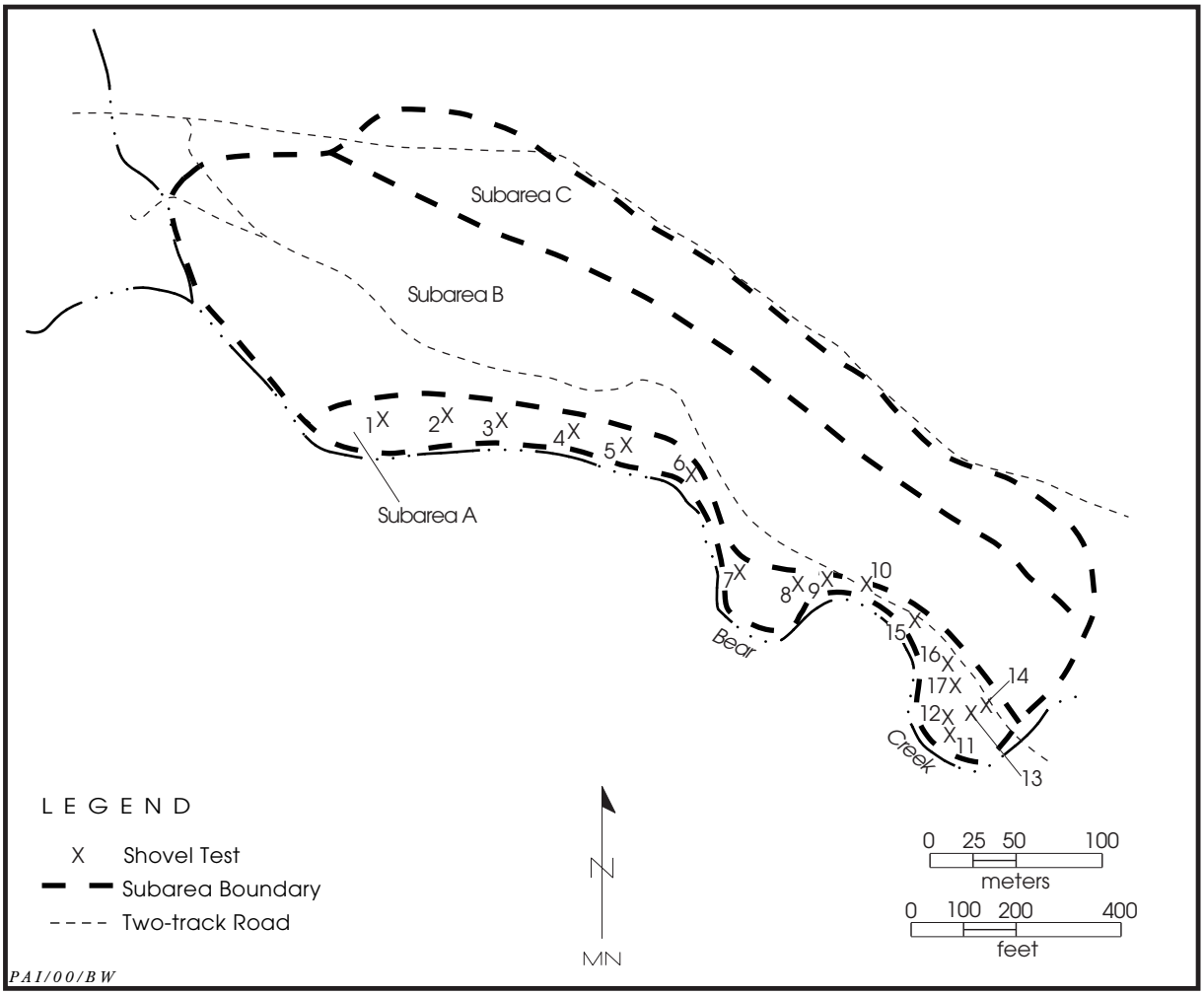

Figure 3.8. Site map of 41BL908 (modified from 1987 site map by Texas A&M University).

Subarea A

CULTURAL MATERIALS

Ten of the 17 shovel tests in Subarea A produced a total of 38 unmodified flakes, 6 tools, and 1 core (Table 3.5). These lithic artifacts were recovered from 0 to 100 cm, with a peak artifact frequency at 20–40 cm (n = 22, 48.9 percent). Two shovel tests also produced 6 burned rocks at 40–80 cm, and charcoal was noted in three shovel tests.

DISCUSSION

The floodplain consists of recent gravelly alluvium, and the T_1 terrace comprises gravelly and dark loamy alluvium correlated to Nordt's (1992) West Range alluvium. Some exposures of terrace fill reveal that wedges of older alluvium (possibly Georgetown alluvium) are preserved below the T_1 surface. Both surfaces are subject to disturbances from tree fall, flood scouring, and lateral migration of the Bear Creek channel.

The 10 positive shovel tests in Subarea A were situated on terrace wedges left by cutbank erosion. The highest density of cultural materials was encountered in Shovel Test 11, excavated on the southeastern-most of the three terrace wedges. It produced 12 unmodified flakes and 1 edge-modified flake, all at 20–40 cm. The other 5 shovel tests located on this southeastern wedge produced only sparse cultural materials, with only one artifact, an edge-modified flake, found below 40 cm. Shovel

tests on the central and northwestern terrace wedges produced sparse cultural materials at depths ranging from 0 to 100 cm. In Subarea A, subsurface cultural materials were present in all three areas of significant Holocene deposition and were recovered at depths indicating the strong possibility of intact subsurface archeological deposits. The nature and integrity of these archeological deposits is unknown, however.

Table 3.5. Summary of cultural materials from 41BL908-A

Provenience	Late-stage to finished biface	Edge-modified flakes	Unmodified debitage	Core	Total
SHOVEL TEST 1					
Level 2 (20–40 cm)	–	–	1	–	1
Level 4 (60–80 cm)	–	–	2	–	2
Level 5 (80–100 cm)	–	–	1	–	1
Subtotal	0	0	4	0	4
SHOVEL TEST 2					
Level 4 (60–80 cm)	–	–	1	–	1
SHOVEL TEST 3					
Level 1 (0–20 cm)	–	–	3	1	4
SHOVEL TEST 4					
Level 1 (0–20 cm)	–	–	1	–	1
Level 4 (60–80 cm)	–	2	3	–	5
Subtotal	0	2	4	0	6
SHOVEL TEST 7					
Level 2 (20–40 cm)	1	–	5	–	6
Level 3 (40–60 cm)	–	–	4	–	4
Level 4 (60–75 cm)	–	–	1	–	1
Subtotal	1	0	10	0	11
SHOVEL TEST 8					
Level 1 (0–20 cm)	–	–	1	–	1
Level 2 (20–40 cm)	–	1	–	–	1
Subtotal	0	1	1	0	2
SHOVEL TEST 11					
Level 2 (20–40 cm)	–	1	12	–	13
SHOVEL TEST 12					
Level 2 (20–40 cm)	–	–	1	–	1
SHOVEL TEST 13					
Level 3 (40–60 cm)	–	1	1	–	2
SHOVEL TEST 14					
Level 1 (0–20 cm)	–	–	1	–	1
Total	1	5	38	1	45

Recommendation

Subareas B and C at 41BL908 have negligible potential for stratigraphically discrete cultural deposits. Subareas B and C therefore are considered to have limited research potential and are recommended as not eligible for listing in the National Register. No further management is recommended.

Subarea A at 41BL908 contains potentially intact cultural deposits of unknown significance that may be eligible for National Register listing. Damage to this subarea should be avoided, but if avoidance is not possible, then formal testing is recommended to determine eligibility. Minimum testing should include as much as 5 m^2 of hand excavation and 6 backhoe trenches.

41BL909

Site Setting

Site 41BL909 is a lithic scatter in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. It is on the south bank of Bear Creek, situated between two small unnamed tributaries. As confirmed in 1999, maximum site dimensions are 250x150 m, or 37,500 m^2. Site elevation is 193 m above mean sea level.

Previous Work

On 10 April 1987, Dureka, Strychalski, and Masson (Texas A&M University) recorded 41BL909 and established site dimensions as 250x150 m along an east-west axis. The depth of deposits was estimated to be 20–100 cm. One dart point classified as a Jetta was collected. Flakes, bifacial tools, unifacial tools, and a hammerstone were observed. The investigators noted that there was a high frequency of utilized

flakes and blades present. The site was estimated to be 35 percent disturbed, primarily by erosion.

Work Performed

On 31 March 1999, Kibler, Mehalchick, and Killian (Prewitt and Associates) assessed the site. The site boundaries were not altered, but the site map was revised to record a large surfacial gravel deposit and the subdivision of the site into Subareas A (T_1 terrace) and B (T_0 terrace) (Figure 3.9). Because both subareas had potential to contain intact cultural deposits, four shovel tests were excavated in Subarea A, and five were excavated in Subarea B.

Subarea A consists of a lithic scatter on a Holocene terrace (T_1) that stands ca. 3 m above Bear Creek. It is situated approximately 75 m south of Bear Creek and bounded on the west by a small intermittent drainage. Four shovel tests were excavated across the area to depths ranging from 20 to 70 cm. All terminated in dense channel gravels.

The T_1 terrace is separated from Subarea B by a defined scarp and is bounded on the west by the same drainage that bounds Subarea A. No surface artifacts were observed in Subarea B. Nevertheless, five shovel tests were excavated to determine if buried deposits were present. Shovel tests were excavated to depths ranging between 34 and 100 cm, all terminating in dense channel gravels.

Subarea A

CULTURAL MATERIALS

Of the four shovel tests in Subarea A, only Shovel Test 2 produced a total of seven flakes, all from Level 1 (0–20 cm). The same shovel test produced three burned rocks, two at 0–20 cm and one at 20–40 cm. No cultural materials were recovered from the other shovel tests.

DISCUSSION

No good exposures of the alluvium below the T_1 surface were available for examination, but shovel test observations suggest the fill is a dark loamy deposit more than 1 m thick and probably of late Holocene age. The subarea is narrow and clear escarpments separate it from Subarea B below and the upland above. Though a variety of lithic tools were observed in 1987, only a sparse scatter of debitage was observed in 1999. Cattle grazing has disturbed this subarea minimally. Disturbance to Subarea A is limited, and it appears to have a good potential for yielding cultural materials with good contextual integrity.

Subarea B

CULTURAL MATERIALS

Three of the five shovel tests in Subarea B produced a total of four unmodified flakes. Two of the flakes were recovered between 60 and 100 cm in Shovel Test 5. The other two were recovered from Shovel Tests 6 and 9 at 0–20 cm. Two of the shovel tests also produced charcoal between 60 and 100 cm.

DISCUSSION

Subarea B represents the floodplain or T_0 surface 1 m above the channel of Bear Creek. It is characterized by rolling topography from alternating ridges and swales and represents a series of chute-modified gravelly point bars. This surface is mantled by less than 1 m of dark silty clay loam, though the chutes contain exposed gravelly fills. These recent deposits are imprinted with an A-C soil profile. Subarea B has been subjected to a number of disturbances, including tree fall and scouring from floodwaters. Along with the age of the deposits, these factors preclude it from yielding cultural materials in good contextual integrity.

Recommendations

Subarea A at 41BL909 contains potentially intact cultural deposits of unknown significance that may be eligible for National Register listing. Damage should be avoided, but if avoidance is not possible, then formal testing is recommended to determine eligibility. Minimum testing for Subarea A should include 3 m^2 of hand excavation and 4 backhoe trenches.

Subarea B at 41BL909 has negligible potential for containing significant amounts of stratigraphically discrete cultural deposits. This subarea therefore is considered to have very

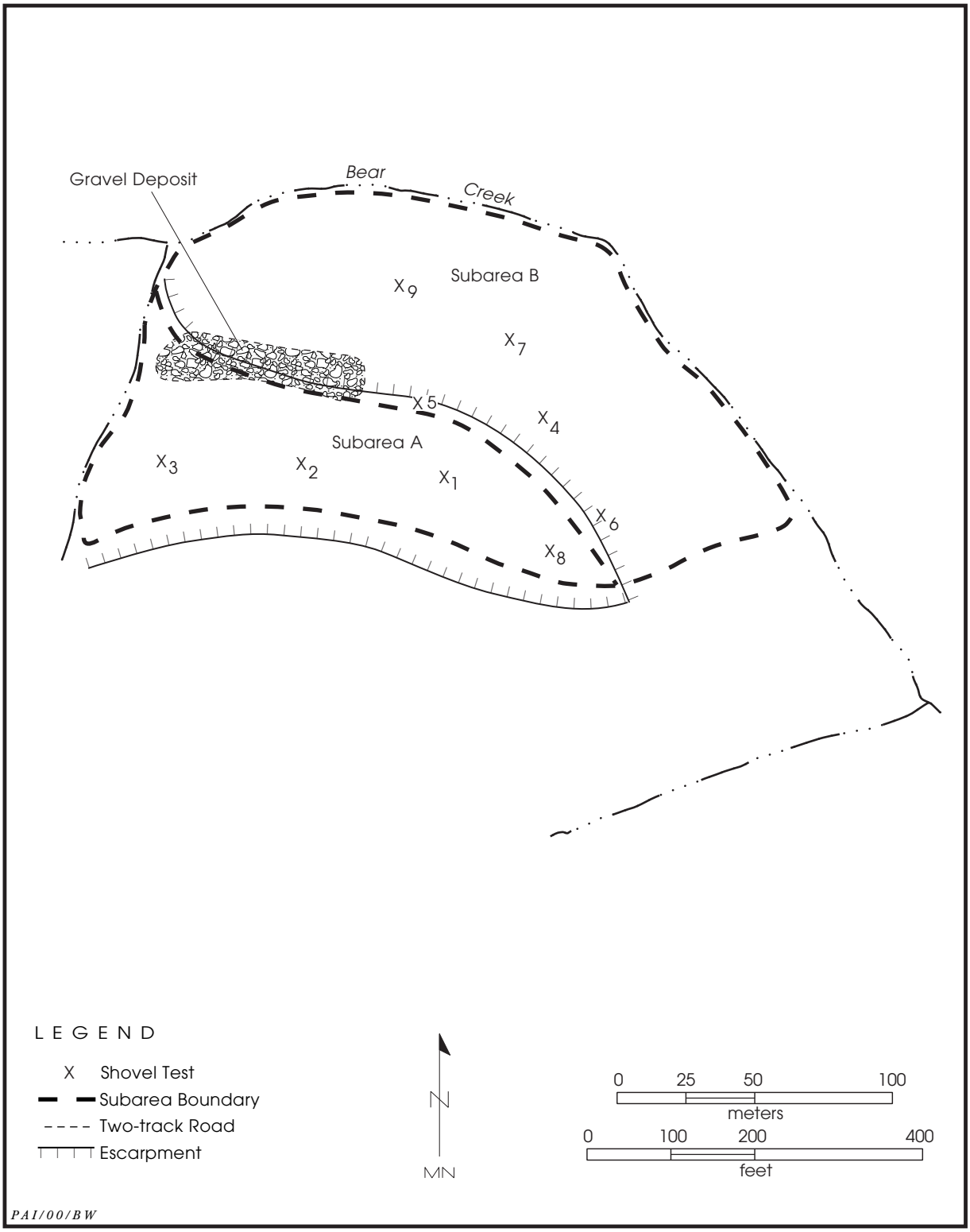

Figure 3.9. Site map of 41BL909 (modified from 1987 site map by Texas A&M University).

limited research potential and is recommended as not eligible for listing in the National Register

41BL911

Site Setting

Site 41BL911 encompasses two rockshelters in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. The two shelters are situated high on the valley wall. They are now on the shoreline of Belton Reservoir, ca. 5–6 m below the edge of the Manning surface. Both shelters lack a line of boulders (from brow retreat and earlier episodes of shelter collapse) in front, probably because of the steep talus slopes in front of both shelters. Vegetation outside the shelters includes juniper, hackberry, persimmon, cedar elm, and Carolina buckthorn. Site elevation is 275 m above sea level.

Previous Work

On 4 March 1987, Strychalski and Dureka (Texas A&M University) first recorded the site. The site dimensions were given as 10x6 m, and a site map was produced. This original site boundary included only one rockshelter and a narrow strip of talus. A light surface scatter of burned rocks and mussel shells was observed, and the depth of deposits was estimated to be greater than 25 cm. The site was reported to be in excellent condition.

Work Performed

On 5 March 1999, Mehalchick and Killian (Prewitt and Associates) assessed the site and formally tested it for National Register eligibility. Evidence of looting was observed in the front-central portion of the shelter, indicating that the site had been disturbed since it was recorded in 1987. The site boundary was expanded to include a smaller rockshelter discovered less than 5 m from the originally recorded rockshelter. The larger, original shelter was designated Rockshelter A and the smaller, subsidiary shelter Rockshelter B. The small size of the site and the difficulty of access made separate reconnaissance and testing phases impractical, so two shovel tests, three 1x1-m test units (Test Units 1–3), and two 50x50-cm test units (Test Units 4 and 5) were excavated. The site map was revised to record evidence of looting, more accurately plot the overhang and talus edge, and extend the site boundary. Profiles of Rockshelters A and B were produced, and a plan of Rockshelter B was also produced (Figures 3.10 and 3.11). A videotape and photographic record was made of the site and the work accomplished.

Excavations in Rockshelter A include Shovel Tests 1 and 2 and Test Units 1–3. Shovel Test 1 was placed in the western portion of the shelter and excavated to a depth of 10 cm, where bedrock was encountered. To determine whether staining observed in the sediment comprised part of a cultural feature, Shovel Test 1 was expanded into Test Unit 1, which was placed so that Shovel Test 1 constituted its northeast corner. Test Unit 1 was also excavated to a depth of 10 cm.

Shovel Test 2 was placed on a small rise in the eastern end of Rockshelter A. This shovel test was excavated to a depth of 60 cm, where the quantity of roof fall made it impractical to continue the excavation as a shovel test. Because the presence of burned rock near the bottom of Shovel Test 2 indicated the possibility of buried cultural materials, Shovel Test 2 was expanded as Test Unit 3, which was placed so that Shovel Test 2 made up its northwest corner. It was excavated in 10 cm levels to a depth of 85 cm, where bedrock was encountered across the unit.

Test Unit 2 was placed in the central part of Rockshelter A southeast of the area disturbed by looters. Looting had exposed burned rocks in this area, and it was hoped that some intact deposits remained. Throughout the unit, the northwest quadrant was disturbed. Test Unit 2 was excavated to a depth of 60 cm before bedrock was reached.

Excavations in Rockshelter B included Test Units 4 and 5. Test Unit 4 was placed in the central portion of the shelter ca. 1.4 m inside the overhang and excavated to a depth of 68 cm, where bedrock was encountered on the southern one-third of the unit and roof fall, resting on bedrock, covered the northern two-thirds. Test Unit 5 was placed in the west-central portion of the shelter. It was excavated to bedrock at a depth of 90 cm.

Extent and Depth

As redefined in 1999, maximum site dimensions are 21x6 m, or 126 m^2. These

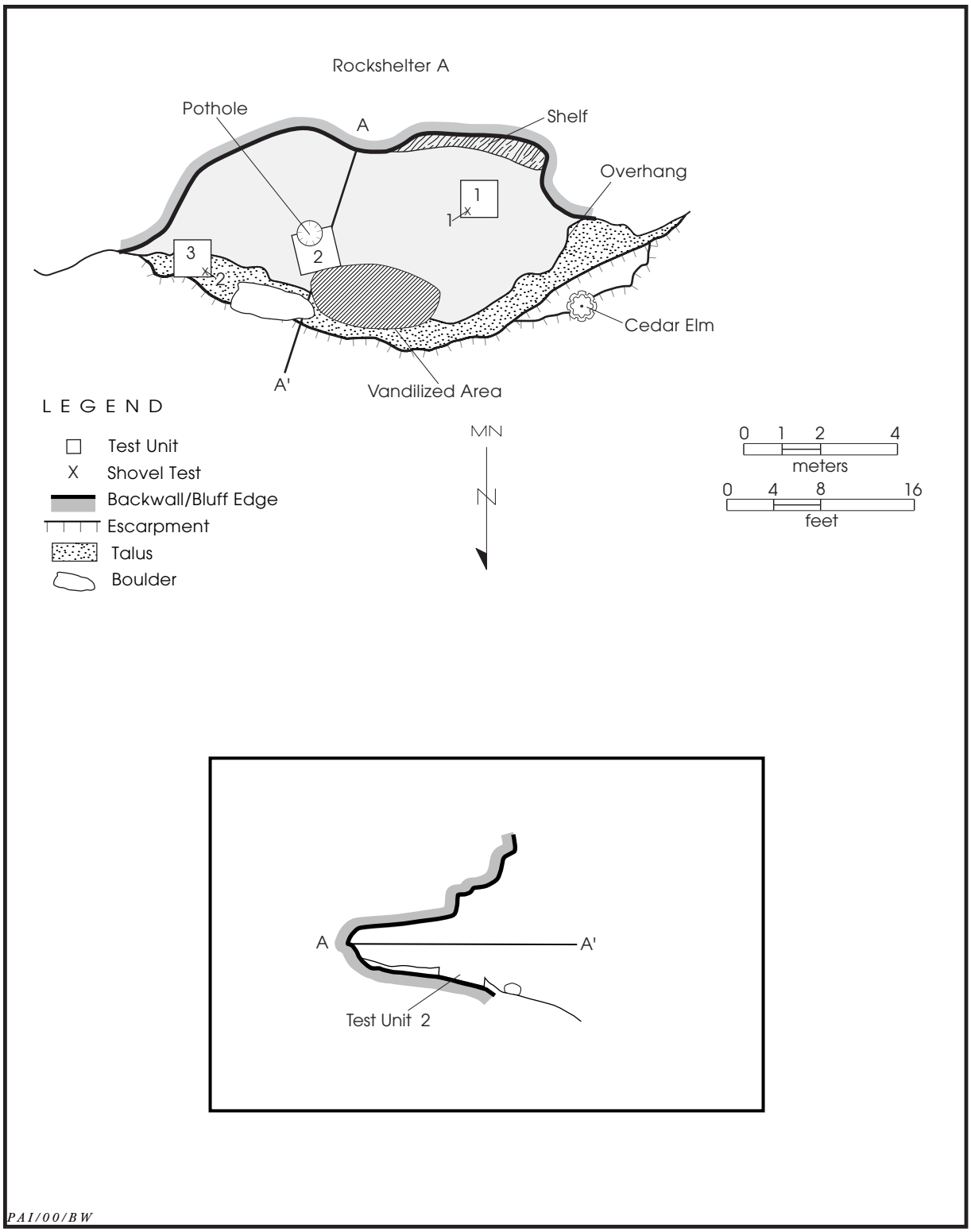

Figure 3.10. Plan and profile of Rockshelter A, 41BL911 (plan modified from 1987 site map by Texas A&M University).

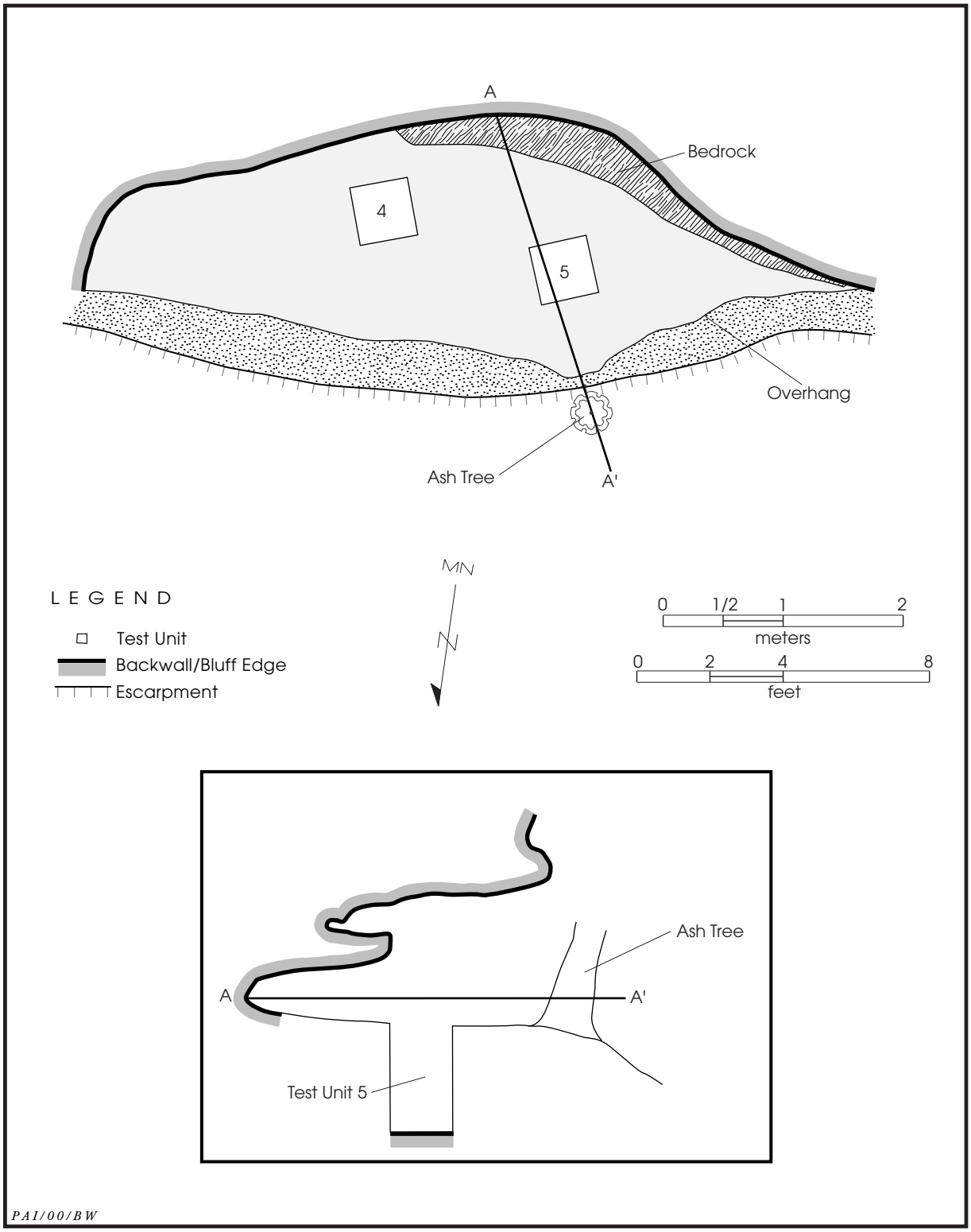

Figure 3.11. Plan and profile of Rockshelter B, 41BL911.

dimensions include two rockshelters in close proximity and a narrow extension of shelter floor in front of each shelter. North-facing Rockshelter A has a maximum interior width of 13 m and depth of 4.5 m (see Figure 3.10). The height of Rockshelter A is 2.5 m at the outside edge of the overhang and decreases in stair-step fashion to 1 m near the back wall. Outside the overhang, an extension of the shelter floor parallels the length of the rockshelter in a narrow strip that does not exceed 1.5 m in width. Roof fall fragments and vegetation cover this area. Beyond, the talus descends steeply toward Owl Creek (now Belton Reservoir). Looter's potholes have damaged the central section of the rockshelter (from 0.5 m inside the overhang to the edge of the talus), exposing burned rocks. Looting has disturbed approximately 10 percent of the site to an average depth of 30–40 cm.

Rockshelter B is situated 3 m west of Rockshelter A and has a maximum interior length of 6 m and depth of 2 m (see Figure 3.11). The overhang is 1.25 m high at the outside edge. The back of the rockshelter has an intermediate shelf ca. 0.75 m high. As in Rockshelter A, there is a narrow extension of the shelter floor from the drip line to the edge of the talus. There was no evidence of looting in Rockshelter B.

Sediments and Stratigraphy

The sedimentary fill of Rockshelter A was examined through the profile of Test Unit 3, which was placed along the drip line. The 39-cm-thick profile displays an A-Bw soil, characteristic of Abbott's (1995) Type 3 fill. The A horizon (0–17 cm) is a very dark gray (10YR 3/1) silt loam with 20 percent angular limestone rock fragments. It exhibits a weak fine subangular blocky structure. The underlying Bw horizon (17–39+ cm) is a very dark grayish brown (10YR 3/2) silty clay loam with 50 percent angular limestone rock fragments. The Bw horizon has a weak fine subangular blocky structure. The sediments observed outside the drip line are thin and merge inside the shelter, becoming virtually unweathered pale yellow silt that is ca. 36 cm thick.

Shelter B sediments were observed in the profile of Test Unit 4. The sedimentary fill is characteristic of Abbott's (1995) Type 3 fill and exhibits an A-Bw soil profile. The A horizon (0–24 cm) is a very dark gray silt loam with 10 percent angular limestone rock fragments. It displays a weak fine subangular blocky structure. The Bw horizon (24–35+ cm) is a dark grayish brown (10YR 4/2) silty clay loam with 25 percent angular limestone rock fragments. The Bw horizon has a weak fine subangular blocky structure.

Cultural Materials

Cultural materials from Rockshelter A include lithic debitage, burned rocks, and mussel shells. Shovel Test 1 produced 1 flake at 0–20 cm, though a modern salt packet was observed at 20–40 cm. Shovel Test 1 also contained 5 burned rocks at 40–60 cm. No prehistoric cultural materials were recovered from Test Unit 1. Test Unit 2 contained 1 edge-modified flake and burned rocks at 10–20 cm and 4 unmodified flakes and burned rocks at 30–50 cm. A bullet (probably military) also was observed at 20–30 cm. Test Unit 3 contained 10 flakes, 9 burned rocks, and mussel shell fragments at 10–60 cm. One burned rock was encountered at 70–80 cm.

Cultural materials recovered from Rockshelter B are comprised entirely of mussel shells. Charcoal was observed at 0–30 cm in Test Unit 4, and two mussel shell umbos were recovered at 30–50 cm. Test Unit 5 contained mussel shell fragments at 30–40 cm. *Rabdotus* shells also were observed in both test units from 30 to 50 cm and from 60 to 80 cm in Test Unit 5.

The mussel shell assemblage consists of four umbo fragments and two left valve fragments. Identified species are *Amblema plicata* (n = 3), *Leptodea fragilis* (n = 1), *Lampsilis teres* (n = 1), and one probable *Lampsilis* sp.

Discussion

Rockshelter A contains sparse amounts of buried cultural materials, but the extent of looting activities, the presence of modern intrusions in the upper 40 cm of deposits, and significant evidence of bioturbation at all levels indicate that the cultural materials in Rockshelter A have extremely poor integrity. These deposits are unlikely to contain intact archeological data.

Rockshelter B contained thick deposits of silty loam with extremely sparse cultural materials. Though soil deposits appear intact and there are mussel shells present, there is

no evidence that this shelter contains significant or interpretable quantities of archeological deposits.

Recommendation

Site 41BL911 has negligible potential for containing significant amounts of stratigraphically discrete cultural deposits. Therefore, the site is considered to have very limited research potential and is recommended as not eligible for listing in the National Register. No further management is warranted.

41BL912

Site Setting

Site 41BL912 is a rockshelter in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. It is situated high on the valley wall above Owl Creek (now Belton Reservoir) and ca. 15–20 m below the edge of the upland Manning surface. Vegetation at the site includes juniper, persimmon, red oak, chinquapin oak, and Carolina buckthorn. As confirmed in 1999, maximum site dimensions are 5x3.5 m, or 17.5 m^2. Site elevation is 275 m above sea level.

Previous Work

Strychalski and Dureka (Texas A&M University) recorded this rockshelter on 4 April 1987. The site dimensions were established as 9x8 m along a north-south axis, including the rockshelter and its narrow talus. A site map was produced. No cultural materials were observed. The deposits were described as grayish yellow limestone dust and estimated to be less than 25 cm thick. Looting had damaged an estimated 30 percent of the site, and erosion, another 20 percent.

Work Performed

On 5 March 1999, Mehalchick and Killian (Prewitt and Associates) assessed and formally tested 41BL912 for National Register eligibility. The small size of the site and the difficulty of access made separate reconnaissance and testing phases impractical, so two shovel tests and a 1x1-m test unit were excavated during the same visit. The site map was revised to more accurately plot the talus edge and to correct the orientation of the map, and the size of the shelter was measured at 3.5x5 m. A profile of the rockshelter also was produced (Figure 3.12). A videotape and photographic record was made of the site and the work accomplished.

Shovel Test 1 was placed in the central portion of the shelter just outside the overhang. It was excavated to a depth of 36 cm, where bedrock was encountered. Shovel Test 2 was placed in the western portion of the rockshelter, approximately 1.5 m inside the overhang. It was excavated to bedrock in one 20 cm level. Test Unit 1 was placed in the central portion of the rockshelter just inside the overhang. It was excavated to bedrock, which sloped from 13 cm in the southwest corner of the unit to 28 cm in the northeast corner.

Extent and Depth

This north facing rockshelter has maximum interior dimensions of 5x3.5 m. The height of the ceiling is 80 cm at the outside edge of the overhang and narrows to about 15 cm at the back wall. The shelter floor extends past the outside edge of the overhang, creating a narrow, level strip paralleling the length of the rockshelter. This area does not exceed 0.75 m in width and is covered by roof fall and vegetation. Beyond, the talus descends steeply toward Owl Creek (now Belton Reservoir). Though some vandalism may have occurred, it does not appear to be as extensive as recorded on the 1987 site map. Much of the disturbance noted in 1987 may have been from natural erosion and depressions in the bedrock rather than vandalism.

Disturbances observed at the shelter include bioturbation from tree roots, particularly outside the drip line, and erosion. Unlike many shelters, there is no line of boulders (from brow retreat and earlier episodes of shelter collapse) in front of the shelter, so erosion has accelerated along the drip line and down the talus slope. Animal burrowing has occurred inside the drip line.

Sediments and Stratigraphy

The sedimentary fill within the shelter was examined through the profile of Test Unit 1.

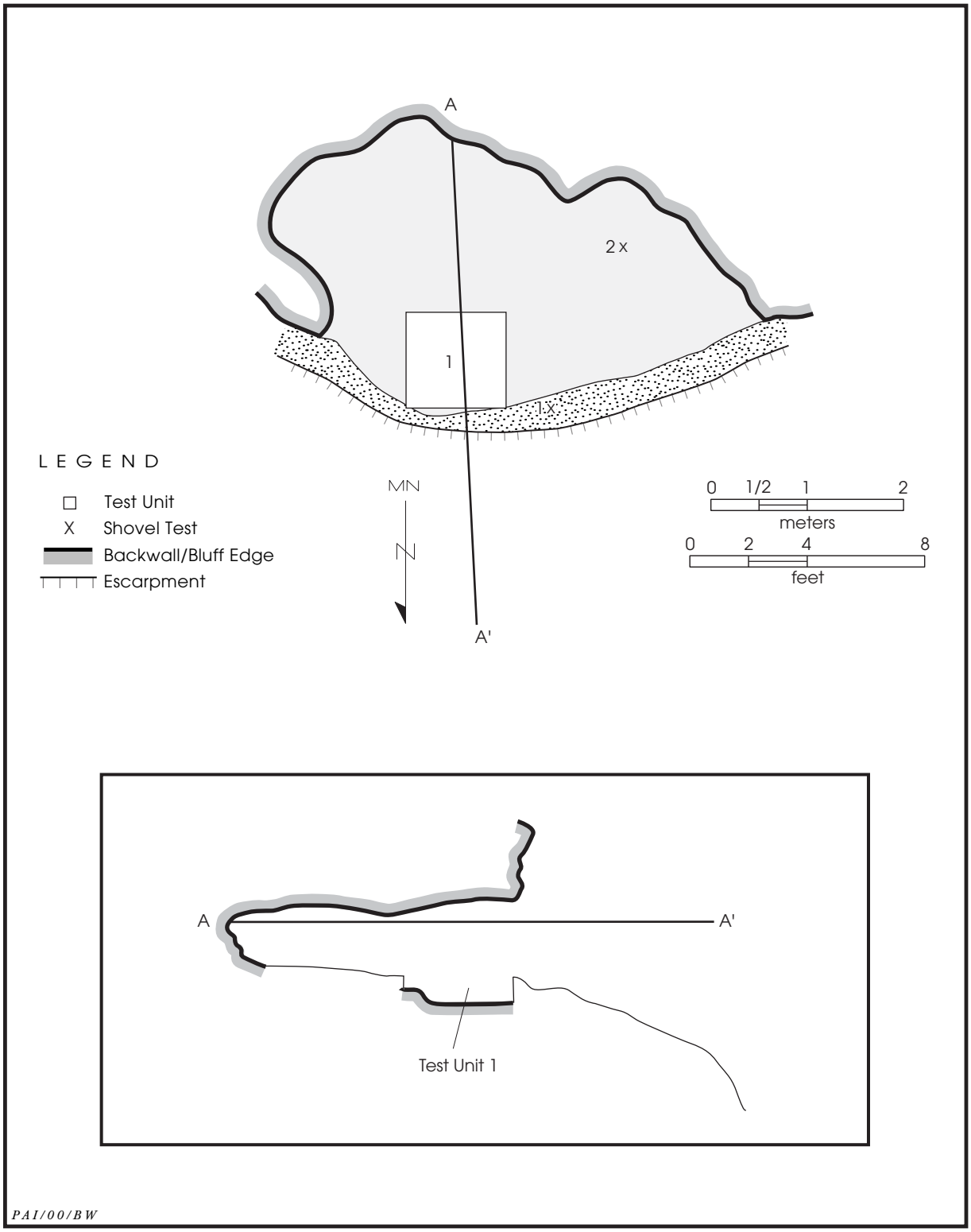

Figure 3.12. Rockshelter plan and profile, 41BL912 (plan modified from 1987 site map by Texas A&M University).

The 22-cm-thick profile revealed a grayish brown (10YR 5/2) silty clay loam with 50 percent subangular limestone rock fragments. The fill displays a weak very fine subangular blocky structure and is typical of Abbott's (1995) Type 1 fill.

Cultural Materials

Lithic artifacts recovered from this site include eight pieces of unmodified debitage, all from Test Unit 1. Seven of these were recovered at 0–10 cm, and one was from 10 to 20 cm. The one faunal specimen is an unburned fragment from a deer-sized *Artiodactyla* that shows light weathering and angular fractures (see Appendix C). The one mussel shell specimen is too eroded to identify.

Discussion

Shovel testing indicates that deposits within the shelter are shallow (<36 cm) and do not contain cultural materials below the top 20 cm of deposits. Because the fill is unconsolidated and the the rockshelter is exposed, it is unlikely that these 20 cm represent intact archeological deposits.

Recommendation

Site 41BL912 has negligible potential for containing significant amounts of stratigraphically discrete cultural deposits. The site therefore is considered to have very limited research potential and is recommended as not eligible for listing in the National Register. No further management is warranted.

41BL914

Site Setting

Site 41BL914 is a lithic resource procurement area located on an upland Manning surface in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. The site is approximately 150 m south of Bear Creek along a major tank trail. Vegetation consists primarily of juniper and scrub oak woodlands. As confirmed in 1999, maximum site dimensions are 300x85 m, or 25,500 m^2. Site elevation is 228 m above sea level.

Previous Work

On 10 April 1987, Rotunno and Mesrobian (Texas A&M University) recorded this site as a dense lithic scatter extending 300x85 m along a northeast-southwest axis. Researchers observed debitage, cores, bifaces, and unifaces. One dart point was collected but not identified. A chert outcrop was noted in the northeast corner of the site. Erosion, bulldozer clearing, and animals damaged an estimated 12 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 5 April 1999. The site size and boundaries were not altered, and no new site map was made. Samples from the on-site chert resource were collected. Because there were no intact deposits present, shovel testing was not warranted.

Discussion

Patchy soil deposits are less than 30 cm and exhibit an A-B+-R horizon sequence. The cultural materials observed on the surface consisted of a thin scatter of lithic tools and debitage. No features or buried deposits were observed, and no cultural materials were recovered. All cultural materials observed were in unsealed, secondary deposits with poor integrity.

Dense chert cobbles observed in the northeastern portion of the site constitute a lithic resource procurement area. A collected chert sample yielded cherts ranging in color from white at the cortex to light gray to light brownish gray in the center. Inclusions consisted of small common strong brown specks, rare brown laminae, and quartz. The chert also displays a few round, white to light gray, sharp-edged mottles. The cortex is rough and pinkish white, but the exterior is weathered gray and is covered with lichens in areas. The chert has a fine to medium grain and a dull luster.

Clearing and erosion account for moderate disturbance across the site. Although cultural materials are present, the site has no potential to contain buried cultural deposits in primary context.

Recommendation

Site 41BL914 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL915

Site Setting

Site 41BL915 is a lithic resource procurement area located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. It is located 100 m south of Bear Creek, on a midslope bench overlooking a tributary of Bear Creek. Ground cover consists of juniper and deciduous woodland with an open understory. As confirmed in 1999, the maximum site dimensions are 75x35 m, or 2,625 m^2. Site elevation is 198 m above sea level.

Previous Work

On 10 April 1987, Mesrobian (Texas A&M University) recorded this site as a dense Early Archaic lithic scatter extending 75x35 m along a northeast-southwest axis. Lithic artifacts consisted of debitage, cores, choppers, bifaces, and unifaces. Two dart points were collected and one was identified as a Martindale. A light scatter of burned rock was also noted. Erosion, vegetation clearing, vehicle traffic, and animals had disturbed an estimated 19 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 5 April 1999. The site size and boundaries were not altered, and no new site map was made. Because no intact deposits were present, shovel testing was not warranted.

Discussion

Though there were no good vertical exposures, the soil deposits are thin, and bedrock is exposed in many places across the site. Cultural materials observed on the surface consist of a thin scatter of chert cobbles, lithic tools, debitage, and burned rocks. These materials were observed in deposits in secondary context with poor integrity. Chert outcrops eroding out of the upland above the site are the source of the materials that are redeposited in the site area, but because the primary chert resource is outside the boundaries of the site, no sample was collected. No features or buried deposits were observed, and no cultural materials were recovered. Sheet erosion, vegetation clearing, and light vehicle traffic have disturbed approximately 20 percent of the site. Although cultural materials are present, the site has no potential to contain buried cultural deposits in primary context.

Recommendation

Site 41BL915 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL917

Site Setting

Site 41BL917 is a cave and upland lithic scatter located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. It is situated 175 m west of Bear Creek. As confirmed in 1999, maximum site dimensions are 285x200 m, or 57,000 m^2. Site elevation is approximately 228 m above mean sea level. This locality is named Estes Cave (James Reddell, personal communication, 2000), and its entrance is a deep (5–6 m) vertical shaft.

Previous Work

On 4 April 1987, Dureka and McReynolds (Texas A&M University) recorded 41BL917 and established site boundaries as 285x200 m along an east-west axis. The depth of upland deposits surrounding the cave was estimated to be less than 5 cm, but bifacial and unifacial tools, a

hammerstone, a chopper, and a core were observed. A mound of backdirt, presumed to have been excavated from the cave entrance, was observed by the vertical cave entrance, along with a concentration of lithic debitage in the immediate vicinity. The site's surface was estimated to be 37 percent disturbed, primarily by erosion. Five percent of the site was considered disturbed by vandalism thought to be related to military activities in and around the cave.

Work Performed

On 7 June 1999, Mehalchick (Prewitt and Associates) assessed the site. The site map produced in 1987 was accurate, and no modifications were necessary. Though the boundaries were not altered in 1999, the site was divided into two subareas. The cave was designated Subarea A, and the upland Manning surface and lithic scatter surrounding it was designated Subarea B. Subarea A was not accessible because it is gated, and no shovel testing was possible. Subarea B did not contain intact deposits and shovel testing was not warranted.

Discussion

Because safety concern made Subarea A, no direct observations were made, and no evaluation of the cave deposits was possible. Backdirt piles observed outside the cave entrance in 1987 and 1999 were apparently excavated from within the mouth of the cave. No cultural materials were observed in these piles.

In October of 2000, Mehalchick discussed this locality with environmental cave investigator James Reddell (personal communication, 2000). The cavers had entered this cave on June 28, 2000, and made many environmental observations that pertain to its archeological potential. Known as Estes Cave, this locality consists of a 4-ft-diameter opening and shaft that widens toward the bottom. The shaft has a 25–30-ft vertical drop to a ledge and then another 15-ft drop to the bottom. The cave was wet when they entered it, and the only sediments observed are described as dark reddish Pleistocene clay. Based on these observations, it appears that the cave is subject to periodic flooding or flushing and that the ancient sediments have no potential to contain intact cultural deposits.

Subarea B consists of a moderate scatter of lithic debitage and tools on a high upland Manning surface. Vegetation consists of oak and juniper woodland, and bedrock is exposed across 30 percent or more of the subarea. Soil deposits are sparse and thin (<20 cm). They are deflated in situ and have an A-B+-R idealized profile. Heavy sheet erosion has damaged all of Subarea B. Although there are cultural materials present, these deposits are in secondary context with poor integrity, and Subarea B has no potential to contain stratified cultural deposits in primary context.

Recommendations

Subarea A of 41BL917 could not be entered but can be evaluated based on recent observations by environmental cavers. It is considered to have little or no potential for intact buried cultural deposits and is recommended as not eligible for listing in the National Register. No further management is recommended.

Subarea B of 41BL917 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, Subarea B is considered to have very limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL918

Site Setting

Site 41BL918 is an open camp and lithic scatter located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. It is situated south of Bear Creek, and its west end encompasses a small spring fed tributary and its confluence with Bear Creek. As confirmed in 1999, maximum site dimensions are 350x75 m, or 26,250 m^2. Site elevation is approximately 195 m above mean sea level.

Previous Work

On 14 April 1987, McReynolds and Dureka (Texas A&M University) recorded the site and

established site dimensions as 350x75 m along an east-west axis. The deposits were described as dark brown clay loam with limestone colluvium, and the total depth was estimated at less than 1 m. Researchers observed unifacial tools, bifacial tools, and debitage. Also, discrete deposits of burned rocks and mussel shells were noted and described as "an associated midden area." Erosion and trail clearing had damaged an estimated 40 percent of the site. Looters also had disturbed the midden area, and potholes estimated to be less than two years old were observed.

Work Performed

On 1 April 1999, Mehalchick and Killian (Prewitt and Associates) assessed the site. The site size was not altered, but based on differing geomorphic context and archeological potential, the site was divided into Subareas A (Holocene terrace), B (Pleistocene terrace), and C (toeslope or slope). The site map was modified to show subarea divisions and to record shovel test locations (Figure 3.13).

Subarea A encompasses two discontinuous sections of Holocene terrace (T_1). The T_1 surface stands ca. 3–4 above the channel. The fill below this surface appears to be a mix of gravelly to very gravelly dark loamy probable late Holocene alluvium and colluvium. The fill has been minimally altered through pedogenesis.

One section of Subarea A is a narrow strip of terrace running north-south along the spring-fed tributary to Bear Creek. The other section is a broader terrace south of Bear Creek that comprises the east end of the site. The surface of the broader terrace had been recently scoured by flooding, but the upslope portion appeared to be largely intact. Several large boulders on the south side of this terrace mitigated the effects of erosion. Because there were deposits present, seven shovel tests were excavated on this section of Subarea A. On the western section of T_1 terrace, burned rock concentrations in dark organic fill covered an 18x5-m area approximately 15 m upstream from the confluence of the tributary with Bear Creek. These concentrations, located just east of the tributary, could potentially be burned rock midden deposits or may represent an unknown number of occupation zones. In 1999, looting had disturbed about 20 percent of these deposits, with the potholes having a maximum depth of 40 cm. Shovel Tests 1 and 2 were placed within this concentration. Shovel Tests 3 and 4 were placed at the north and south margins of the burned rock concentrations.

The 11 shovel tests excavated in Subarea A range in depth from 50 to 100 cm. Most of the shovel tests were terminated when dense channel gravels were encountered, but one was terminated on a large tree root, one was terminated on a large unburned limestone slab, and one was terminated when Pleistocene deposits were reached.

Subarea B comprises a Late Pleistocene terrace (T_2) that stands ca. 5 m above the channel. The T_2 terrace is preserved only on the south side of Bear Creek. The terrace fill, observed in a cutbank exposure, consists of a rubified gravelly alluvium typical of the Jackson alluvium. A thin scatter of cores, debitage, and natural chert nodules was observed, but the observed cultural materials represent secondary deposits with poor integrity. Erosion, bioturbation, and a seldom-used road have damaged Subarea B. Because Subarea B has no potential to contain cultural material in primary context, shovel testing was not warranted.

Subarea C represents the upper slopes and toeslope of the Bear Creek valley wall. Surface visibility throughout Subarea C is hindered by dense stands of juniper and heavy leaf litter. The slopes of Subarea C have been subjected to intense slopewash and sheet erosion, so very little sediment has accumulated. A thin scatter of debitage and cores was observed, but they appear to be redeposited from the upland surface. Archeological deposits of good contextual integrity are unlikely in this subarea. Because Subarea C has little potential to contain cultural material in primary context, shovel testing was not warranted.

Subarea A

CULTURAL MATERIALS

Eight of the 11 shovel tests produced the proximal end of a Darl dart point, a graver-burin, 3 edge-modified flakes and 47 unmodified flakes (Table 3.6). Burned rock was observed in 6 of the shovel tests. The Darl dart point exhibits marked alternate beveling.

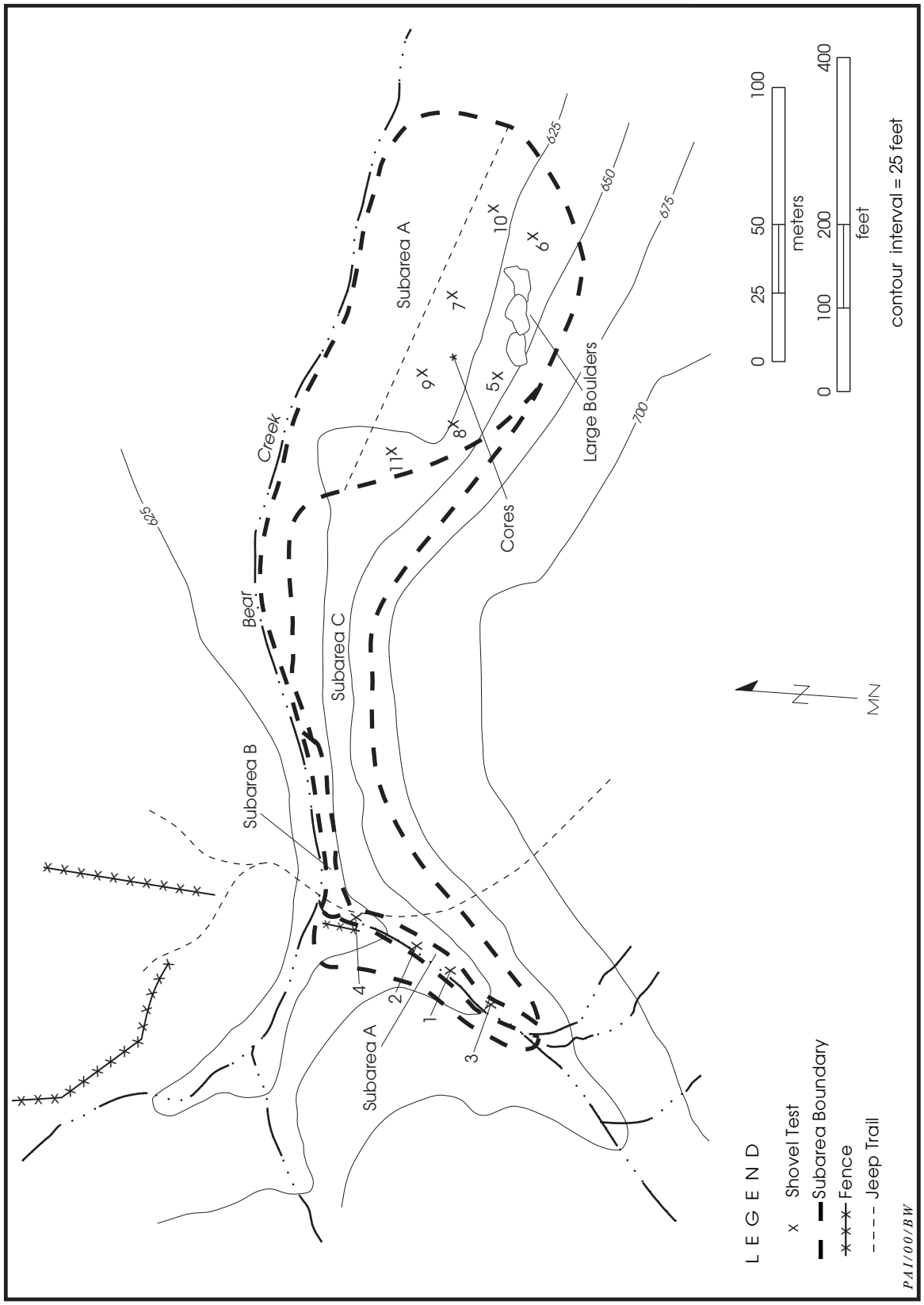

Figure 3.13. Site map of 41BL918 (modified from 1987 site map by Texas A&M University).

Table 3.6. Summary of cultural materials from 41BL918

Shovel Test	Darl dart point	Graver-Burin	Edge-modified flakes	Unmodified debitage	Total
1	1	–	–	13	14
2	–	–	–	2	2
3	–	–	1	3	4
4	–	–	–	1	1
5	–	–	–	2	2
8	–	1	–	13	14
10	–	–	–	1	1
11	–	–	2	12	41
Total	1	1	3	47	52

DISCUSSION

Shovel testing demonstrates that the Holocene deposits in Subarea A are as much as 100 cm thick. Further, cultural materials were observed throughout the depth of deposits, indicating the potential for substantial stratified deposits. Though looting has affected portions of Subarea A where surface concentrations of cultural materials occur, most of the cultural deposits appear intact. Further, shovel testing indicates that cultural materials are evenly distributed across the subarea, but the nature and integrity of these archeological deposits is not known.

Recommendation

Subareas B and C at 41BL918 have negligible potential for stratigraphically discrete cultural deposits. They are both considered to have limited research potential and are recommended as not eligible for listing in the National Register. No further management is recommended.

Subarea A at 41BL918 contains potentially intact cultural deposits of unknown significance that may be eligible for National Register listing. Damage to the site should be avoided, but if avoidance is not possible, formal testing is recommended to determine eligibility. Minimum testing should include 4–5 m^2 of hand excavation and 6–7 backhoe trenches.

41BL919

Site Setting

Site 41BL919 is located in training area 3. It is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. This lithic scatter is on an upland Manning surface ca. 250 m south of a tributary to Owl Creek. Vegetation is composed of scrub oak and juniper woodland. As confirmed in 1999, maximum site dimensions are 168x59 m, or 9,912 m^2. Site elevation is 228 m above sea level.

Previous Work

On 14 April 1987, Rotunno and Mesrobian (Texas A&M University) recorded this site as a lithic scatter extending 168x59 m along a northwest-southeast axis. Researchers observed bifacial and unifacial tools, debitage, and cores. No cultural materials were collected. Erosion, vegetation clearing, and animals had disturbed an estimated 18 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 5 April 1999. The site boundaries were not altered, and no new site map was produced. Because there were no intact deposits present, shovel testing was not warranted.

Discussion

Scattered patches of residual upland soils are evident, but bedrock is exposed in many places across the site. A thin scatter of debitage was observed across the site's surface in unsealed secondary deposits with poor integrity. No features or buried deposits were observed, and no cultural materials were recovered from this site. A few chert cobbles were observed on the slope below the upland, but they do not constitute a lithic resource procurement area. Vegetation clearing and erosion account for moderate disturbance across the site. Although there are cultural materials present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL919 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL920

Site Setting

Site 41BL920 is a lithic scatter located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. It is located on the valley wall slope below a south-projecting spur of the upland Manning surface just north of Bear Creek. Scrub oak and juniper woodland covers the site. As confirmed in 1999, the maximum site dimensions are 300x275 m, or 82,500 m^2. Site elevation is approximately 200 m above mean sea level.

Previous Work

On 14 April 1987, Mesrobian and Rotunno (Texas A&M University) recorded this site as a lithic scatter extending 300x275 m. The deposits were described as clay loam less than 20 cm thick. Researchers observed bifacial and unifacial tools, scrapers, debitage, and cores. One Lange dart point base and one untyped distal tip of a dart point were collected. Light erosion, bioturbation, and vehicle traffic had damaged 15 percent of the site.

Work Performed

Mehalchick (Prewitt and Associates) assessed the site on 14 June 1999. Site dimensions were not altered, and a new site map was not drawn. Because there were no intact deposits present, shovel testing was not warranted.

Discussion

The soil deposits consist of residual soils and colluvial slopewash less than 20 cm deep. Exfoliated bedrock and marl were visible on the surface and in exposures caused by severe erosion. Cultural materials observed on the surface include a diffuse scatter of debitage and a few cores. These materials were observed in a secondary context with poor integrity, and none were collected. Sheet erosion and vegetation continue to disturb the site, and there is also evidence of disturbance from a historic occupation. Although there are cultural materials present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL920 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL925

Site Setting

Site 41BL925 is a lithic scatter located in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. The site is located on the valley wall slope below the upland Manning surface overlooking a major northeast flowing tributary of Bear Creek. As confirmed in 1999, maximum site dimensions are 40x30 m, or 1,200 m^2. Site elevation is approximately 213 m above mean sea level.

Previous Work

On 14 April 1987, McReynolds and Dureka (Texas A&M University) recorded this site as a lithic scatter measuring 40x30 m. The deposits were described as medium brown clay loam less than 10 cm thick. Researchers observed bifacial tools, debitage, and cores. One Uvalde dart point and one biface were collected. An outcrop of white chert was noted on the upland above the site. Light erosion and cattle had damaged 16 percent of the site.

Work Performed

Mehalchick (Prewitt and Associates) assessed the site on 8 June 1999. Site dimensions were not altered. The 1987 site map was found to be accurate, so no new site map

was produced. Because no intact deposits were present, shovel testing was not warranted.

Discussion

The soil deposits consist of colluvial slopewash less than 20 cm thick and obviously redeposited from the upland. Juniper and scrub oak vegetation across the site render visibility poor, but bedrock is visible along the escarpment edge. Researchers observed a diffuse scatter of debitage on the surface, all in a secondary context. No diagnostic artifacts were observed, but a dart point collected in 1987 indicates that some of the cultural materials may date to the Early Archaic period. Outcrops of chert were noted on the upland above the site, but the area is not part of this site. No cultural materials were collected. Sheet erosion and vegetation continue to disturb the site. Although there are cultural materials present, the site has no potential to contain buried cultural deposits in primary context.

Recommendation

Site 41BL925 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL926

Site Setting

Site 41BL926 is located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. This lithic scatter is located on a midslope bench above a tributary approximately 250 m south of Bear Creek. Vegetation is composed of sparse short grasses and moderate juniper cover. As confirmed in 1999, maximum site dimensions are 135x65 m, or 8,775 m^2. Site elevation is 196 m above mean sea level.

Previous Work

On 14 April 1987, Dureka and Strychalski (Texas A&M University) recorded this site as a lithic scatter extending 135x65 m along a northwest-southeast axis. Lithic artifacts consisted of bifacial and unifacial tools, scrapers, debitage, and cores, and a light scatter of burned rocks also was noted. Three small dart or large arrow points were collected but not identified. Based on these points, the site was described as transitional Archaic or Late Prehistoric. The depth of deposits was estimated to be greater than 1 m. Erosion and cattle grazing had disturbed an estimated 20 percent of the site.

Work Performed

Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site on 30 March 1999. The site size and boundaries were not altered, and no new site map was made. The proximal end of a Granbury arrow point and the proximal end of a Darl dart point with marked alternate beveling were collected from the surface (see Cultural Materials Recovered). One surface probe excavated near the vicinity of the surface collections confirmed that no intact deposits were present and no further shovel testing was warranted.

Discussion

The bench is severely deflated, with bedrock and weathered limestone exposed on the surface. The Holocene mantle is patchy and composed of gravelly grayish brown loam less than 10 cm thick. A surface probe excavated near the site's center confirmed that the deposits are colluvial slopewash underlain by bedrock. Lithic tools and debitage are scattered on the surface in exposed areas, and occasional burned rocks were noted on the surface. Two diagnostic artifacts recovered from the surface indicate that both Archaic and Late Prehistoric occupations are represented, but the nature and paucity of the deposition suggest that the site contains a palimpsest of materials in an extremely poor archeological context. No features or buried deposits were observed. Intensive erosion, gullying, roads, and a historic dump have all caused moderately heavy disturbance across the site. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Cultural Materials

One alternately beveled Darl dart point and one Granbury arrow point were surface collected.

Recommendation

Site 41BL926 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL927

Site Setting

Site 41BL927 is a rockshelter in training area 6. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 62. A drainage with an active spring exists ca. 20 m south of the site. This shelter is situated high on the valley wall overlooking Owl Creek (now Belton Reservoir). Retreat of the brow and the collapse of portions of the shelter have left several large boulders at the top of a steep talus slope. Vegetation at the site includes juniper, cedar elm, hackberry, and red oak. Sedimentary fill inside the drip line appears to be thin and patchy. As confirmed in 1999, maximum site dimensions are 65x25 m, or 1,625 m^2. Site elevation is 263 m above sea level.

Previous Work

On May 15 1987, Demarcay and Dureka (Texas A&M University) recorded this site, including the narrow rockshelter and a broad talus. The site dimensions originally were given as 65x20 m along a north-south axis. Lithic artifacts include a light scatter of debitage, a core, and a unifacial tool; mussel shells and burned rocks were also observed. Deposits were described as decomposed limestone mixed with clay loam and were estimated to be less than 30 cm thick. Large roof fall boulders were thought to have sealed portions of the rockshelter. Historic activity (a fence) was noted, but no vandalism was reported.

Work Performed

On 5 March 1999, Mehalchick and Killian (Prewitt and Associates) assessed and formally tested the site for National Register eligibility. Site size was revised to 65x25 m. The small size of the site and the difficulty of access made separate reconnaissance and testing phases impractical, so four shovel tests and a 1x1-m test unit were excavated during the same visit. The site map was revised to record bedrock exposures, more accurately plot the talus edge and slope, correct the map scale, and revise the assessment of intact deposits. A profile of the rockshelter was also produced (Figure 3.14). A videotape and photographic record was made of the site and the work accomplished.

Two shovel tests were excavated inside the rockshelter. Shovel Test 1 was placed inside the overhang in the center of the area where sediments were present. It was excavated to 10 cm before encountering bedrock. Shovel Test 2 was placed at the southeast end of the rockshelter just inside the overhang and excavated to 20 cm before encountering bedrock.

Shovel Tests 3 and 4 were excavated on the talus outside the shelter. Shovel Test 3 was placed on the talus just downslope from large sections of roof fall. It was excavated to 40 cm before more large roof fall fragments were encountered, preventing further excavation. Shovel Test 4 was placed just upslope from the narrow terrace at the base of the talus and produced the highest quantities of cultural materials. It was excavated to 80 cm before a large slab of limestone (a roof fall boulder or bedrock) was encountered.

Test Unit 1 was placed in the northern end of the site among large roof fall boulders assumed to represent a portion of the shelter that had collapsed. It was hoped that this test unit would reach what had been the floor of this section of the shelter to assess deposits currently buried by roof fall. But the excavation was terminated at 140 cm, having encountered only externally derived sediment with extremely sparse cultural materials. The bottom of the unit was still well above the level of the shelter floor to the east, indicating that all of the excavated fill represents material washed in since this portion of the shelter collapsed.

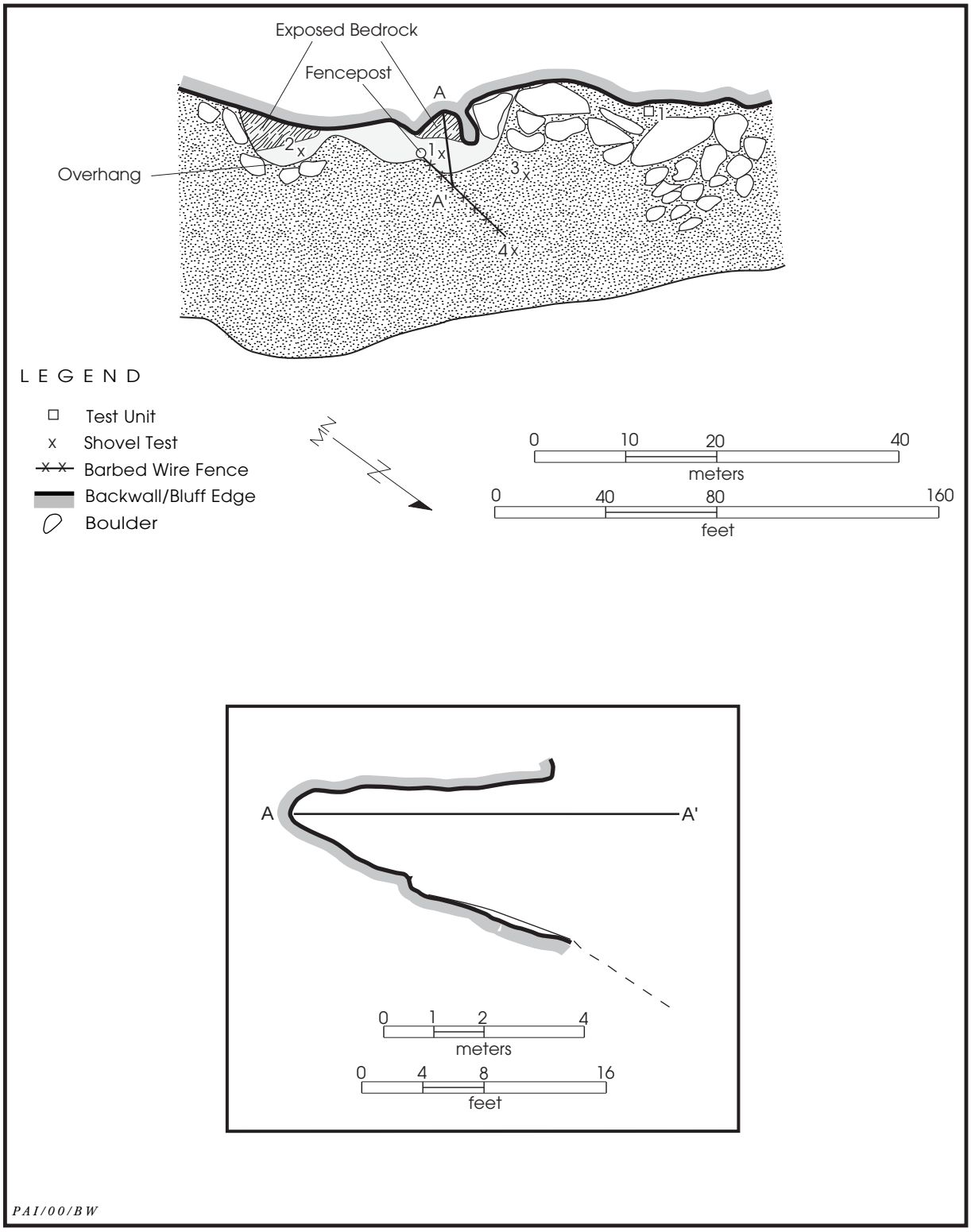

Figure 3.14. Plan and profile of rockshelter, 41BL927 (plan modified from 1987 site map by Texas A&M University).

Extent and Depth

This northeast-facing rockshelter encompasses an area ca. 30 m wide and 5–7 m deep, though the substantial boulder accumulation to the immediate west indicates that the interior length of the overhang may once have been as long as 60 m. The rockshelter is now fairly shallow, but large pieces of roof fall buried on the talus in front of the shelter indicate that at one time, portions of the rockshelter were somewhat deeper. Below the rockshelter, the talus descends steeply (30 percent grade) down toward Belton Reservoir for 5–10 m, then becomes more gradual, forming a narrow bench before becoming steep again.

Table 3.7. Summary of cultural materials from 41BL927

Provenience	Late-stage to finished biface	Unmodified debitage	Unmodified bones	Unmodified mussel shells	Total
Test Unit 1	–	9	–	2	11
Shovel Test 1	–	1	–	–	1
Shovel Test 2	–	6	–	–	6
Shovel Test 3	1	22	1	1	24
Shovel Test 4	–	99	5	20	124
Total	1	137	6	23	166

Artifacts observed on the surface include debitage and tools, mussel shells, burned rocks, and a mano. The density of surface artifacts is generally light, with some areas of moderate density. Between the roof fall boulders and the base of the talus, areas of dark organic-rich soil contained concentrations of cultural materials, particularly burned rocks and mussel shells.

Although disturbances inside the shelter appeared to be minimal, the thin and patchy nature of the deposits limits the potential for cultural materials to be in good context. Disturbances outside the drip line include bioturbation, primarily from tree roots and erosion of the talus slope.

Sediments and Stratigraphy

The profiles of the test unit and one shovel test were examined. The 140-cm-thick profile of Test Unit 1 revealed a black (10YR 2/1) very gravelly silty clay loam. The 30-cm-thick profile of Shovel Test 3 also displayed a black (10YR 2/1) very gravelly silty clay loam overlying limestone bedrock. Both appear to represent recent to late Holocene talus or slopewash deposits typical of Abbott's (1995) Type 3 fill.

Cultural Materials

Shovel Tests 3 and 4, placed on the talus, contained the highest density of cultural materials, but Shovel Tests 1 and 2 produced only sparse cultural materials (Table 3.7). The test unit contained sparse cultural materials within mixed deposits. Three charcoal samples also were collected.

Lithic artifacts from this site include 1 late-stage to finished biface and 137 pieces of unmodified debitage. The faunal assemblage consists of 6 fragments, all of which exhibit light weathering (see Appendix C). Four specimens are unburned and have angular fractures. Three of the fragments are from mammals, 2 from unidentifiable vertebrates, and 1 from a deer-sized *Artiodactyla*. The mussel shell assemblage consists of 23 specimens, including umbo fragments (n = 14), partial or nearly complete left valves (n = 2), partial or nearly complete right valves (n = 2), cardinal tooth fragments (n = 3), and unidentifiable fragments (n = 2). The identified species are *Amblema plicata* (n = 4), *Quadrula apiculata* (n = 2), *Quadrula* sp. (n = 2), *Lampsilis* sp. (n = 1), and *Tritogonia verrucosa* (n = 1). Thirteen fragments are unidentifiable.

Discussion

Excavations within the rockshelter at 41BL927 (Shovel Tests 1 and 2) produced only sparse cultural materials and indicate that there is less than 20 cm of sediment containing cultural evidence. Surface evidence and excavations on the talus (Shovel Tests 3 and 4) reveal a high density of cultural materials, including stone artifacts, bones, and mussel shells. These materials appear to represent a talus midden deposit associated with the shelter—cultural debris discarded from the shelter onto the talus, materials washed out of the shelter and redeposited on the slope, or

some combination of both. Because the talus deposits are thin and occur on a steep (>30°) colluvial slope, they are likely to be in a secondary context or seriously disturbed by sheet erosion. Consequently, there is little potential for separating the talus cultural materials into meaningful assemblages (i.e., these materials probably represent a mix of materials from different cultural periods).

The collapsed portion of the overhang immediately west of the extant shelter may harbor deposits with considerable archeological research potential. The boulder pile obviously represents a collapsed portion of an overhanging ledge, but whether or not this collapsed shelter was ever occupied by prehistoric people is an unanswered question.

Two factors suggest that prehistoric people indeed occupied this collapsed shelter. First, it appears that the boulder pile represents roof fall that collapsed down to the same approximate level as the floor of the other shelter. If so, this would mean that before the overhang collapsed, it was probably part of the same (albeit much larger) rockshelter. As such, it is likely that prehistoric people would have used the entire shelter. The small shelter (ca. 30x5–7 m) that survives today is probably only a remnant of a much larger shelter complex. The second line of evidence is that the talus midden appears much too large to represent cultural materials discarded from the extant small shelter. The midden extends west directly in front of the collapsed shelter area, suggesting that there was once only one large shelter. It also is notable that the extant shelter provides relatively little protected area because it is so shallow. Occupations in such a small shelter would probably have never been long-term or intensive enough to generate the quantity and diversity of cultural materials seen in the talus midden. The midden is more characteristic of a larger, more intensively occupied rockshelter.

The single 1x1-m excavation (Test Unit 1) in the boulder pile did little to address the question of whether this feature represents a collapsed rockshelter overlying prehistoric occupational debris. Though excavated to 140 cm, Test Unit 1 never reached below the layer of roof fall boulders. Because the boulder pile is so massive and the individual boulders are so large, it will be virtually impossible to dig deep enough by hand to reach the original surface (i.e., the probable shelter floor) but will require mechanical equipment.

Recommendation

It is recommended that 41BL927 be considered potentially eligible for listing in the National Register. For assessment purposes, three areas of the site are considered: the extant rockshelter, the talus midden, and the collapsed rockshelter. The rockshelter and talus midden at 41BL927 have negligible potential for containing stratigraphically discrete cultural deposits, and the archeological research potential of these areas is limited. No further work is warranted in these areas.

It was impossible to test the deposits underneath the boulder pile immediately west of the shelter adequately. This area probably represents a collapsed rockshelter, and significant archeological remains may be trapped underneath. Consequently, 41BL927 should be considered potentially eligible for listing in the National Register. From a management perspective, however, it is recommended that no further archeological work be done at this time. Any cultural deposits underneath the collapsed shelter are already well protected and not subject to threat of destruction by looters. Heavy mechanical equipment would be needed to reach the potentially intact deposits, and it may be difficult to get any type of machine (e.g., a backhoe or crane) into the site area to conduct such work. Because the site is well protected, it is appropriate to allow it to remain unevaluated (potentially eligible) rather than attempt a costly testing effort for National Register assessment.

41BL929

Site Setting

Site 41BL929 consists of a series of rockshelters, an open camp, and a lithic procurement site within training area 3. It is located on the Bland 7.5 minute topographic quadrangle and aerial photo sheet 53. Situated across from Bland Mountain, the site adjoins Belton Reservoir between the Bear and Owl Creek valleys. As defined in 1999, maximum dimensions are 320x125 m, or 40,000 m^2; site

elevation is 240–250 m above mean sea level. The site is divided into Subareas A, B, C, and D.

Subarea A consists of three rockshelters. Rockshelters A, B, and D are situated high on the valley wall ca. 5–6 m below the Manning surface edge. Vegetation around these shelters includes juniper, hackberry, persimmon, mountain laurel, red oak, and Carolina buckthorn.

Subarea B represents a bench on the lower slopes of the valley wall. This small but nearly level surface is ca. 10–15 m above Belton Reservoir. Vegetation includes dense stands of junipers with scattered live and red oaks. Despite the dense cover of arboreal vegetation, surface visibility is good across most of the subarea.

Subarea C represents the upland and upper slopes of the site. This nearly level surface is covered in juniper, live oak, red oak, and mountain laurel. Subarea C lies ca. 10 m above the lower portions of the site in Subarea D.

Subarea D consists of Rockshelter C; like the other shelters, it is high on the valley wall ca. 5–6 m below the edge of the Manning surface. This shelter does not have a line of boulders in front from earlier episodes of collapse. Vegetation at the shelter includes juniper, mountain laurel, persimmon, red oak, and Carolina buckthorn.

Previous Work

Mesrobian, McReynolds, and Strychalski (Texas A&M University) recorded the site on 14 April 1987. They described it as a 270x125-m area encompassing a burned rock and lithic scatter on a plateau top and its slope, accompanied by a series of rockshelters. Although six overhangs were noted and plotted on the site map, only two—designated Rockshelters A and B—had observable cultural materials. Burned rocks, bifaces, cores, unifaces, debitage, and hematite were noted on site, and the depth of deposits was estimated at less than 30 cm. Roof fall and trash had disturbed about 14 percent of the deposits within the rockshelters, and erosion had damaged 42 percent of the remaining site.

Work Performed

On 11 July 1999, Mehalchick (Prewitt and Associates) assessed and formally tested the site for National Register eligibility. Rockshelters A and B and the four "sterile" overhangs were relocated. Although no cultural materials were observed, two of the four overhangs contained Holocene sediment that had the potential to contain intact archeological deposits. These overhangs were designated Rockshelters C and D, and because they were not included within the original site boundary, the site size was enlarged to 320x125 m (Figure 3.15). The other two overhangs, which were flushed out and devoid of deposits, were not formally recorded. Based on geomorphic context and archeological potential, the site was divided into Subareas A (Rockshelters A, B, and D), B (bench), C (upland and its slope), and D (Rockshelter C). From 10 to 15 July 1999, a crew excavated eight shovel tests and seven test units (Table 3.8). Kibler (Prewitt and Associates) also conducted a geomorphic assessment of each subarea on 10 December 1999.

Excavations at Rockshelter A included Shovel Test 3 and Test Units 1 and 4. Test Unit 1 (1x1 m) was centrally situated in the north half of Rockshelter A and completely within the overhang. It was excavated to a maximum depth of 105 cm, where bedrock was reached. Shovel Test 3 was placed just beyond the edge of the overhang in the south half of the shelter. It was excavated to 40 cm. Based on the results of Shovel Test 3, Test Unit 4 (1x1 m) was placed due south of the shovel test. Bedrock was exposed at 33 cm in the west half of the unit, and it dipped to 45 cm in the east half.

Excavations in Rockshelter B consisted of Shovel Tests 1 and 2, and Test Units 2 and 3. Test Unit 2 (3.5x1 m) was placed in the middle of a large solution cavity and excavated to a maximum depth of 17 cm. The bedrock dipped slightly from north to south. Shovel Test 1 was placed in the northern half of the shelter, just outside the overhang and near the talus edge. The excavation encountered bedrock, sloping from west to east, at 40–52 cm. In the south portion of the shelter, Shovel Test 2 was located near the drip line and ca. 75 cm from the talus edge. It was culturally sterile and reached bedrock at 48 cm. Test Unit 3 was placed under the overhang in the northern end of Rockshelter B and excavated to a maximum depth of 80 cm. Bedrock was first exposed along the west wall at 20 cm, but it dipped considerably to the east with each successive level.

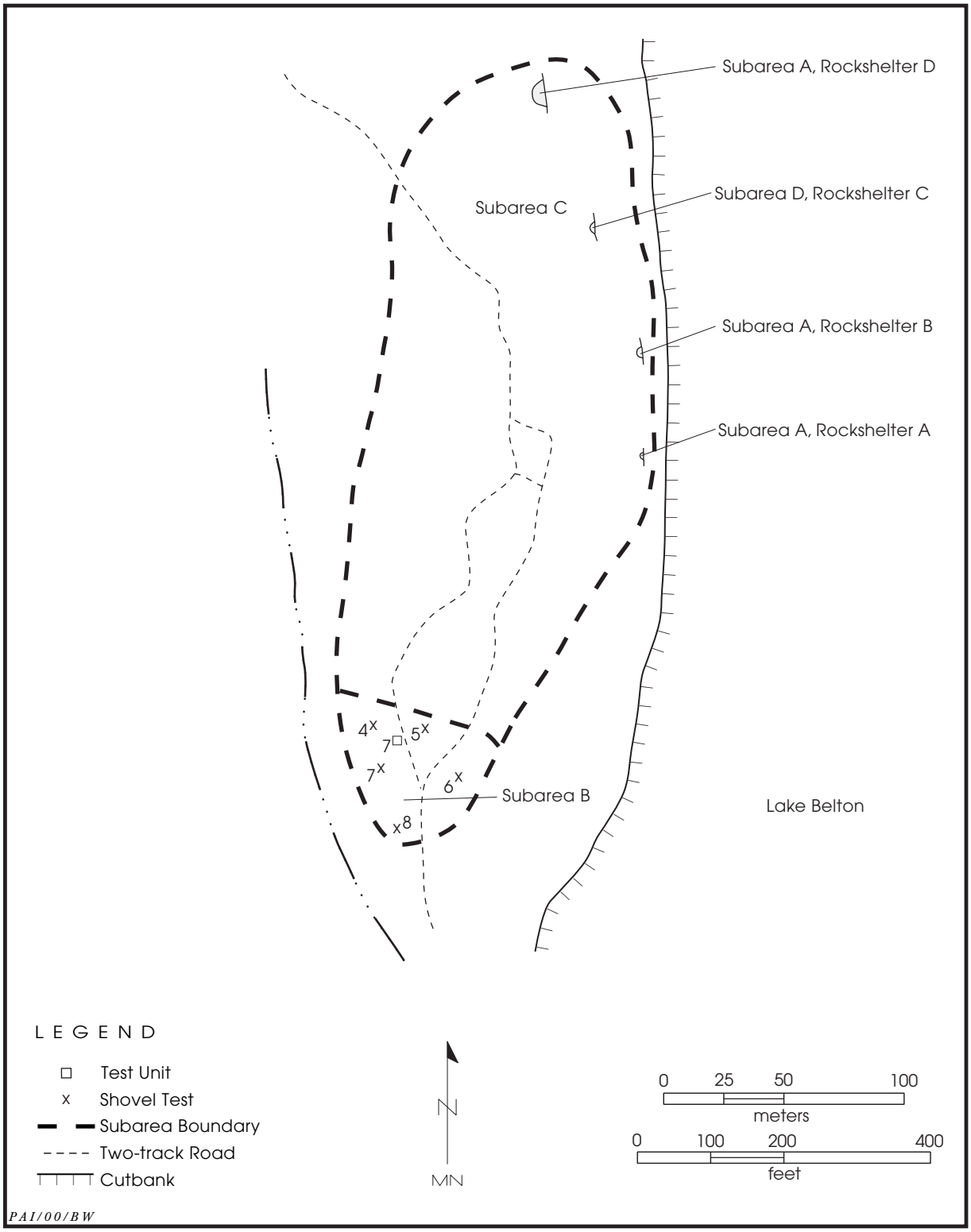

Figure 3.15. Site map of 41BL929 (modified from 1987 site map by Texas A&M University).

Table 3.8. Summary of excavations at 41BL929

Provenience	Shovel Tests	Test Units
Subarea A, Rockshelter A	3	1,4
Subarea A, Rockshelter B	1,2	2,3
Subarea A, Rockshelter D	–	6
Subarea B	4, 5, 6, 7, 8	7
Subarea C	–	–
Subarea D, Rockshelter C	–	5

The only excavation in Rockshelter D was Test Unit 6 (1x1 m) which was centrally situated within the shelter with the western third of the unit under the overhang. Bedrock was first encountered along the west wall at 70 cm, and it sloped from west to east to a maximum depth of 107 cm.

Subarea B consists of a gently sloping bench at the southern site margin that supports an oak and juniper woodland. The surface contains a thin mantle of sediment that has been deflated to bedrock in many places. Additional disturbances include a north-south dirt road bisecting the subarea and erosion. Burned rocks, debitage, and bifaces are scattered across the surface. Test Unit 7 (1.6x1.6 m) was placed to excavate a basin-shaped hearth (Feature 1) exposed on the surface. Five shovel tests also were spaced across Subarea B and excavated to depths of 20–30 cm, where weathered bedrock was encountered in each.

Subarea C, the upland Manning surface and its steep slopes, comprises approximately 75 percent of the site. The surface of Subarea C is mantled by a thin patchy stony reddish brown to brown clay to clay loam. The surface is severely deflated, and bedrock is exposed across much of the area. Because chert residuum is common across the surface, a sample was collected. Debitage, lithic tools, and sparse burned rocks are present on this surface. Because there are no intact deposits, shovel testing was not warranted in Subarea C. A road, vegetation clearing, and ubiquitous sheet erosion have severely damaged the area.

In Subarea D, Test Unit 5 (1x1 m) was placed near the center of Rockshelter C beneath the overhang and 45 cm from the back wall. Excavation was terminated at bedrock, which gradually sloped from west to east, at 75–103 cm. Within the excavation, Features 2 and 3 were identified and recorded.

For the remainder of this discussion, Subareas A, B, and D are each treated separately.

Subarea A, Rockshelter A

EXTENT AND DEPTH

Situated near the east central site margin, Rockshelter A has maximum dimensions of 32x5.8x2.8 m (Figure 3.16). Bedrock is exposed at the south end of the shelter, and there are large pieces of breakdown along the talus edge in the south half. A few flakes and modern trash were observed on the shelter floor. Drip line erosion is the only noted disturbance. Excavations indicate that deposits are up to 45 cm thick inside the shelter.

SEDIMENTS AND STRATIGRAPHY

The 89-cm-thick profile of Test Unit 1 in Shelter A displayed a fill characteristic of Abbott's (1995b:Table 9.5) Type 3 fill. This sediment is largely derived from weathering of limestones inside the shelters and is late Holocene. The deposit is imprinted with an A-BC-C soil profile. The A horizon (0–26 cm) is a black silt loam with 10 percent subangular limestone pebbles. The BC horizon (26–51 cm) is a very dark grayish brown (10YR 3/2) silty clay loam with 30 percent limestone pebbles and cobbles, and the C horizon (51–89+ cm) is a light brownish gray (10YR 6/2) silty clay loam with 5 percent subangular limestone pebbles.

CULTURAL MATERIALS

Unmodified debitage was recovered from all three excavations at Rockshelter A. Shovel Test 3 contained 3 flakes from 0 to 46 cm, and Test Unit 1 contained 3 from 50 to 70 cm. Test Unit 4 produced 24 flakes at 0–20 cm, 42 flakes at 20–40 cm, and 1 flake at 40–45 cm. Test Unit 4 also contained 26 burned rocks (3 kg), wire nails, and fence staples at 20–40 cm.

DISCUSSION

The sediments in Shovel Test 3 and Test Unit 1 are largely unconsolidated silty matrix with considerable amounts of roof spall inclusions. These sediments show varying degrees of

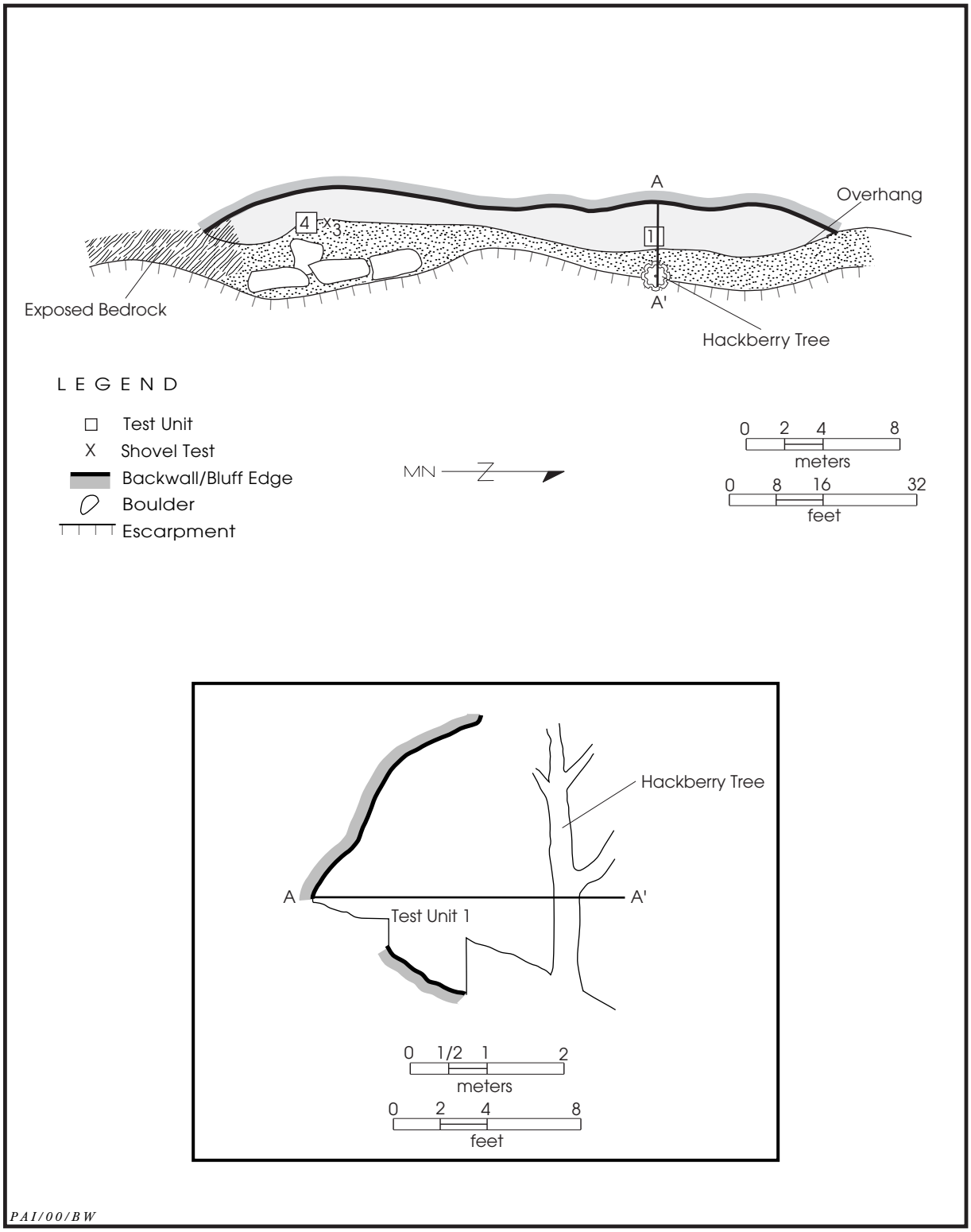

Figure 3.16. Plan and profile of Rockshelter A, 41BL929-A, (plan modified from 1987 site map by Texas A&M University).

bioturbation—primarily root activity—from the surface to their deepest level, so the extremely sparse cultural materials recovered from these excavations are probably displaced. Test Unit 4 contained a significantly larger quantity of cultural materials, but in the levels of highest artifact density (Levels 3 and 4), the matrix also contained wire nails and fence staples, indicating that these deposits have been recently disturbed. Though cultural materials are present in Rockshelter A, the probability of stratigraphically discrete archeological deposits is minimal.

Subarea A, Rockshelter B

EXTENT AND DEPTH

Rockshelter B is situated approximately 35 m north of Rockshelter A. It is long (24 m) and narrow (3 m), and the maximum height of the overhang is 2.2 m (Figure 3.17). Sparse debitage was observed on the surface, and the shelter is minimally disturbed by bioturbation. Near the middle of the shelter is a solution cavity measuring 4x2x1.15 m. The shelter floor is about 50 cm higher within the solution cavity than it is in the rest of the rockshelter. Excavations indicate that deposits are generally less than 20 cm thick over most of the shelter and up to 50 cm thick inside the solution cavity.

SEDIMENTS AND STRATIGRAPHY

The fill of Rockshelter B was examined in the profile of Test Unit 3. It consisted of a 34-cm-thick black (10YR 2/1) silt loam with 10 percent limestone pebbles and cobbles, all derived from weathering of the interior.

CULTURAL MATERIALS

Test Unit 2, excavated within the solution cavity, yielded 9 unmodified flakes at 0–10 cm. Two excavations in the main portion of the shelter, Shovel Test 1 and Test Unit 3, yielded 12 unmodified flakes and 2 small cores at 20–50 cm.

DISCUSSION

The deposits within Rockshelter B are generally thin and unconsolidated, characteristics not conducive to preserving cultural materials in a primary context with good integrity. Though sparse cultural materials are present, there is no indication of substantial stratigraphically discrete archeological deposits.

Subarea A, Rockshelter D

EXTENT AND DEPTH

Located about 60 m north of Rockshelter B, Rockshelter D has maximum dimensions of 14x2.2x1 m (Figure 3.18). No cultural materials were exposed on the surface, and no disturbances were apparent. Excavations indicate deposits up to 1 m thick.

SEDIMENTS AND STRATIGRAPHY

The sedimentary fill of Shelter D was examined in Test Unit 6. The 83-cm-thick profile consists of two zones. The upper zone (0–61 cm) is a black silt loam with 20 percent subangular limestone pebbles, and the lower zone (61–83+ cm) is a black silt loam with 50 percent subangular limestone pebbles and cobbles. Bioturbation was particularly pervasive from 20 to 30 cm and again at 50–60 cm.

CULTURAL MATERIALS

Test Unit 6 contained 47 unmodified flakes and 1 edge-modified flake at 0–30 cm and 9 unmodified flakes at 50–90 cm. The excavation was culturally sterile from 90 to 107 cm.

DISCUSSION

Though a moderately high number of lithic artifacts were recovered in the upper 30 cm of deposits, significant bioturbation was noted at 20–30 cm. The unconsolidated and disturbed nature of the upper 30 cm of sediments demonstrates the limited archeological integrity of these deposits. The lower deposits from 50 to 90 cm yielded very sparse artifacts. These deposits also show evidence of bioturbation and the few artifacts in them may have been brought down from the upper 30 cm. Thus, the archeological integrity of the lower deposits is poor, too.

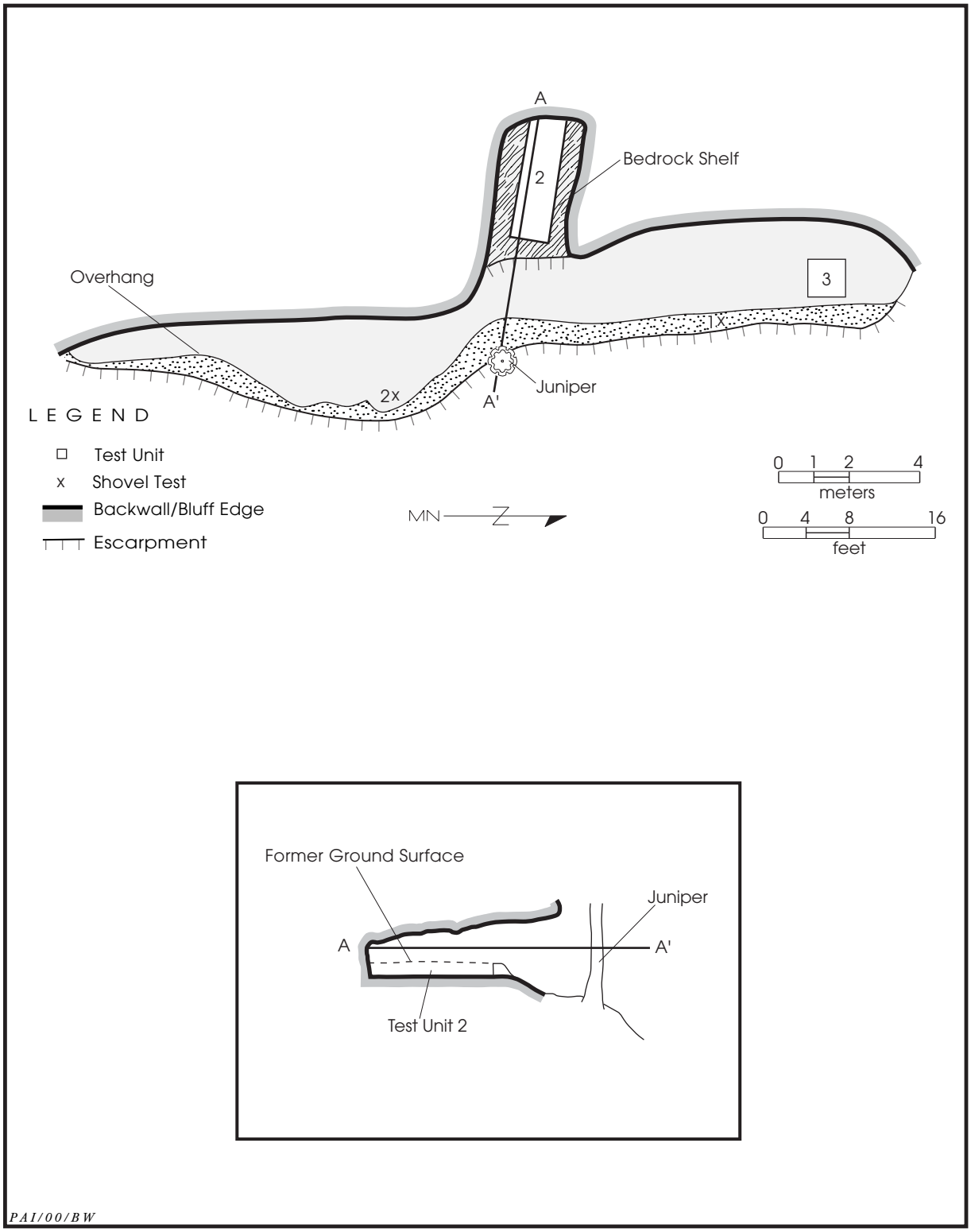

Figure 3.17. Plan and profile of Rockshelter B, 41BL929-A (plan modified from 1987 site map by Texas A&M University).

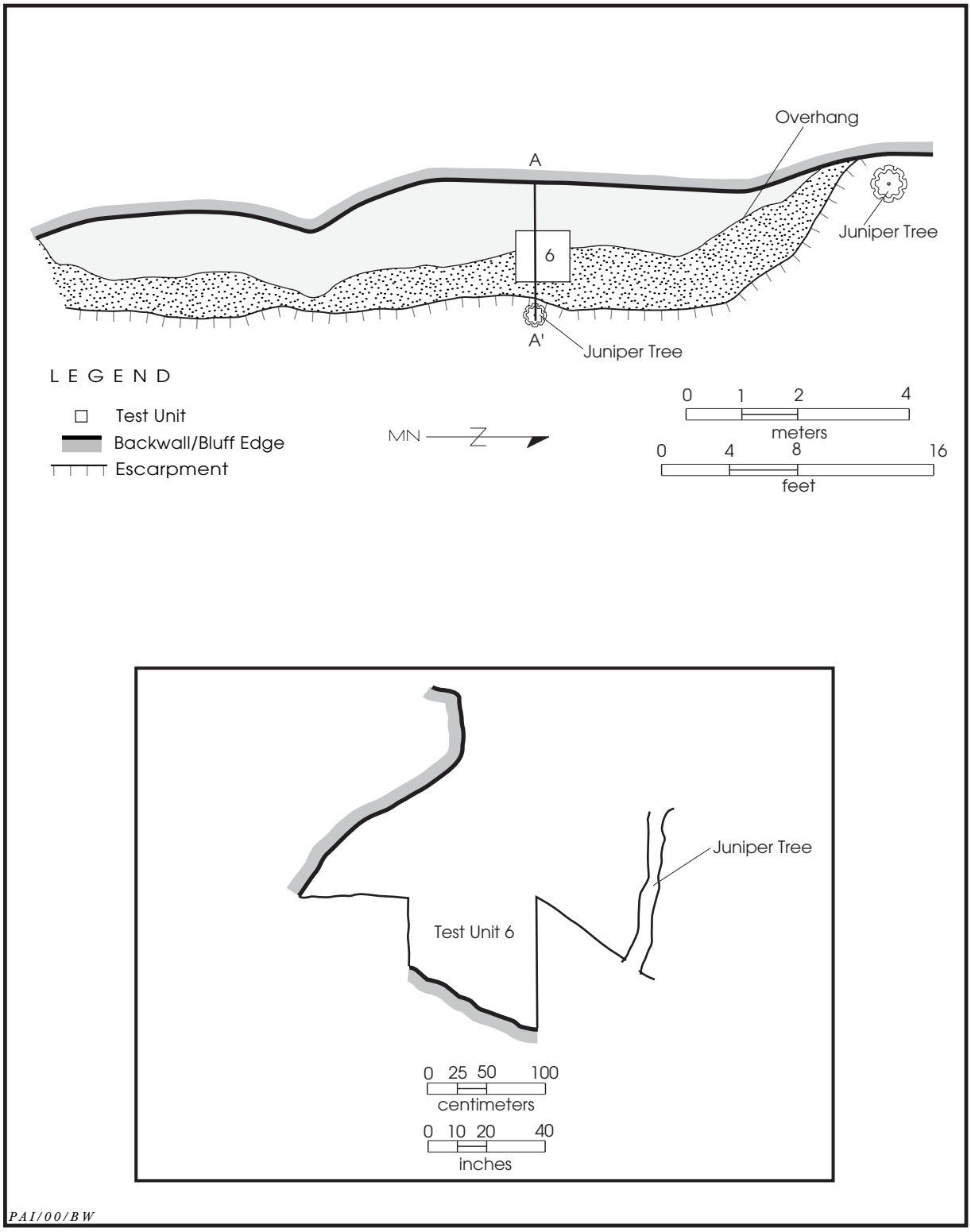

Figure 3.18. Plan and profile of Rockshelter D, 41BL929-A.

Subarea B

EXTENT AND DEPTH

Subarea B consists of a 60x55 m bench on the southern site margin. There were no cultural materials present below 30 cm in test excavations. Maximum soil deposition was 38 cm.

SEDIMENTS AND STRATIGRAPHY

Test Unit 7 revealed that soil deposition in Subarea B consists of a single layer of very gravelly dark loam, generally less than 20 cm thick. These deposits are composed of late Holocene slopewash.

CULTURAL MATERIALS

Excavated in Test Unit 7, Feature 1 contained 232 burned rocks (61 kg), 2 late-stage to finished biface fragments, and 127 pieces of unmodified debitage. All feature fill was collected for flotation, and all of the lithic artifacts except 1 unmodified flake were recovered during flotation. On the nonfeature portions of Subarea B, four of the five shovel tests were positive, with each producing lithic artifacts or burned rocks in the upper 23 cm of deposit. These artifacts consisted of 1 late-stage to finished biface, 2 miscellaneous bifaces, and 44 unmodified flakes.

CULTURAL FEATURES

The eastern edge of Feature 1, a basin-shaped hearth, was exposed in the west edge of the dirt road near the center of Subarea B (Figure 3.19). The exposed portion of the feature comprised a semicircular arrangement of 10 large burned rocks that were either on angle or vertical. Excavation of Test Unit 7 demonstrated that Feature 1 was a circular hearth, 23 cm thick, with maximum dimensions of 156 cm east-west by 152 cm north-south. The perimeter of this circular hearth was well delineated by large tabular rocks and slabs, many of which sloped toward the center of the feature or were vertical. These burned rocks ranged in size from 8x6x3 cm to 20x20x5 cm. The interior of the hearth consisted of two to three rock layers, about 50 percent of which were slabs (several fractured in place) and tabular pieces. The rest were dominated by large, blocky angular pieces. Flotation samples from Feature 1 yielded charred oak wood (see Appendix D), and charcoal recovered from flotation of feature fill at 13–30 cm yielded a radiocarbon age of 1150 ± 50 B.P. (Beta-136827, see Appendix A). Though the dirt road and some recently burned wood compromised the integrity of the eastern extremity of the hearth, approximately 80 percent of the feature appeared undisturbed. No cultural materials were found at 0–15 cm in the small area of nonfeature matrix excavated around the hearth.

DISCUSSION

Subarea B contained an intact hearth from which a radiocarbon sample yielded a calibrated date of A.D. 815–970 (1 sigma). The geomorphic context of this subarea is extremely poor, however. Bedrock is exposed in many places, and the sediments are composed of colluvium deposited through slopewash. The bench is small, and shovel testing and reconnaissance would have identified further features if they existed. Based on these considerations, Subarea B has questionable integrity in spite of the preservation of the single intact feature. It has limited potential to address current research questions.

Subarea D, Rockshelter C

EXTENT AND DEPTH

Rockshelter C has maximum dimensions of 21.8x2.8x1.8 m and is equidistant from Rockshelters B and D (Figure 3.20). The floor in the southern half of the shelter is fairly level, and there are large roof fall fragments at the north end. No cultural materials were observed, and the shelter deposits appear undisturbed. Excavations indicate that deposits in the shelter are up to 1 m thick.

SEDIMENTS AND STRATIGRAPHY

The fill of Shelter C was examined in the profile of Test Unit 5. The 75-cm-thick profile displays an A-C-C2 soil profile. The A horizon (0–17 cm) is a grayish brown (10YR 5/2) silt loam

Figure 3.19. Plan of Feature 1, 41BL929-B.

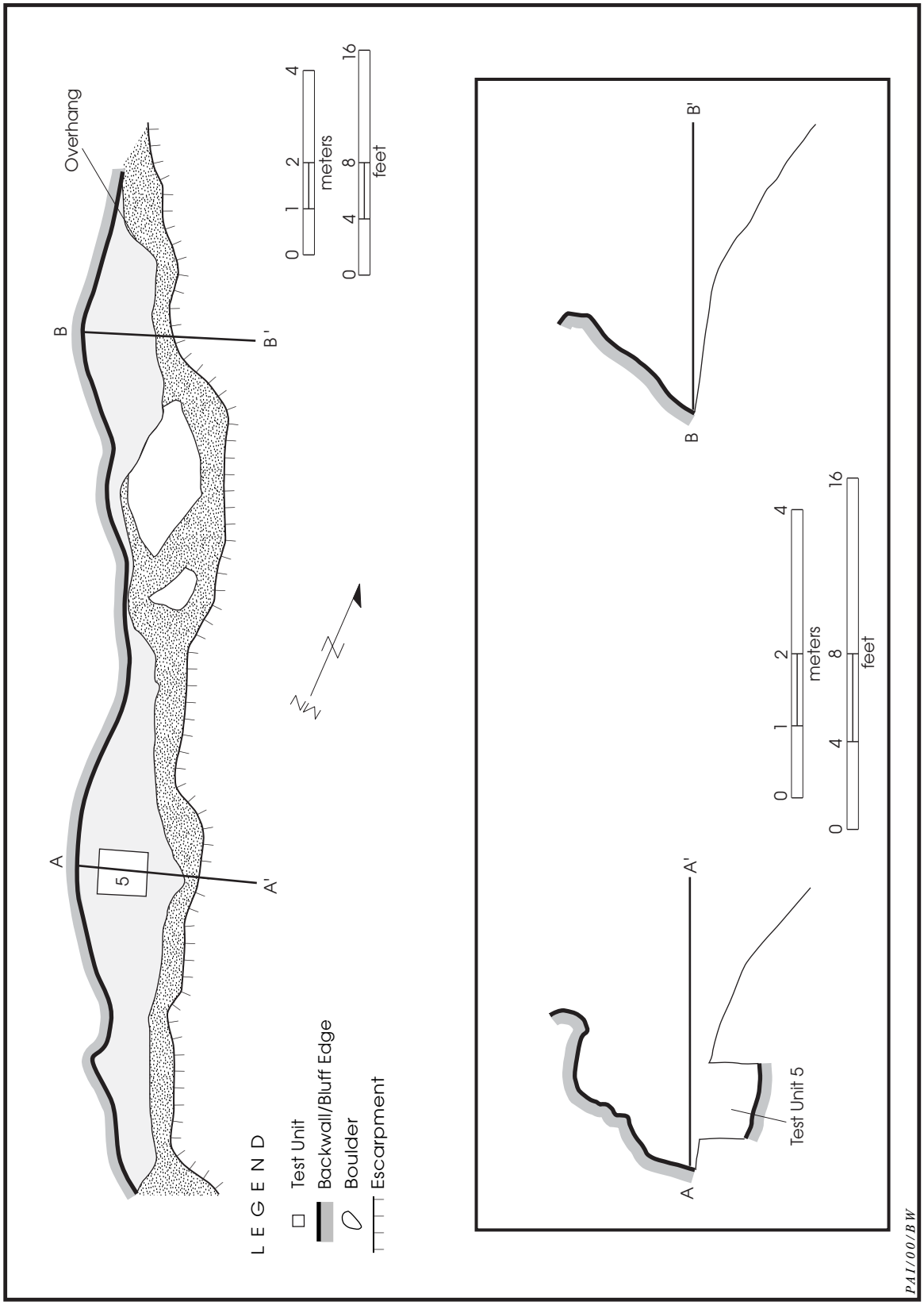

Figure 3.20. Plan and profile of Rockshelter C, 41BL929-D.

with 10 percent subangular limestone pebbles. The C horizon (17–31 cm) is a light gray (10YR 7/1) silt loam with 7 percent subangular limestone pebbles, and the C2 horizon (31–75+ cm) is a gray (10YR 6/1) silt loam with 10 percent subangular limestone pebbles.

CULTURAL MATERIALS

Test Unit 5 yielded 8 flakes at 0–20 cm (Table 3.9). A slight peak in artifacts (25 unmodified flakes, 1 miscellaneous uniface, and 1 arrow point tip) occurred at 20–30 cm. Nine flakes were recorded in the field at 30–40 cm but were lost before laboratory analysis. The flake count at 40–50 cm was 22. It rose to 102 at 50–60 cm, then decreased to 48 in Level 7 (60–70 cm). One edge-modified flake also was recovered from Level 5 (40–50 cm), a late-stage to finished biface was recovered at 50–60 cm, and both a miscellaneous uniface and a triangular unifacial untyped arrow point were recovered from Level 3 (20–30 cm). The unit produced 12 small burned rocks (0.5 kg) and 13 pieces of debitage at 70–80 cm. A provenienced charcoal sample was collected at 76 cm. Two flakes were found at 80–90 cm, and there were no cultural materials present from 90 to 103 cm (see Cultural Materials Recovered).

Table 3.9. Summary of cultural materials from Test Unit 5, 41BL929-D

Provenience	Arrow point	Late-stage to finished biface	Miscellaneous uniface	Edge-modified flake	Unmodified debitage	Total
Level 1 (0–10 cm)	–	–	–	–	1	1
Level 2 (10–20 cm)	–	–	–	–	7	7
Level 3 (20–30 cm)	1	–	1	–	25	27
Level 4 (30–40 cm)*	–	–	–	–	–	9
Level 5 (40–50 cm)	–	–	–	–	22	23
Level 6 (50–60 cm)	–	1	–	–	102	103
Level 7 (60–70 cm)	–	–	–	–	48	48
Level 8 (70–80 cm)	–	–	–	–	13	13
Level 9 (80–90 cm)	–	–	–	–	2	2
Total	1	1	1	1	229	233

*Artifacts from Level 4 are missing. The 9 specimens from Level 4 represent field observations, and the artifacts have not been formally analyzed.

CULTURAL FEATURES

Feature 2 is a soil stain encountered at 28–34 cm near the center of Test Unit 5. The stain measured 35 cm east-west by 28 cm north-south. The discolored sediment was pinkish gray with charcoal flecking noted around its perimeter. The stain was very discrete, and its edges were well defined when first exposed, but the base of the feature was irregular. It is unclear what this stain may represent, but roots bioturbated the matrix. Flotation of feature fill yielded only unidentifiable flecks of charred material (see Appendix D). Though no artifacts were recovered from within this feature, the matrix around the feature contained a noticeable peak in artifact frequency.

Feature 3, the edge of a basin-shaped hearth, was encountered at 76–87 cm along the east wall of Test Unit 5 (Figure 3.21). The excavated portion of the feature consisted of one to two layers of burned rocks (n = 33, 3.75 kg), most of which were fist-sized angular and tabular pieces. Its maximum excavated dimensions were 44 cm north-south by 29 cm east-west. The hearth extended east beyond the edge of the test unit, and its overall size could not be estimated. All flotation of the feature matrix yielded only indeterminate wood fragments (see Appendix D), and no evidence of disturbance was noted. Charcoal recovered from a flotation sample at 76–87 cm yielded radiocarbon age of 550 ± 50 B.P. (Beta-136826, see Appendix A). No artifacts were recovered from within the feature, but the sediment outside the feature contained lithic artifacts.

DISCUSSION

Rockshelter C has up to 1 m of intact deposits containing cultural materials. No surface disturbance was observed, and only minor bioturbation was evident in the upper 30 cm of deposits. Vertical distribution of cultural artifacts in Test Unit 5 exhibits two distinct peaks, suggesting the presence of stratified archeological deposits. An intact feature found at 76–87 cm

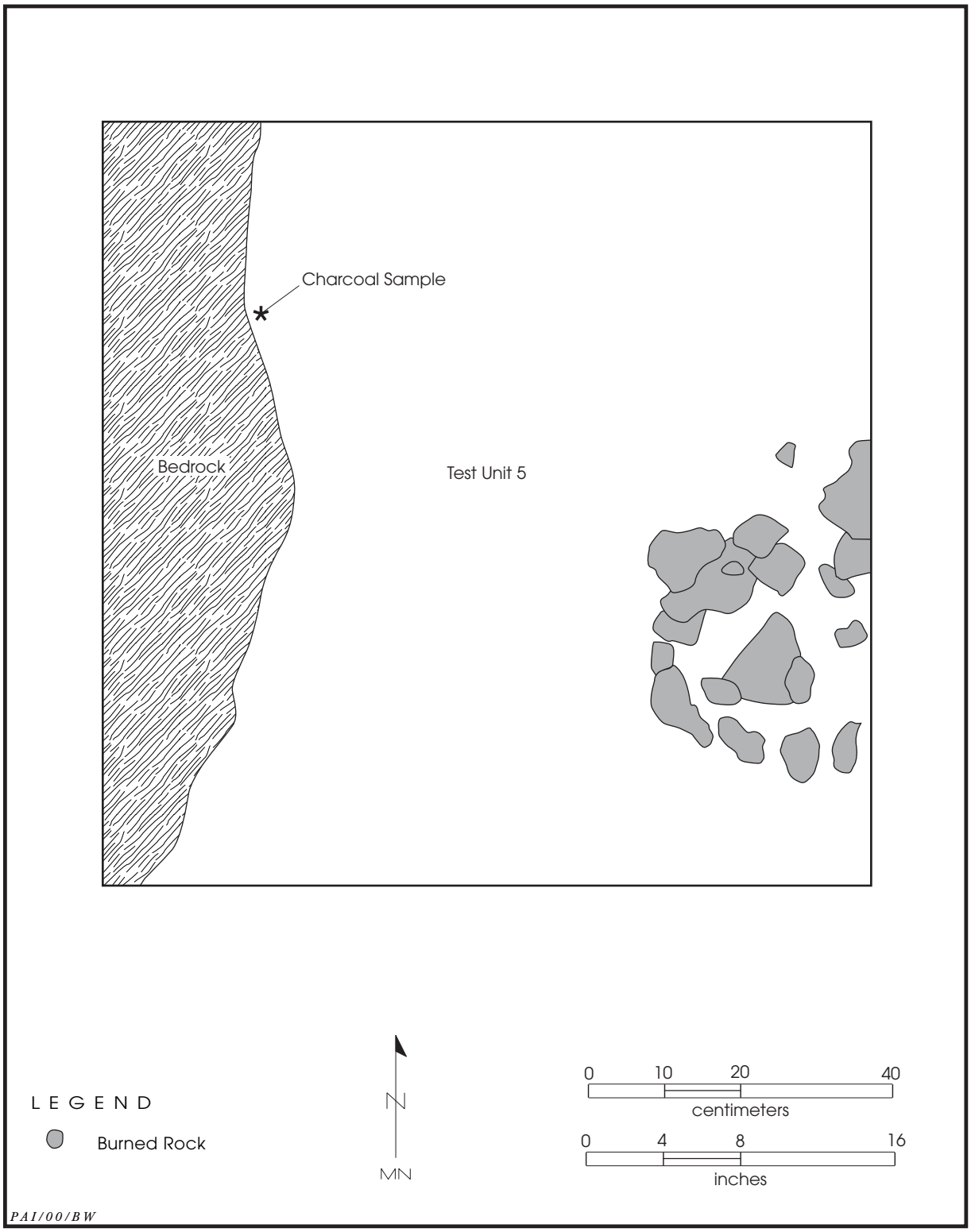

Figure 3.21. Plan of Feature 3, 41BL929-D.

indicates that the integrity of archeological deposits in this rockshelter is excellent. Also a charcoal sample taken from a hearth (Feature 3) yielded a calibrated radiocarbon date of A.D. 1325–1425 (1 sigma), indicating occupation during the Late Prehistoric period. This accords well with the one temporally diagnostic artifact—the distal tip of an arrow point—recovered during excavation and further suggests that the integrity of these archeological deposits is good.

Summary and Conclusions

The entire lithic assemblage from the 41BL929 includes 1 arrow point, 9 tools, 2 cores, and 546 pieces of unmodified debitage. The arrow point, 3 tools, and 220 (40.3 percent) of the unmodified flakes were recovered from Rockshelter C in Subarea D. By comparison, the three shelters that comprise Subarea A (Rockshelters A, B, and D) contained only 3 tools and 151 (27.7 percent) unmodified flakes. Subsurface investigations indicate that Subarea D contains significant cultural materials in discrete, stratified archeological deposits, but Subarea A does not.

Subarea B encompasses a sloping bench with deposits of varying depths that contain a feature and buried cultural materials. The geomorphic context of the subarea indicates extremely poor integrity, however, and the likelihood of further intact archeological deposits within this small area is negligible.

Subarea C is located on a partially deflated slope. Although cultural materials are present, the subarea has no potential to contain stratified cultural deposits in primary context.

Recommendation

Subareas A and C at 41BL929 have negligible potential for stratigraphically discrete cultural deposits. They are considered to have limited research potential and are recommended as ineligible for National Register listing. No further management is recommended.

Although Subarea B at 41BL929 contains an intact feature from which a radiocarbon date was obtained, there is only limited potential for significant intact archeological deposits. It therefore is recommended that Subarea B is not eligible for National Register listing.

The investigations in Subarea D indicate that Rockshelter C contains significant cultural deposits that can be useful for addressing regional archeological research problems. It is recommended that Subarea D is eligible for listing in the National Register. Accordingly, Subarea D should be preserved and protected from damage. If damage cannot be avoided, archeological data recovery excavation is warranted.

41BL930

Site Setting

Site 41BL930 is located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. This lithic scatter is located on a midslope bench above a tributary of Bear Creek in an oak and juniper woodland. As confirmed in 1999, the maximum site dimensions are 156x94 m, or 14,664 m^2. Site elevation is 195 m above mean sea level.

Previous Work

On 15 April 1987, Mesrobian and McReynolds (Texas A&M University) recorded this site as a burned rock and lithic scatter extending 156x94 m along a northeast-southwest axis. They observed bifacial tools and debitage, and also noted a light scatter of burned rocks. One finished biface was collected. The depth of deposits was estimated to be less than 10 cm. Vehicle traffic, erosion, cattle grazing, and juniper clearing had disturbed an estimated 28 percent of the site.

Work Performed

Mehalchick (Prewitt and Associates) assessed the site on 14 June 1999. The site size and boundaries were not altered, and no new site map was made. Because the potential for intact deposits was extremely low, shovel testing was not warranted.

Discussion

The bench is severely deflated, with exposed bedrock and weathered limestone visible across the surface. Deposits that are present most

likely represent an A-B+-R horizon sequence and consist of less than 10 cm of slopewash underlain by bedrock. Lithic tools, debitage, and cores were scattered on the surface in exposed areas. Occasional raw chert nodules were observed, particularly on the upslope margin of the site, but these did not occur in sufficient quantities to suggest the site was a lithic procurement area. No features or buried deposits were observed, and no cultural materials were recovered from this site. Intensive erosion and bioturbation have caused moderate to heavy disturbance on site. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendations

Site 41BL930 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL931

Site Setting

Site 41BL931 is a multicomponent site located in training area 3. It is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. The site is situated on the southern edge of Owl Creek at its confluence with Belton Reservoir. As redefined in 1999, maximum site dimensions are 1,000x500 m, or 500,000 m^2. Site elevation is approximately 190 m above mean sea level.

Previous Work

On 16 April 1987, McReynolds and Dureka (Texas A&M University) recorded the site and established the site boundary as 1,045x275 m along an east-west axis. Deposits were described as brown gray silty clay loam more than 1 m thick. Researchers observed unifacial tools, bifacial tools, cores, hammerstones, and debitage. Two dart point fragments and a mano were collected. Midden deposits were observed on two portions of the site. Erosion, cultivation, historic habitation, and road clearing had damaged an estimated 27 percent of the site, but the largest single disturbance to the site was looting. Several potholes were observed, and the extent of damage was assessed as 25 percent of the observable deposits.

Work Performed

On 1 April 1999, Mehalchick and Killian (Prewitt and Associates) assessed the site. Based on differing geomorphic context and archeological potential, the site size was enlarged to 1,000x500 m and divided into Subareas A (Pleistocene terrace with a lithic scatter), B (toeslope with burned rock midden deposits), C (slope with a lithic resource procurement area), and D (Holocene terrace with an open camp) (Figure 3.22). The site boundary was extended to the north to include the entire width of the Holocene terrace (Subarea D) south of Owl Creek and left open on the west because the Holocene terrace extends an unknown distance in that direction. The site map was modified to show subarea divisions, site boundary extensions, and shovel test locations. Notably, Subarea D is located outside the Fort Hood boundary.

Subarea A consists of a late Pleistocene terrace (T_2) ca. 6 m above the Owl Creek channel on the northeastern extreme of the site. The terrace edge is severely beveled, and two-track roads crisscross its surface. Few good exposures of the fill below the T_2 surface were available for examination, though surface exposures reveal that a portion of the fill consists of gravelly deposits typical of the Jackson alluvium. A sparse scatter of lithic debitage was observed on the surface. Roadcuts, historic occupation, erosion, and bioturbation have caused moderately high disturbance across the subarea. Because Subarea A had no potential to contain cultural materials in primary context, shovel testing was not warranted.

Subarea B represents the colluvial toeslope that extends the length of the site. Few good exposures were available for examination, though based on exposures in looter's potholes, the toeslope appears to consist of gravelly dark brown loamy deposits less than a meter thick. These exposures display an A-Bw soil imprint. A variety of cultural materials were observed in this subarea, including burned rocks, ground stone, lithic tools, and debitage. Most of the artifacts were associated with two discrete

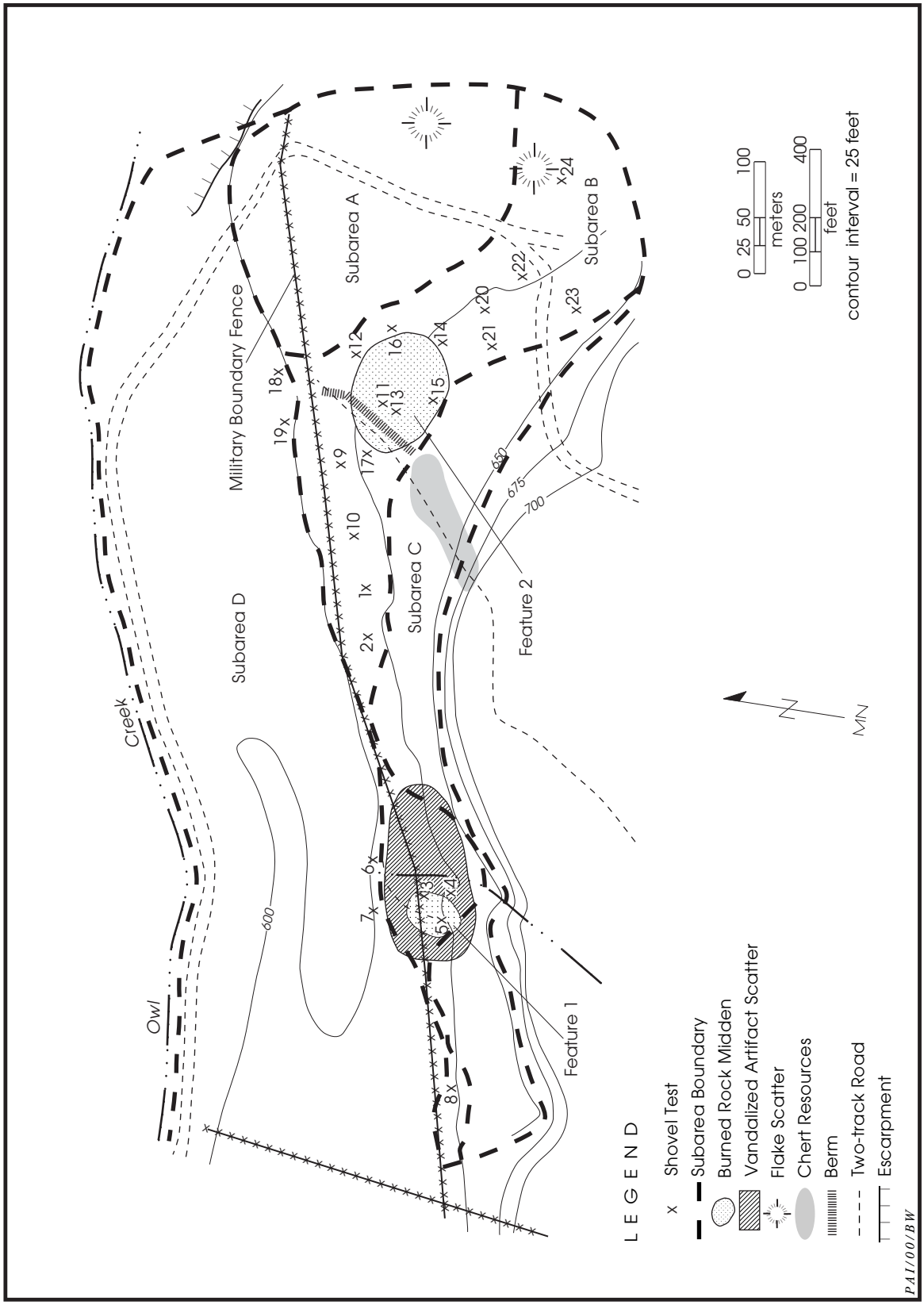

Figure 3.22. Site map of 41BL931 (modified from 1987 site map by Texas A&M University).

midden deposits, designated Features 1 and 2. Cultural materials were particularly visible in areas where looting had heavily damaged midden deposits.

Several other agents have damaged Subarea B. Bioturbation and slope erosion have caused moderate disturbance in this subarea, as they have across the rest of the site. Roadcuts and historic occupations have caused heavier damage. The most visible historic disturbance is a berm that runs southwest-northeast across the site and cuts through the western portion of Feature 1. By far the worst damage to Subarea B is the result of extensive looting. Some of the looting was quite recent, and fresh backdirt piles and potholes were observed.

Because Subarea B had the potential to contain intact cultural deposits, a total of 20 shovel tests were excavated. Five shovel tests (Shovel Tests 3, 5, 11, 13, and 15) were excavated within Features 1 and 2, near potholes but in portions of the features that appeared intact. The depths of these shovel tests ranged from 40 to 100 cm. Another 15 shovel tests were excavated across the rest of Subarea B. These varied greatly in depth (12–100 cm), and most excavations were terminated either in dense gravel or at bedrock.

Subarea C represents the high gradient slopes of the valley wall. Little accumulation of sediment has occurred, and a chert outcrop is visible in a road cut that crosses Subarea C from north to south. Cultural materials observed included sparse scatters of lithic tools, debitage, and burned rocks. A sample collected from the chert outcrop corresponded with the Fort Hood Gray chert type. Road cuts have caused locally heavy disturbance, and erosion and bioturbation have caused moderate but ubiquitous disturbance. Essentially, the surfacial archeological remains in this subarea have been subjected to disturbance from slopewash. Subarea C had no potential to contain intact archeological deposits, and shovel testing was not warranted.

Subarea D consists of a Holocene terrace (T_1) on the south edge of Owl Creek. The extensive terrace surface is ca. 3–4 m above the channel. A ca. 2-m-thick cutbank exposure along Owl Creek outside the site boundaries was examined. This profile consisted of brown loamy sediments correlating to the West Range alluvium. It is probable that older alluvial units (i.e., Fort Hood and Georgetown) are preserved below the extensive T_1 surface, within the site boundaries but further south of Owl Creek.

Most of Subarea D is located on a U.S. Army Corps of Engineer easement rather than within Fort Hood installation boundaries. The level of disturbance in this subarea was difficult to assess. Ranching activities continue on the subarea, and cattle grazing and fence construction have damaged the site to an unknown degree. The widening of Owl Creek in conjunction with the construction of Belton Reservoir also truncated an unquantified northern portion of the subarea. No artifacts were observed on the surface of Subarea D, but thick grass cover made visibility poor. Because disturbances to Subarea D were primarily limited to the surface, there was a good potential for buried intact sites, so Shovel Tests 6, 7, 18, and 19 were excavated along the southern edge of the terrace.

The results of shovel testing in Subareas B and D are discussed below.

Subarea B

CULTURAL MATERIALS

The total assemblage from Subarea B of 41BL931 consists of 2,423 stone artifacts, 6 unmodified mussel shells, and 3 unmodified bones. The lithic assemblage includes a proximal fragment of an untyped arrow point with a ground base, a complete Kent dart point, 32 tools, 1 core, and 2,333 unmodified flakes (Table 3.10). Of these, 736 artifacts (30.4 percent) are associated with burned rock midden Feature 1 and 907 (37.4 percent) are associated with burned rock midden Feature 2 (Table 3.11). A total of 780 stone artifacts (32.2 percent) are from nonfeature contexts, having been recovered from 14 positive shovel tests across Subarea B (Table 3.12). Of particular note is the extremely high frequency of stone artifacts found in Shovel Test 17, located near Feature 2.

Of the 2,423 stone artifacts in the total assemblage, 1,420 (58.6 percent) are from indeterminate chert types. Most identified specimens fall into three types: Fort Hood Yellow (n = 310, 12.8 percent), Gray-Brown-Green (n = 133, 5.5 percent), and Owl Creek Black (n = 131, 5.4 percent). Shovel testing in Subarea

Table 3.10. Summary of all stone artifacts recovered from 41BL931

Shovel Test	Feature 1	Feature 2	Nonfeature	Total
1	–	–	7	7
2	–	–	82	82
3	131	–	–	131
4	–	–	146	146
5	605	–	–	605
8	–	–	4	4
9	–	–	33	33
10	–	–	34	34
11	–	638	15	653
12	–	–	26	26
13	–	226	–	226
14	–	–	7	7
15	–	43	–	43
16	–	–	5	5
17	–	–	339	339
20	–	–	8	8
21	–	–	8	8
22	–	–	53	53
23	–	–	–	0
24	–	–	13	13
Total	736	907	780	2,423

Note: Shovel Tests 6, 7, 18, and 19 are in Subarea D; all others are in Subarea B.

B also produced more than 440 pieces of burned limestone and 112 pieces of burned chert. The highest concentrations of burned limestone and chert were encountered in Features 1 and 2.

The faunal assemblage is composed of 3 unburned fragments, all from Feature 1 (see Appendix C). All of the bones exhibit light weathering and acid-etching, and two of the bones are spirally fractured. Two of the fragments are identified as mammals, and the third, as a vertebrate.

The mussel shell assemblage consists of 6 specimens from Features 1 and 2, including 3 umbo fragments and 3 cardinal tooth fragments. Identified species are *Amblema plicata* and *Quadrula* sp. The three cardinal tooth fragments were unidentifiable.

CULTURAL FEATURES

Features 1 and 2 are both extensive burned rock midden deposits. The largest of the two, Feature 1, has minimum dimensions of 160x85 m along an east-west axis. It is situated on the boundary between the steep slope (Subarea C) and the broad terrace (Subarea D). The feature is at least 95 cm deep in some places and yielded a high quantity of artifacts. Deposits became generally shallower to the north as Feature 1 spread out onto the terrace, and they truncated abruptly to the south by the steep grade of the slope. Organic-rich soil, lithic artifacts, and large quantities of burned rocks were visible on the surface, particularly in exposures caused by the looting activities that have disturbed large portions of this feature. Though intact deposits remain, the extent of the looting was difficult to assess without more extensive investigations. The midden is subsumed in a cedar and hardwood woodland that has caused moderate bioturbation but also limits erosion.

Feature 2 is located on the eastern end of Subarea B and has minimum dimensions of 125x75 m along an east-west axis. In addition to burned rocks and dark organic-rich soil, lithic tools and debitage were visible on the surface. Shovel testing within the feature (Shovel Tests 11, 13 and 15) indicates that Feature 2 is generally shallow (<50 cm deep) and rests directly on bedrock. Located on a slight slope, the feature is currently within a moderate cover of cedar trees. This has caused some bioturbation within the feature but has also limited erosion. Because the feature is shallow, looting activity has disturbed the full thickness of the feature in localized areas, but it is apparent that there are intact deposits still present within this burned rock midden.

DISCUSSION

All but one shovel test from Subarea B contained cultural materials, indicating ubiquitous buried cultural deposits across this subarea. Intact deposits with high artifact counts were encountered in all shovel tests excavated within Features 1 and 2. Tests outside the features varied greatly in the quantity of artifacts recovered, from 4 to 338 stone artifacts. The shovel tests with the highest artifact counts were

Table 3.11. Summary of cultural materials associated with Features 1 and 2, 41BL931-B

Provenience	Arrow point	Early- to middle-stage bifaces	Late-stage to finished bifaces	Bifacial knife	Miscellaneous unifaces	Graver-Burin	Edge-modified flakes	Core	Unmodified debitage	Total stone artifacts	Unmodified mussel shells	Unmodified bones
SHOVEL TEST 3												
Feature 1 (0–20 cm)	–	–	–	–	1	–	–	–	58	59	–	–
Feature 1 (20–40 cm)	–	1	–	–	–	–	–	1	59	61	–	–
Feature 1 (40–60 cm)	–	–	–	–	–	–	–	–	7	7	–	–
Feature 1 (60–80 cm)	–	–	–	–	–	–	–	–	4	4	–	–
Subtotal	0	1	0	0	1	0	0	1	128	131	0	0
SHOVEL TEST 5												
Feature 1 (0–20 cm)	–	–	2	–	1	–	1	–	80	84	1	–
Feature 1 (20–40 cm)	1	–	–	–	–	–	1	–	130	132	3	–
Feature 1 (40–60 cm)	–	1	–	–	2	1	–	–	163	167	–	1
Feature 1 (60–80 cm)	–	–	–	–	1	–	–	–	161	162	1	1
Feature 1 (80–95 cm)	–	–	–	1	–	–	–	–	59	60	–	1
Subtotal	1	1	2	1	4	1	2	0	593	605	5	3
SHOVEL TEST 11												
Feature 2 (0–20 cm)	–	–	1	–	1	–	2	–	321	325	–	–
Feature 2 (20–40 cm)	–	–	–	–	–	–	–	–	313	313	–	–
Subtotal	0	0	1	0	1	0	2	0	634	638	0	0
SHOVEL TEST 13												
Feature 2 (0–20 cm)	–	1	–	–	1	–	2	–	115	119	1	–
Feature 2 (20–40 cm)	–	–	1	–	–	–	–	–	106	107	–	–
Subtotal	0	1	1	0	1	0	2	0	221	226	1	0
SHOVEL TEST 15												
Feature 2 (0–20 cm)	–	–	–	–	–	–	–	–	28	28	–	–
Feature 2 (20–33 cm)	–	–	–	–	–	–	–	–	15	15	–	–
Subtotal	0	0	0	0	0	0	0	0	43	43	0	0
Total	1	3	4	1	7	1	6	1	1,619	1,643	6	3

those on the margins of either Features 1 or 2, and these materials may represent off-midden activity areas.

In general, looting has severely damaged both features. Nevertheless, the features are discreet and well defined, with significant portions still intact. The significance of the midden deposits and their relationship to the surrounding buried archeological deposits is not known. Further, the pervasive cultural materials encountered in nonfeature portions of the subarea represent archeological deposits of unknown extent and integrity.

Subarea D

CULTURAL MATERIALS

Cultural materials from Subarea D included 1 untyped dart point, 1 early- to middle-stage biface, 3 edge-modified flakes, 110 unmodified flakes, and 32 burned rocks (Table 3.13). Most (n = 92, 80 percent) of the lithic artifacts, including the dart point and tools, were recovered from Levels 4 and 5 in Shovel Test 6. All of the burned rocks also were observed in Shovel Test 6, with the highest concentration in

Table 3.12. Summary of nonfeature cultural materials from 41BL931-B

Provenience	Dart point	Late-stage to finished biface	Miscellaneous unifaces	Edge-modified flakes	Unmodified debitage	Total
SHOVEL TEST 1						
Level 1 (0–20 cm)	–	–	–	1	6	7
SHOVEL TEST 2						
Level 1 (0–20 cm)	–	–	–	–	54	54
Level 2 (20–40 cm)	–	–	–	1	17	18
Level 3 (40–60 cm)	–	–	–	–	5	5
Level 4 (60–70 cm)	–	–	–	–	5	5
Subtotal	0	0	0	1	81	82
SHOVEL TEST 4						
Level 1 (0–20 cm)	–	–	–	–	45	45
Level 2 (20–40 cm)	–	–	–	1	41	42
Level 3 (40–60 cm)	–	–	–	–	37	37
Level 4 (60–80 cm)	–	–	–	–	19	19
Level 5 (80–100 cm)	–	–	–	–	3	3
Subtotal	0	0	0	1	145	146
SHOVEL TEST 8						
Level 4 (60–78 cm)	–	–	–	–	4	4
SHOVEL TEST 9						
Level 1 (0–20 cm)	–	–	–	1	10	11
Level 2 (20–40 cm)	1	–	–	–	21	22
Subtotal	1	0	0	1	31	33
SHOVEL TEST 10						
Level 1 (0–20 cm)	–	–	–	–	2	2
Level 2 (20–40 cm)	–	–	–	–	6	6
Level 3 (40–60 cm)	–	–	1	–	9	10
Level 4 (60–80 cm)	–	–	–	–	7	7
Level 5 (80–100 cm)	–	–	–	–	9	9
Subtotal	0	0	1	0	33	34
SHOVEL TEST 11						
Level 3 (40–60 cm)	–	–	–	–	15	15
SHOVEL TEST 12						
Level 1 (0–20 cm)	–	–	1	–	–	1
Level 2 (20–40 cm)	–	–	–	2	20	22
Level 3 (40–60 cm)	–	–	–	1	2	3
Subtotal	0	0	1	3	22	26
SHOVEL TEST 14						
Level 1 (0–20 cm)	–	–	–	–	7	7
SHOVEL TEST 16						
Level 2 (20–45 cm)	0	0	0	0	5	5
SHOVEL TEST 17						
Level 1 (0–20 cm)	–	0	0	0	99	99
Level 2 (20–40 cm)	–	0	0	0	68	68
Level 3 (40–60 cm)	–	0	0	0	71	71
Level 4 (60–80 cm)	–	0	0	0	58	58
Level 5 (80–100 cm)	–	1	0	0	42	43
Subtotal	0	1	0	0	338	339

Table 3.12, continued

Provenience	Dart point	Late-stage to finished biface	Miscellaneous unifaces	Edge-modified flakes	Unmodified debitage	Total
SHOVEL TEST 20						
Level 1 (0–20 cm)	–	–	–	–	5	5
Level 2 (20–40 cm)	–	–	–	–	3	3
Subtotal	0	0	0	0	8	8
SHOVEL TEST 21						
Level 1 (0–20 cm)	0	0	0	0	8	8
SHOVEL TEST 22						
Level 1 (0–20 cm)	–	–	–	1	37	38
Level 2 (20–40 cm)	–	–	–	–	15	15
Subtotal	0	0	0	1	52	53
SHOVEL TEST 24						
Level 1 (0–20 cm)	–	–	–	–	13	13
Total	1	1	2	8	768	780

Table 3.13. Summary of cultural materials from 41BL931-D

Provenience	Dart point	Early- to middle-stage biface	Edge-modified flakes	Unmodified debitage	Total
SHOVEL TEST 6					
Level 1 (0–20 cm)	–	–	–	8	8
Level 2 (20–40 cm)	–	–	–	3	3
Level 3 (40–60 cm)	–	–	–	3	3
Level 4 (60–80 cm)	–	1	–	25	26
Level 5 (80–100 cm)	1	–	2	63	66
Level 6 (100–110 cm)	–	–	–	2	2
Subtotal	1	1	2	103	107
SHOVEL TEST 18					
Level 1 (0–20 cm)	–	–	1	5	6
SHOVEL TEST 19					
Level 1 (0–20 cm)	–	–	–	1	1
Total	1	1	3	109	114

Levels 4 and 5 (n = 27, 84.4 percent).

DISCUSSION

The results of Shovel Test 6 indicate a concentration of buried cultural materials at 60–100 cm in the Holocene alluvial terrace. Though the integrity of these deposits and their significance is unknown, this concentration demonstrates a high probability for intact stratified archeological deposits. The other shovel tests excavated in Subarea D produced only sparse cultural materials in the upper 20 cm of deposit. Subarea D was not thoroughly tested because most of the subarea lies outside Fort Hood on U.S. Army Corps of Engineers property. The dense cultural materials encountered at depth in Shovel Test 6 therefore are considered to be a better representation of the archeological potential of Subarea D than the other three negative shovel tests.

Summary and Conclusions

Subarea A is on a Pleistocene terrace, and Subarea C, on the slope of a high upland surface. Although there are cultural materials in both subareas, neither area has the potential

to contain stratified cultural deposits in primary context.

Subarea B is situated on a toeslope containing two extensive areas of burned rock midden deposits. Though looters have heavily damaged these deposits, significant portions of intact deposits remain. Nonfeature portions of Subarea B also contain buried archeological deposits.

Subarea D encompasses Holocene alluvial deposits of varying depths that contain buried cultural materials that may be in primary context.

Recommendation

Subareas A and C at 41BL931 have negligible potential for stratigraphically discrete cultural deposits. They are considered to have limited research potential and are recommended as not eligible for listing in the National Register. No further management is recommended.

Subarea B contains two partially intact burned rock midden features, as well as potentially intact cultural deposits surrounding the middens. These deposits are of unknown significance and may be eligible for National Register listing. Damage to Subarea B should be avoided, but if avoidance is not possible, formal testing is recommended to determine eligibility. Minimum testing should include as much as 4 m^2 of hand excavation and 6 backhoe trenches.

Subarea D at 41BL931 contains potentially intact cultural deposits of unknown significance that may be eligible for National Register listing. Damage to this subarea should be avoided, but if avoidance is not possible, formal testing is recommended to determine eligibility. Minimum testing should include as much as 5 m^2 of hand excavation and 10 backhoe trenches.

41BL932

Site Setting

Site 41BL932 is an open campsite located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. The site is situated on an upland Manning surface above a rockshelter (41BL927), 150 m south of a tributary to Bear Creek. Vegetation consists of a scrub oak and juniper woodland. As confirmed in 1999, maximum site dimensions are 70x85 m, or 5,950 m^2. Site elevation is 281 m above sea level.

Previous Work

On 15 March 1987, Demarcay and Dureka (Texas A&M University) first recorded the site. Site dimensions were established as 70x85 m along a northeast-southwest axis. Researchers observed a moderately dense scatter of debitage, unifacial and bifacial tools, a core, a hammerstone, and a chopper. There was also a light scatter of burned rock present. One Perdiz arrow point, one unidentified dart point, and a mano were collected from the site. Rich organic soils were noted, and the depth of deposits was estimated at less than 20 cm. Site condition was reported to be excellent, with erosion and animal activity affecting only 7 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 5 April 1999. The site size and boundaries were not altered during this revisit. The site map was found to be accurate, so no new map was produced. Because no intact deposits were present, shovel testing was not warranted.

Discussion

Soil deposition consisted of deflated residual soils underlain by bedrock. Cultural materials on the surface consisted of a thin scatter of lithic tools, debitage, and burned rocks. A nearby drainage and a rockshelter (41BL927) are associated with the site. No features or buried deposits were observed, and no cultural materials were recovered from this site. The site was about 10 percent disturbed by erosion, light vegetation clearing, and light vehicle traffic. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41BL932 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL933

Site Setting

Site 41BL933 is a lithic resource procurement area and mound located in training area 3. It is plotted on the Bland 7.5 minute topographic quadrangle and is also located on aerial photo sheet 53. The site extends along a north facing escarpment above the south side of Owl Creek, near the point where it joins Belton Reservoir. Thickets of juniper and scrub oak with scattered deciduous trees and a moderate understory cover approximately 50 percent of the ground surface. Leaf litter is dense in some areas. As confirmed in 1999, maximum site dimensions are 650x250 m, or 162,500 m^2. Site elevation is approximately 228 m above mean sea level.

Previous Work

Strychalski and Demarcay (Texas A&M University) recorded the site on 16 April 1987 as a lithic and burned rock scatter with a burned rock mound. Site dimensions were established as 650x250 m along an east-west axis. Deposits were estimated to be less than 50 cm deep. A small, low-profile burned rock mound was identified and designated Feature 1. Four projectile points were collected, and bifacial tools, unifacial tools, cores, and debitage were observed. Road construction had damaged an estimated 40 percent of the site, which helped delimit the area where the mound was located. Erosion and animal activities had disturbed an additional 15 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 6 April 1999. Site boundaries were not altered, but based on differing archeological potentials, the site was subdivided into Subareas A (the area where the burned rock mound was reported) and B (lithic resource procurement area). The map was revised to indicate this subdivision.

Subarea A subsumes the low mound observed in 1987. The mound (as indicated on the 1987 site map) is situated under a dense canopy of scrub oak and juniper just north of a two-track road that stretches the length of the site. Dense leaf litter limited visibility. Some topographic relief was observed in this area in 1999, and thin scatters of burned rock were observed in small clearings where visibility was better. Because the mound was described as "low profile" and because surface visibility was poor, it was determined that shovel testing was warranted to ascertain the presence and location of the mound.

On 25 June 1999, a crew returned to Subarea A to resurvey and excavate shovel tests in and around the described location of the mound. In all locations, the deposits consisted of less than 10 cm of leaf litter and exfoliated bedrock with small amounts of dark, organic-rich sediment from recent vegetation decay. Because bedrock was encountered almost immediately, no artifacts were recovered from the attempted shovel tests. Thus, the shovel tests were not recorded, only the absence of testable deposits. From these results, it appears that the mound described in 1987 actually represents an accumulation of leaf litter and exfoliated bedrock on top of natural undulations in the bedrock. No cultural materials were collected from Subarea A. Although scattered burned rocks were noted, there is no evidence to indicate that a burned rock mound once existed at this locality.

Subarea B is situated on the upland Manning surface. The deposits consist of a thin mantle of grayish brown and reddish brown clay loam underlain by bedrock. Because no intact deposits were present in Subarea B, shovel testing was not warranted. The cultural materials observed on the surface consist of a thin scatter of lithic debitage and burned rocks. These cultural materials are located in unsealed, secondary deposits with poor integrity, but dense chert cobbles observed on the eastern half of the subarea constitute a lithic resource procurement area. A sample of cherts collected from the outcrop was identified as Fort Hood Yellow. Clearing and erosion account for moderate disturbances across the site. No cultural materials were collected from Subarea B.

Discussion

Site 41BL933 is divided into two subareas. Subarea A is an open campsite that was mistakenly identified as a burned rock mound in 1987. There was no evidence of accumulated cultural deposits, only an extremely deflated

scatter of burned rock underlain by undulating bedrock. Subarea B encompasses a severely denuded upland surface where naturally occurring chert was used as a lithic resource. Although there are cultural materials in both subareas, neither subarea has potential to contain buried archeological components in primary context.

Recommendation

Both Subarea A and Subarea B of 41BL933 have negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41BL934

Site Setting

Site 41BL934 consists of two rockshelters located within training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle and aerial photo sheet 53. Rockshelters A and B are situated high on the Owl Creek valley wall, just below the edge of the Manning surface. Both shelters open onto steep talus slopes. Vegetation includes juniper and Carolina buckthorn. As confirmed in 1999, maximum site dimensions are 60x20 m, or 1,200 m^2. Site elevation is 200 m above mean sea level.

Previous Work

Mesrobian, McReynolds, and Rotunno (Texas A&M University) recorded the site on 16 April 1987. The site was comprised of two large rockshelters only 5 m apart. The western shelter was designated Rockshelter A, and the eastern shelter was labeled Rockshelter B. Potholes dug by looters were visible on the floor and along the talus slope of both shelters and disturbed up to 50 percent of the deposits. Because one pothole was more than 60 cm deep, the depth of deposits in both shelters was estimated to be ca. 1 m thick. Burned rocks, cores, flakes, and unifaces were noted, and cultural materials were visible 20 m down the talus slopes. Ashy sediment also was noted in Rockshelter A. Researchers estimated that erosion, roof fall, and animal activities disturbed another 10 percent of both rockshelters. This site was considered "a prime candidate for excavation. . . before vandals finished it off." Site 41BL934 may be related to an extensively potted burned rock midden site (41BL931) situated at the base of the slope to the north.

Work Performed

On 17 June 1999, Mehalchick (Prewitt and Associates) assessed and formally tested the site for National Register eligibility. Rockshelters A and B were re-located, and the overall site dimensions established in 1987 were found to be accurate. A total of two shovel probes, four shovel tests, and three test units were excavated during the site visit. Kibler (Prewitt and Associates) also conducted a geomorphic assessment of both rockshelters on 9 December 1999.

Excavations at Rockshelter A consisted of one shovel probe, Shovel Test 3, and Test Unit 1. The probe was placed in a 10-cm-deep pothole near the west end of Rockshelter A and close to the back wall. The probe encountered bedrock 10 cm below the base of the pothole or 20 cm below the surrounding ground surface. Shovel Test 3 was situated within the overhang toward the east end of Rockshelter A and excavated to bedrock at 20 cm. Situated primarily under the overhang, Test Unit 1 was placed along the edge of a pothole and about 1 m south of the talus slope. Excluding the northwest corner, bedrock covered most of the unit by 70 cm, and bedrock was fully exposed at the base of Level 8 (70–80 cm).

Excavations in Rockshelter B consist of a shovel probe; Shovel Tests 1, 2 and 4; and Test Units 2 and 3. The probe, placed just within the overhang near the east margin of the shelter, encountered a large roof fall boulder at 15 cm. Shovel Tests 1 and 2 were placed in the shelter interior toward the west end. Closer to the back wall, Shovel Test 1 encountered bedrock at 12 cm, and Shovel Test 2, placed just west of a large pothole, was excavated to 20 cm. Shovel Test 4 was wedged between large roof fall boulders, along the edge of the overhang and the talus margin. Bedrock, gradually sloping from south to north, was encountered at 55–60 cm. In the east end of the shelter, Test Unit 2 was placed by the east edge of a pothole where darkened matrix was visible. Bedrock occurred at a maximum depth of 39 cm in the northwest corner of Test

Unit 2. Test Unit 3 was placed next to and subsumed Shovel Test 2. It was excavated to 80 cm, where bedrock was encountered.

Rockshelter A

EXTENT AND DEPTH

Rockshelter A is the westernmost of the two shelters and has maximum dimensions of 26x4.5x2.2 m (Figure 3.23). Excavations indicate that the central portion of Rockshelter A contains deposits up to 80 cm thick just inside the overhang. In contrast, the back and extremities of the rockshelter contain deposits no deeper than 20 cm. Shallow potholes on the shelter's floor and potholes up to 40 cm deep along the talus edge expose debitage and burned rocks. A fallen juniper on the talus edge also has churned up dense lithic artifacts. About 2.5 m east of this tree, a chert vein—from which a sample was collected—is embedded in the exposed limestone. A fine grained gray chert, this resource also is exposed just downslope from the rockshelter. Two potholes noted in 1987 revealed ashy sediment, and a similar fill was encountered in the 1999 excavations. Looting and erosion have disturbed an estimated 50 percent of the deposits in Rockshelter A, but bioturbation is minimal inside the shelter.

SEDIMENTS AND STRATIGRAPHY

The sedimentary fill in Shelter A was examined in the profile of Test Unit 1. The 60-cm-thick profile revealed a black (10YR 2/1) silty clay loam that contained 50 percent angular limestone rock fragments. This fill rests on broken limestone bedrock, has been subjected to some degree of bioturbation, and thins toward the back of the shelter. This fill is typical of Abbott's (1995b:Table 9.5) Type 3 fill, largely derived from the internal weathering of the ceiling and walls of the shelters, and is late Holocene.

CULTURAL MATERIALS

Test Unit 1 produced 1,128 flakes, 3 early- to middle-stage bifaces, 2 late-stage to finished bifaces, 2 perforators, 1 spokeshave, 1 edge-modified flake, 3 unmodified bones, 47 burned rocks (1.25 kg), and charcoal samples. Artifacts were recovered from each level (Table 3.14). Of the 1,137 artifacts, 552 (48.5 percent) were found at 30–50 cm. Most levels also contained large pieces of roof fall. There were two small burned rocks, 1 biface, and 86 flakes present at 50–60 cm, and bedrock was encountered in the southeast corner at 57 cm. Level 7 (60–70 cm) yielded only 3 flakes. No cultural materials occurred at 70–80 cm. The faunal assemblage from all levels includes 3 unburned fragments, all of which exhibit spiral fracturing and acid-etching. Two fragments are from mammals and the third is from an unidentifiable vertebrate (see Appendix C). Charcoal collected at 40–50 cm yielded radiocarbon ages 1950 ± 50 B.P. (Beta-136824, see Appendix A).

DISCUSSION

The results of testing in Rockshelter A demonstrate that the shelter retains as much as 80 cm of its internally derived intact deposits and also contains dense cultural materials. Noticeable peaks in artifact density of various depths indicate the possibility of well-stratified archeological deposits. No diagnostic artifacts were recovered to indicate temporal placement of the occupations. Charcoal from 40 to 50 cm, however, yielded a calibrated radiocarbon date of A.D. 5–95 (1 sigma). Looters have damaged portions of Rockshelter A, but the damage is fairly limited and shallow, barely reaching the depths of the densest cultural deposits. Over all, Rockshelter A at 41BL934 retains a high degree of integrity and contains substantial intact deposits with considerable research potential.

Rockshelter B

EXTENT AND DEPTH

Five meters east of Rockshelter A, Rockshelter B has maximum dimensions of 21.5x5x2.15 m (Figure 3.24). As with Rockshelter A, looting damage in Rockshelter B consists of potholes along the talus edge and shallow potholes within the overhang. Debitage was noted in these disturbed areas. In the shelter's interior, large pieces of roof fall, not depicted on the 1987 map, are present. Based on the absence of surface weathering of the ceiling above some of these pieces, it appears

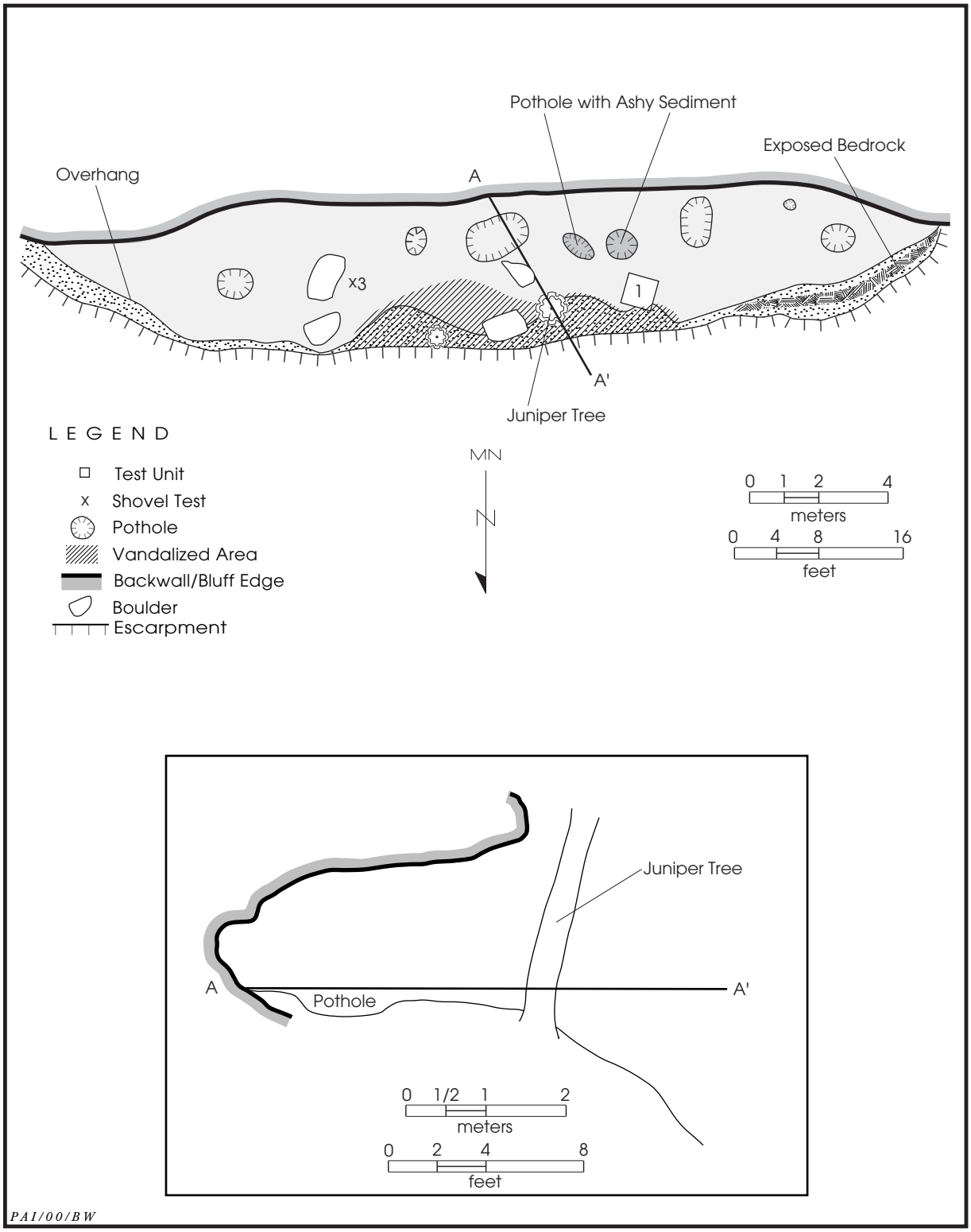

Figure 3.23. Plan and profile of Rockshelter A, 41BL934 (plan modified from 1987 site map by Texas A&M University).

Table 3.14. Summary of cultural materials from Rockshelter A, 41BL934

Provenience	Early- to middle-stage bifaces	Late-stage to finished bifaces	Perforators	Spokeshave	Edge-modified flake	Unmodified debitage	Total stone artifacts	Unmodified bones
SHOVEL TEST 3								
Level 1 (0–20 cm)	–	–	–	–	–	4	4	–
TEST UNIT 1								
Level 1 (0–10 cm)	–	–	1	–	–	101	102	–
Level 2 (10–20 cm)	–	–	1	–	–	206	207	2
Level 3 (20–30 cm)	–	–	–	1	1	184	186	1
Level 4 (30–40 cm)	2	1	–	–	–	277	280	–
Level 5 (40–50 cm)	–	1	–	–	–	271	272	–
Level 6 (50–60 cm)	1	–	–	–	–	86	87	–
Level 7 (60–70 cm)	–	–	–	–	–	3	3	–
Subtotal	3	2	2	1	1	1,128	1,137	3
Total	3	2	2	1	1	1,132	1,141	3

that they are recent spalls. Rockshelter B generally is shallower than Rockshelter A. Testing indicates maximum sediment of 60 cm, concentrated along the talus edge. Looting and erosion have disturbed an estimated 40 percent of the deposits in Rockshelter B.

SEDIMENTS AND STRATIGRAPHY

The fill of Shelter B was examined in Test Unit 3. The 32-cm-thick profile consists of a black (10YR 2/1) silty clay loam with 25 percent angular limestone rock fragments. This fill rests on broken limestone bedrock and thins to the back of the shelter. It is typical of Abbott's (1995b: Table 9.5) Type 3 fill, largely derived from the internal weathering of the ceilings and walls of the shelters, and late Holocene.

CULTURAL MATERIALS

Cultural materials encountered in Rockshelter B include 1 Scallorn arrow point, 1 untypeable dart point, 3 late-stage to finished bifaces, 4 edge-modified flakes, 437 unmodified flakes, and 34 burned rocks (Table 3.15). The majority of these materials were encountered in Test Unit 3.

Shovel Test 1 produced 31 flakes at 0–12 cm. Shovel Test 2 contained 15 flakes and 3 burned rocks at 0–20 cm. The upper 10 cm of this deposit may be looter's backdirt, but burned rocks encountered at 20 cm, where the excavation was terminated, may be intact. Shovel Test 4 yielded a total of 43 flakes from 0 to 60 cm.

In Test Unit 2, 12 flakes were recovered at 0–10 cm. At 10–20 cm, artifact counts peaked at 41 flakes, 1 edge-modified flake, and 10 burned rocks (1 kg). Two charcoal samples also were collected. Level 3 (20–30 cm) yielded one flake and one burned rock. There were eight flakes present at 30–39 cm. One flotation sample was collected from a sediment stain at 20–28 cm, but only tiny, unidentifiable flecks of charred material were recovered (see Appendix D).

Test Unit 3 produced 12 flakes, 1 edge-modified flake, and 3 small burned rocks at 0–10 cm, but this matrix may be spoil from looting. In Level 2, two fills were excavated and screened separately. The lighter sediment at 10–20 cm yielded 12 burned rocks (0.5 kg), 1 biface fragment, 1 edge-modified flake, and 39 flakes. At 16–20 cm, the darker fill contained charcoal flecking, 1 biface, 1 edge-modified flake, and 48 flakes. A provenienced charcoal sample was collected at 15 cm near the contact of the two matrices. A Scallorn arrow point, an untypeable dart point, a late-stage to finished biface, 161 flakes, 5 burned rocks (0.25 kg), and two charcoal samples were recovered at 20–30 cm. The charcoal

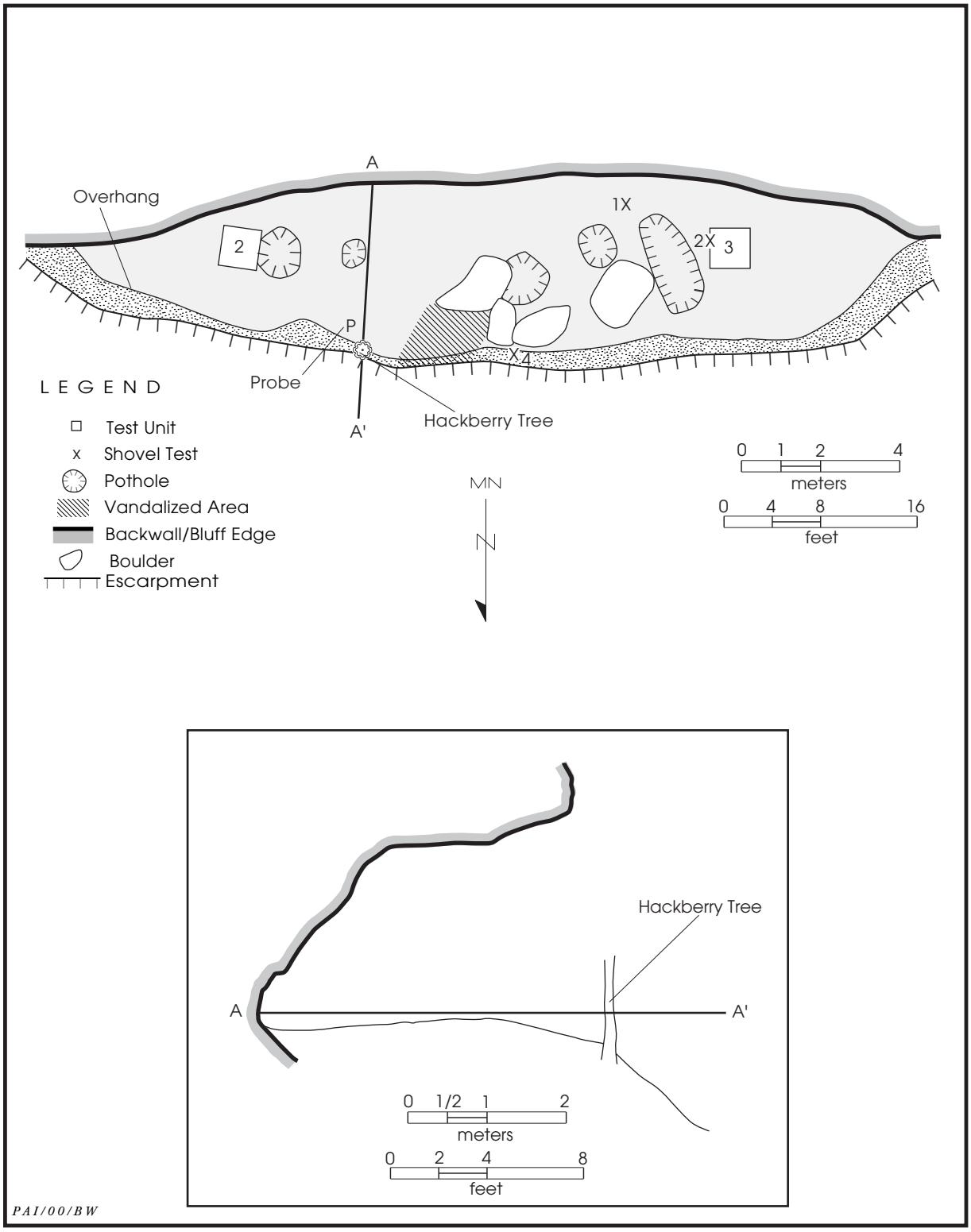

Figure 3.24. Plan and profile of Rockshelter B, 41BL934 (plan modified from 1987 site map by Texas A&M University).

Table 3.15. Summary of cultural materials from Rockshelter B, 41BL934

Provenience	Arrow point	Dart point	Late-stage to finished bifaces	Edge-modified flakes	Unmodified debitage	Total
SHOVEL TEST 1						
Level 1 (0–12 cm)	–	–	–	–	31	31
SHOVEL TEST 2						
Level 1 (0–20 cm)	–	–	–	–	15	15
SHOVEL TEST 4						
Level 1 (0–20 cm)	–	–	–	–	34	34
Level 2 (20–40 cm)	–	–	–	–	13	13
Level 3 (40–60 cm)	–	–	–	–	2	2
Subtotal	0	0	0	0	49	49
TEST UNIT 2						
Level 1 (0–10 cm)	–	–	–	–	12	12
Level 2 (10–20 cm)	–	–	–	1	41	42
Level 3 (20–30 cm)	–	–	–	–	1	1
Level 4 (30–39 cm)	–	–	–	–	8	8
Subtotal	0	0	0	1	62	63
TEST UNIT 3						
Level 1 (0–10 cm)	–	–	–	1	12	13
Level 2, light fill (10–20 cm)	–	–	1	1	39	41
Level 2, dark fill (16–20 0cm)	–	–	1	1	48	50
Level 3 (20–30 cm)	1	1	1	–	161	164
Level 4 (30–47 cm)	–	–	–	–	20	20
Subtotal	1	1	3	3	280	288
Total	1	1	3	4	437	446

sample at 28 cm yielded a conventional radiocarbon age of 280 ± 60 B.P. (Beta-136825, see Appendix A). Twenty pieces of debitage were found at 30–47 cm. Bedrock dipped from south (37 cm) to north (47 cm) across the unit, and the excavation was terminated.

DISCUSSION

Rockshelter B has generally thinner deposits, so looting has caused more damage compared with Rockshelter A. The talus edge deposits have been particularly compromised, both by looting and bioturbation. Within the shelter, the top 10–15 cm of deposit is mostly backdirt from potholes dug on the talus edge. A radiocarbon sample yielded a calibrated date of A.D. 1515–1660 (1 sigma). This date reflects occupation near the end of the Late Prehistoric period, and a Scallorn arrow point and an untyped dart point recovered in the same unit at about the same elevation suggest earlier occupations. Though it is possible that more recent occupants used earlier artifacts, it is more likely that the site was occupied during much of the Late Prehistoric. Though deposits are generally less than 50 cm, they contain a high concentration of cultural materials. Rockshelter B's proximity to and potential associations with the deeper stratified deposits in Rockshelter A increase its research potential.

Recommendations

The investigations in Rockshelters A and B at 41BL934 reveal the presence of significant cultural deposits that are recommended as eligible for National Register listing. Accordingly, 41BL934 should be preserved and protected from damage. If protection is not possible, then mitigation through archeological data recovery should be considered.

41BL935

Site Setting

Site 41BL935 is a heavily looted burned rock midden located in training area 3. It is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. The site is situated along the toeslope and on a confined T_0 surface north of a small tributary within the Owl Creek watershed. The site surface gently slopes from the toeslope of the valley across the T_0 surface to the channel. The T_0 surface is ca. 1 m above the channel. As confirmed in 1999, maximum site dimensions are 90x30 m, or 2,700 m^2. Site elevation is 205 m above mean sea level.

Previous Work

On 16 April 1987, Rotunno (Texas A&M University) recorded this site as a burned rock midden with an associated lithic scatter. Site dimensions were established as 90x30 m, which included the midden and a portion of the toeslope where large quantities of natural chert were observed. High densities of debitage and mussel shells were noted, particularly in exposures caused by looting. One projectile point (type not identified) and one biface were collected. The midden was described as heavily looted, with 60 percent of the deposits damaged. The looters had left a 1/4-inch screen on site. Minor erosion was the only other disturbance noted.

Work Performed

On 7 April 1999, Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site. The site map produced in 1987 was found to be accurate, and the site size was not altered. The midden was designated as Feature 1. The looting activity and the 1/4-inch screen were re-located, and 3 shovel tests were excavated in the midden to assess damages and determine whether intact deposits existed.

Shovel Test 1 was placed on the northeastern section of Feature 1, on the upslope edge of the midden deposits. It was excavated to a depth of 95 cm, where dense channel gravel was encountered. Feature 1 was encountered in Shovel Test 1 from 0 to 60 cm, but the top 20 cm were likely disturbed.

Shovel Test 2 was placed on the southwestern section of Feature 1, above an exposure caused by looting. It was excavated to a depth of 80 cm before encountering channel gravel. Feature 1 extended from 0 to 46 cm in Shovel Test 2.

Shovel Test 3 was placed about 25 m north of the tributary on the toeslope above the exposed portions of Feature 1. It was excavated to bedrock at a depth of 50 cm, but no evidence of midden deposits was encountered.

Sediments and Stratigraphy

Deposits associated with the T_0 of the unnamed tributary were examined along the cutbank and consist of a mixture of dark loamy and gravelly alluvium and colluvium. An A-C soil profile is imprinted on these late Holocene deposits.

Cultural Materials

From 3 shovel tests, 483 lithic artifacts were recovered (Table 3.16). Of these, 467 (96.7 percent) were unmodified debitage. Bifaces (n = 9, 56.3 percent) heavily dominated the lithic tools. Two Darl dart points were recovered, one of which exhibited alternate beveling and a ground base.

More than 250 burned rocks were observed during excavation, with the highest frequency occurring in Shovel Test 2. About 50 percent of the burned rocks were limestone, and the other 50 percent were chert. They tended to be angular pieces less than 15 cm.

The faunal assemblage is composed of 11 bone fragments, 10 of which are identified as Mammalia and 1 as Vertebrata (see Appendix C). All of the specimens exhibited light weathering, angular breaks, and burning. Three mussel shells were recovered, all from Level 2 in Shovel Test 2. Identified species were *Amblema plicata* (1 nearly complete left valve and 1 umbo fragment) and *Lampsilis teres* (1 umbo fragment).

Cultural Features

Site 41BL935 consists of Feature 1, a burned rock midden. It is bounded on the south by a tributary and on the north by a steep toeslope. Based on exposures and shovel testing, the feature has minimum dimensions of 25 m east-

Table 3.16. Summary of artifacts recovered from 41BL935

Provenience	Dart points	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous biface	Graver-Burin	Edge-modified flakes	Unmodified debitage	Total stone artifacts	Unmodified bones	Unmodified mussel shells
SHOVEL TEST 1										
Feature 1 (0–60 cm)	–	–	1	–	1	–	61	63	6	–
Nonfeature (60–80 cm)	–	–	1	–	–	–	4	5	–	–
Subtotal	0	0	2	0	1	0	65	68	6	0
SHOVEL TEST 2									5	3
Feature 1 (0–60 cm)	2	1	3	1	–	4	358	369	5	3
Nonfeature (60–80 cm)	–	–	1	–	–	–	37	38	–	–
Subtotal	2	1	4	1	0	4	395	407	5	3
SHOVEL TEST 3	–	1	–	–	–	–	7	8	–	–
Total	2	2	6	1	1	4	467	483	11	3

west and 15 m north-south, but the T_0 terrace extends a few meters to the east and west of the exposed midden deposits, and the feature may continue along the tributary. Minimum depth of the midden is 45 cm based on the results of Shovel Test 2 and adjacent exposures, and Shovel Test 1 indicates that the feature is at least as thick as 60 cm in some places. The dark, organic feature fill contains moderate quantities of burned rocks and mussel shells, as well as dense amounts of lithic artifacts. Cutbank erosion has caused some disturbance to Feature 1, but most of the damage comes from extensive looting, has devastated significant portions of the midden along the cutbank exposure. It is estimated that as much as 60 percent of the midden deposits have been destroyed.

Discussion

Site 41BL935 represents a small but discrete burned rock midden deposit with significant quantities of cultural materials. The midden is buried in a T_0 of an unnamed tributary to Owl Creek. Two Darl dart points were recovered, and the feature is late Holocene. Though no recent looting was observed in 1999, the looting that had already taken place before 1987 has disturbed more than 60 percent of the site. Nevertheless, shovel testing indicates that portions of the midden deposits are still intact and probably have a high research potential.

Recommendation

Subarea A at 41BL935 contains potentially intact cultural deposits of unknown significance that may be eligible for National Register listing. Damage to this site should be avoided, but if avoidance is not possible, formal testing is recommended to determine eligibility. Minimum testing should include as much as 3 m^2 of hand excavation.

41BL936

Site Setting

Site 41BL936 is a lithic scatter located in training area 3. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 53. It is approximately 700 m south of Owl Creek and 550 m west of Belton Reservoir on a slope of the high upland Manning surface at the confluence of two tributaries. A spring feeds one drainage, and one or more chert sources exist nearby. Ground cover is composed of dense juniper, scattered oaks, and sparse understory. As confirmed in 1999, maximum site dimensions are 120x90 m, or 10,800 m^2. Site elevation is 205 m above sea level.

Previous Work

On 21 April 1987, Dureka and McReynolds (Texas A&M University) recorded this site as a

lithic scatter extending 120x90 m along a north-south axis. Researchers observed bifacial and unifacial tools, debitage, and a core. Mussel shells were observed and a light scatter of burned rocks also was noted. A dart point (identified as a Morrill) and a biface were collected. The site was described as Early to Middle Archaic in age. The depth of deposits was estimated to be less than 30 cm. Erosion and military activity had damaged approximately 12 percent of the site.

Work Performed

Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site on 30 May 1999. Site boundaries were not altered in 1999, and no new site map was made. Because no intact deposits were present, shovel testing was not warranted.

Discussion

The soil consists of a discontinuous thin, gravely mantle of Holocene deposition. Bedrock is exposed across approximately 50 percent of the surface. Lithic tools and debitage are exposed in some areas, and occasional burned rocks were noted on the surface. These cultural materials were observed in a secondary context with poor integrity. No features or buried deposits were observed, and no cultural materials were recovered from this site. Erosion is the primary source of disturbance at 41BL936. Although there are cultural materials present, the site has no potential to contain stratified cultural deposits in a primary context.

Recommendations

Site 41BL936 has negligible potential for containing stratigraphically discrete cultural deposits. Therefore, the site is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41CV92

Site Setting

Site 41CV92 is located in training area 71. The site is plotted on the North Fort Hood 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 15. This lithic resource procurement area is situated on a deflated Pleistocene terrace 200 m south of the Leon River, near the confluence of Henson Creek and the Leon River. As confirmed in 1999, maximum site dimensions are 300x200 m, or 60,000 m^2. Site elevation is 219 m above mean sea level.

Previous Work

On 6 April 1976, Thomas (Fort Hood Archeological Society) recorded this locality as an occupation site extending 300x200 m along a limestone bluff above the Leon River. Observed cultural materials included dense lithics, an ovoid biface, and a dart point base identified as a Wells. Midden deposits also were observed. The site was described as deflated but still in good condition.

On 23 January 1977, Thomas and a party from the Fort Hood Archeological Society revisited the site. An incised potsherd was reported to have been found in the vicinity of 41CV92, and the visit was an attempt to ascertain where the potsherd may have been found. It was determined that the sherd had not come from 41CV92 but was found ca. 2 km to the northwest (Thomas 1978:208, Figure 17).

On 25 November 1987, Callum and Pry (Texas A&M University) visited the site to monitor its condition, which was reported as good. Many retouched flakes and blades were observed, but no artifacts were collected. Vehicle traffic, vegetation clearing, and an historic residence on site accounted for disturbances to an estimated 35 percent of the site.

On 5 March 1990, Kleinbach (Texas A&M University) recorded the site as a lithic scatter and resource procurement area. Lithic artifacts observed included unifaces, bifaces, cores, hammerstones, and two drill bases. Mussel shells also were noted, and a ground stone quartzite cobble was collected. At that time, vandalism, military activity, and erosion disturbed an estimated 50 percent of the site.

Work Performed

Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site on 9 April 1999.

Site boundaries were not altered, but the midden deposits observed in 1976 were not re-located. A sample of the on-site chert resource was collected. Because there were no intact deposits present, shovel testing was not warranted.

Discussion

Gully erosion has exposed deposits of reddish brown clay loam less than 20 cm thick underlain by bedrock. Caliche, chert nodules, fossilized oyster shells, and weathered bedrock are exposed across the site area. A light scatter of debitage and tools was observed across the surface of the site, with localized moderate concentrations. Quartzite hammerstones and occasional burned rocks also were noted. No features or buried deposits were observed. Abundant chert cobbles were observed on and around the site. A sample of naturally occurring cherts was collected, and all specimens were identified as Fort Hood Yellow. There is heavy vehicle disturbance on the site, which appears to be the location of regular military activities. Slopewash and sheet erosion, accelerated by vehicle traffic, continue to cause moderately heavy disturbance across the site. Although there are cultural materials present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendations

Site 41CV92 has negligible potential for containing stratigraphically discrete cultural deposits. This lithic resource procurement area therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41CV580

Site Setting

Site 41CV580 is within training area 70. The site is plotted on the Gatesville East 7.5 minute quadrangle at UTM zone 14 and is located on aerial photo sheet 5. It is situated on a terrace 25 m south of the Leon River and about 1.2 km southeast of the Pleasant Grove cemetery. As redefined in 1999, maximum site dimensions are 35x45 m, or 2,250 m^2. Site elevation is 216 m above mean sea level.

Previous Work

On 2 May 1983, the site was recorded and assessed, and an unnamed person from Texas A&M University produced a map. At that time, looters had disturbed the site to an unrecorded extent.

On 7 December 1987, Mesrobian and Callum (Texas A&M University) revisited the site to monitor its condition. Site size was established as 190x75 m along an east-west axis. The site boundary was confined to an area where looting and road construction exposed buried cultural materials. Mussel shells, flakes, and burned rocks were noted in looter's backdirt piles. Looting, erosion, and machine activities had damaged an estimated 70 percent of the site.

A crew from Texas A&M University revisited the site on 8 February 1990. It was described as an open campsite, and observed cultural materials included burned rocks, mussel shells, and a dense scatter of lithics. A uniface, core, and fragment of ground stone were noted specifically. Site dimensions were restricted to 45x50 m on an east-west axis. At this time, looting and road construction had disturbed an estimated 60 percent of the site.

Work Performed

On 30 March 1999, Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site. Based on differing geomorphic contexts and archeological potentials, the previous site boundaries were modified, and the site was divided into Subareas A (terrace) and B (toeslope). The site map was revised to record these changes and plot the location of shovel tests (Figure 3.25). Because both subareas had potential for intact cultural deposits, one shovel test was excavated in each subarea.

Shovel Test 1 was placed in Subarea B immediately south of a looter's hole disturbance and excavated to a depth of 80 cm. Shovel Test 2 was placed in Subarea A about 5 m north of the road that bisects the site and excavated to a total of 80 cm. A snail shell was noted at 20–40 cm, but no cultural materials were recovered.

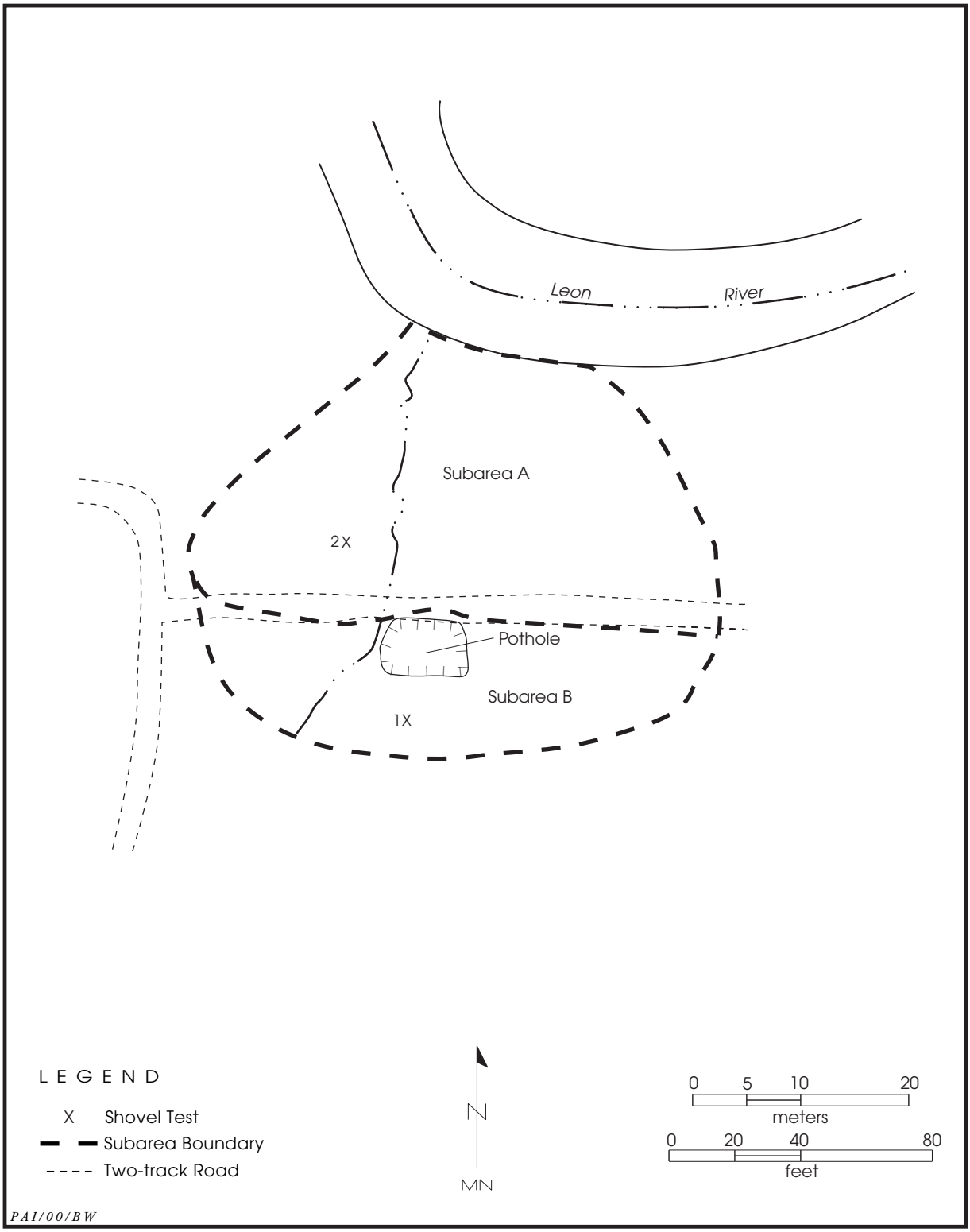

Figure 3.25. Site map of 41CV580 (modified from 1990 site map by Texas A&M University).

Subarea A

DISCUSSION

Subarea A represents the T_0 terrace of the Leon River. The surface of this terrace is 5–6 m above the channel. It is relatively narrow (<25 m wide) where it butts up against the valley wall but widens to more than 80 m to the west of the site. The terrace edge is slightly beveled and is obscured by vegetation in the site area. A better exposure of this fill, available in the cutbank downstream from the site, exposes two distinct fills separated by a buried soil. The two fills appear to represent the West Range overlain by the Ford alluvial units of Nordt (1992) and are separated by the Leon River paleosol (Mehalchick et al. 1999). The Ford alluvium is ca. 1 m thick.

No cultural materials were observed on the surface, but unmodified quartzite cobbles were noted. Because of the depth of Holocene deposits, the one negative shovel test is not considered conclusive, and the potential for buried intact archeological remains is high for Subarea A. This is particularly true because there is Leon River paleosol present because in nearby localities it often contains archeological remains. To the south, a roadcut disturbs the subarea, and to the north, erosion associated with Leon River. Other erosion and gullying continue to affect the subarea. Subarea A was not assigned to a site type because no cultural evidence was encountered, though if there are buried remains present, they would be classed as an open campsite.

Subarea B

CULTURAL MATERIALS

A biface, 10 unmodified flakes, 14 burned rocks, mussel shells, and *Rabdotus* were encountered in Shovel Test 1. These materials were evenly distributed through the depth of the 80-cm shovel test. The mussel shell assemblage includes 1 umbo (*Tritogonia verrucosa*), 1 cardinal tooth fragment (unidentifiable), and 1 nearly complete right valve (*Amblema plicata*) that is modified with a drill hole.

DISCUSSION

Subarea B is an open campsite encompassing a small land form at the toe of the valley wall that makes up the southern 40 percent of the total site area. The subarea contains a high concentration of cultural materials. A cross-cutting gully provides exposures of the toeslope deposits, which consist of a thin (ca. 80 cm thick) mantle of dark loamy sediments overlying clay or limestone. An A-C soil profile is imprinted on these sediments. The toeslope deposits are spatially limited (50x12 m) and in some areas are severely damaged by looting.

Looting has disturbed about 10 m^2 of Subarea B to a maximum depth of 70 cm, and a roadcut truncates the subarea on the north. Cultural materials exposed by these disturbances include mussel shells, unifaces, debitage, and burned rocks. The results of Shovel Test 1 indicate that an unknown but potentially significant quantity of subsurface cultural deposits remain intact, but the extent of the damage done by looting and the nature and significance of the deposits that remain intact remains unknown.

Recommendation

Subarea A at 41CV580 has the potential to contain buried cultural deposits of unknown significance that may be eligible for NRHP listing. It should be avoided, but if avoidance is not possible then formal testing is recommended to determine eligibility. A minimum testing effort for Subarea A should include 4 m^2 of hand excavation and 2 backhoe trenches.

Subarea B at 41CV580 contains buried cultural deposits damaged to an unknown extent by looting and road construction. These cultural deposits may be eligible for National Register listing. Damage should be avoided, but if avoidance is not possible, then formal testing is recommended to determine eligibility. Minimum testing for Subarea B should include 4 m^2 of hand excavation.

41CV1415

Site Setting

Site 41CV1415 is within training area 45. It is plotted on the Shell Mountains 7.5 minute quadrangle at UTM zone 14 and is located on aerial photo sheet 17. This Paluxy

site is situated along the upper valley wall of an unnamed tributary of Cowhouse Creek, 280 m due east of the intersection of FM 116 and Shell Mountain road. A 2–3-m-high escarpment that forms the edge of the higher Killeen surface marks the eastern boundary of the site. The western margin of the site is marked by the surfacial exposure of the Glen Rose limestone downslope. As confirmed in 1999, maximum site dimensions are 120x70 m, or 8,400 m^2. Site elevation is 275 m above mean sea level.

Previous Work

On 16 February 1987, Dureka and McReynolds (Texas A&M University) recorded the site as a burned rock scatter extending 120x70 m on a northeast-southwest axis. Lithic artifacts observed included bifacial and unifacial tools, flakes, and dart point fragments. One dart point was collected but not identified. A moderate quantity of burned rocks was also noted. Erosion had damaged an estimated 35 percent of the site, and tracked and wheeled vehicles, another 30 percent.

Work Performed

On 29 March 1999, Mehalchick, Kibler, and Killian (Prewitt and Associates) assessed the site. Its boundaries were not changed, but the site map was revised to include areas of vegetation clearing, gullies, and shovel test locations (Figure 3.26). A burned rock concentration observed on the surface was designated Feature 1. Because there was potential for buried cultural deposits, eight shovel tests were excavated on 29 March 1999 and 9 April 1999.

Cultural Materials

One flake and 49 burned rocks were recovered from three of the eight shovel tests excavated at 41CV1415. Shovel Test 1 produced a total of 2 burned rocks at 0–20 cm. Shovel Test 6 contained the only flake recovered from shovel testing at 60–80 cm. Shovel Test 5 was placed in the central portion of Feature 1 and contained 34 burned rocks at 0–20 cm, 8 burned rocks and charcoal at 20–40 cm, and 5 burned rocks at 40–60 cm.

Cultural Features

Feature 1 is situated near the edge of a juniper push pile in the west central portion of the site. It consists of a concentration of small angular burned rocks exposed over a 5x5-m area. Shovel Test 5 indicates that the depth of the feature is approximately 30 cm. Excavations and observations were not sufficient to determine the exact nature of the feature, which can be described only generically as a burned rock concentration.

Discussion

The Paluxy Formation, which crops out as a thin band of sandy sediment along the upper valley margins throughout much of the upper Cowhouse Creek drainage basin, underlies 41CV1415. Late Quaternary reworked (i.e., slopewash) sandy sediments mantle the site. Exposures of this sandy mantle were observed in several gullies that cross the site. Soil profiles consisted of presumably late Holocene dark sandy loam A horizons over brown sandy loam Bw horizons; this soil is typically less than 40 cm thick, but in some places is up to 80 cm thick. An abrupt, wavy boundary separates this late Holocene soil from a late Pleistocene truncated soil consisting of a reddish brown sandy clay loam 2Bt horizon.

Although Paluxy was not defined as a site type when 41CV1415 was initially recorded, this locality is now recognized as a Paluxy site, essentially an open campsite in sediments derived from in situ weathering of the Paluxy Formation. It contains intact buried cultural deposits of unknown extent and significance. In addition to the burned rock concentration (Feature 1), a light scatter of burned rocks and debitage was observed across the surface of the site. Shovel testing indicates that there were cultural materials present to minimum depths of 60–80 cm.

Two dirt roads across the site caused light, localized damage. Vegetation clearing and brush piling have caused minimal damage to about 30 percent of the site (to a depth of 20–25 cm). Several gullies also cross the site from northwest to southeast, causing locally heavy erosion up to 60 cm in depth. Though some disturbance is evident, much of the site appears intact.

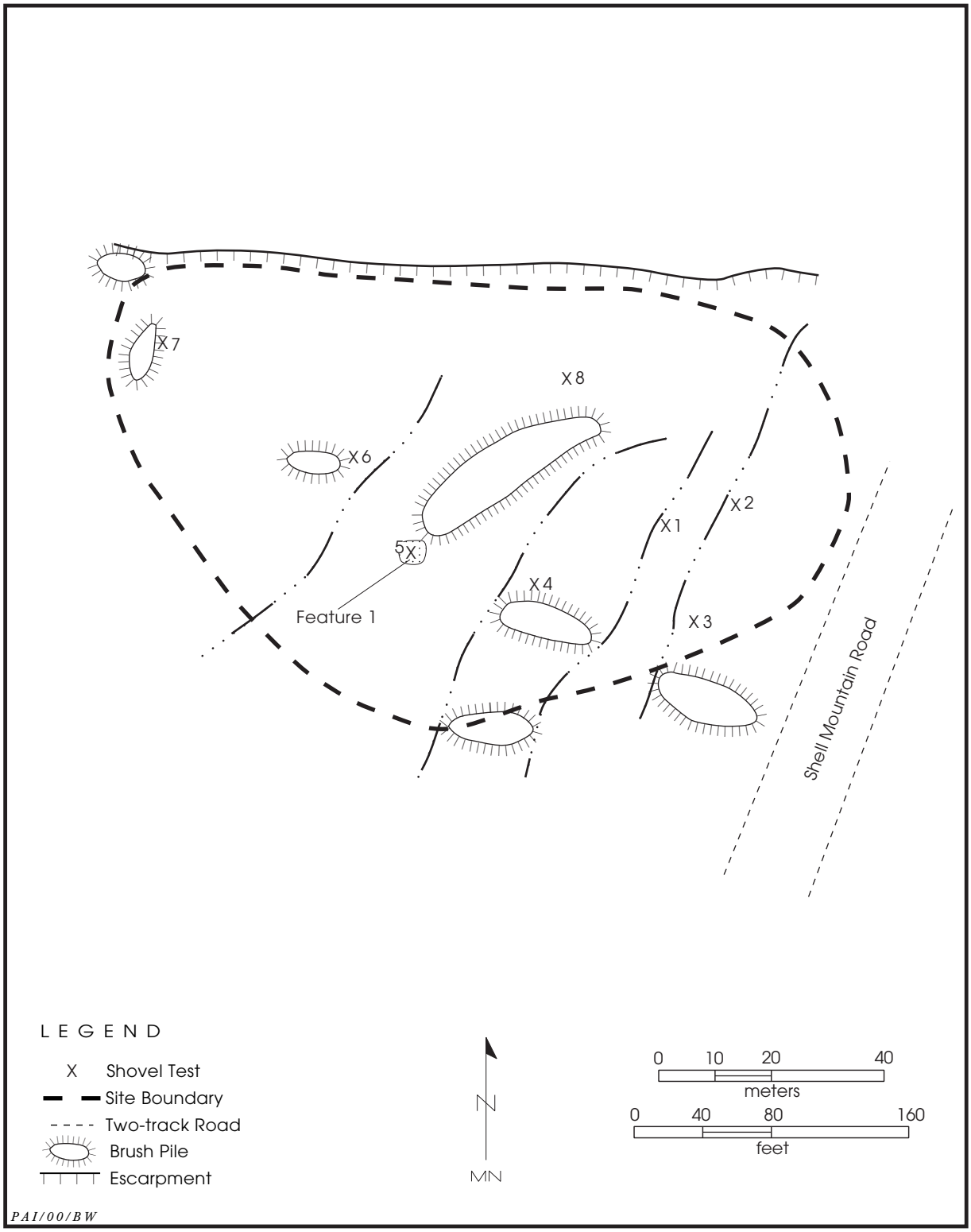

Figure 3.26. Site map of 41CV1415 (modified from 1987 site map by Texas A&M University).

Recommendation

No cultural deposits are known to exist at 41CV1415, but formal testing is required to determine if buried archeological deposits exist and if they are eligible for listing in the National Register. Minimum testing should include 8 m^2 of hand excavation and 3 backhoe trenches.

41CV1533

Site Setting

Site 41CV1533 is a lithic scatter located in training area 1. The site is plotted on the Bland 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 43 and 44. The site is located on an upland Manning surface in a dense scrub oak and juniper woodland approximately 1,550 m north of Owl Creek. As confirmed in 1999, maximum site dimensions are 172x84 m, or 14,448 m^2. Site elevation is approximately 247 m above mean sea level.

Previous Work

On 23 March 1990, Brown, Kleinbach, Sanchez, Sandefur, and Vandersteen (Texas A&M University) recorded this site as a lithic scatter extending 172x84 m on a northwest-southeast axis. The deposits were described as thin and deflated. Researchers observed unifacial and bifacial tools, debitage, a core fragment, and a quartzite hammerstone fragment. One dart point base, described as a Wells, was collected. Sheetwash erosion and military activity had damaged 50 percent of the site.

Work Performed

Mehalchick and Killian (Prewitt and Associates) assessed the site on 18 June 1999. Site dimensions were not altered. The 1990 site map was found to be accurate, and no new site map was made. Because no intact deposits were present, shovel testing was not warranted.

Discussion

Deposition consists of thin residual soils underlain by bedrock. Bedrock is exposed discontinuously over most of the site, and the deposits are severely deflated. Cultural materials noted on the surface consisted of a generally diffuse scatter of lithic debitage. These materials were observed in a secondary context with poor integrity. No features or buried deposits were observed and no cultural materials were recovered. The site is approximately 50 percent disturbed by extensive sheet erosion and roads quartering the site. Although cultural materials are present, the site has no potential to contain stratified cultural deposits in primary context.

Recommendation

Site 41CV1533 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

41CV1540

Site Setting

Site 41CV1540 is an open campsite located in training area 1. The site is plotted on the Leon Junction 7.5 minute topographic quadrangle at UTM zone 14 and located on aerial photo sheet 44. It is located on a bench of the upland Manning surface approximately 240 m from Preachers Creek. Ground cover consists of scattered grasses and junipers. Maximum site dimensions as confirmed in 1999 are 150x100 m, or 15,000 m^2. Site elevation is approximately 224 m above sea level.

Previous Work

On 30 March 1990, Brown, Kleinbach, Sanchez, Sandefur, Cargill, and Vandersteen (Texas A&M University) recorded this small site as a dense lithic scatter with sparse burned rocks (Carlson et al. 1994:95–96). Observed lithic artifacts included cores, debitage, bifacial and unifacial tools, and scrapers. One corner-tanged knife, three dart points, and six arrow points were collected. five knapping stations were identified and described as tight clusters of debitage composed of similar chert types. Two shovel tests also were excavated. One

encountered bedrock at 10 cm, and the other, at 18 cm. Debitage and two pieces of burned rock were recovered from these tests. Site dimensions were established as 150x100 m along an east-west axis. An estimated 40 percent of the site's surface was affected by erosion.

In addition to normal testing and assessment, Carlson et al. (1994:27–33) conducted a detailed analysis of knapping station C, one of the five discrete concentrations of lithic debris recorded in the light procurement portion of 41CV1540. This study concluded that two different chert types were reduced at the location, probably in bifacial reduction episodes that occurred at different times.

Work Performed

Mehalchick (Prewitt and Associates) assessed the site on 18 June 1999. The site boundaries were not altered, and no new site map was made. Because no intact deposits were observed, shovel testing was not warranted.

Discussion

The cultural materials observed on the surface consisted of a thin scatter of lithic tools, debitage, and burned rock. Though no diagnostic artifacts were observed in 1999, the diagnostics collected in 1990 indicate mixed Archaic and Late Prehistoric occupations. Though cultural materials were evident, the dense concentrations of lithic artifacts described in 1990 were no longer observable, suggesting that materials observed in 1990 had been redeposited and have since been dispersed by further erosion. No features or buried deposits were observed, and no cultural materials were collected in 1999. Extensive sheet erosion has damaged more than 50 percent of the site's surface. Although there are cultural materials, the site has no potential to contain stratified cultural deposits in primary context.

Recommendations

Site 41CV1540 has negligible potential for containing stratigraphically discrete cultural deposits. The site therefore is considered to have limited research potential and is recommended as not eligible for listing in the National Register. No further management is recommended.

CULTURAL MATERIALS RECOVERED

Cultural materials recovered from these sites were analyzed using methods employed for the other formally tested sites in this report (see Chapter 6). Twenty-five (92.6 percent) of the 27 investigated sites or subareas produced a total of 8,157 chipped stone artifacts, 1 hammerstone, 426 unmodified bones, 2 modified bone artifacts, 45 unmodified mussel shells, and 1 modified mussel shell (Table 3.17). Other cultural materials consisted of a limestone mano fragment (not collected, from a disturbed area), burned rocks (counted but not weighed or collected), charred macroplant remains (collected as special samples), and *Rabdotus* snail shells (collected but not quantified).

Excluding the single hammerstone, the chipped stone artifact class contains 8,157 specimens. These artifacts are dominated by unmodified debitage (n = 7,980, 97.8 percent), followed by edge-modified flakes (n = 70, 0.9 percent), late-stage to finished bifaces (n = 28, 0.3 percent), early- to middle-stage bifaces (n = 17, 0.2 percent), miscellaneous unifaces (n = 14, 0.2 percent), and dart points (n = 12, 0.1 percent). The remainder of this sample includes 10 more chipped stone tool categories—arrow points, unidentified projectile points, bifacial knives, miscellaneous bifaces, side scrapers, perforators, spokeshaves, gravers, and hammerstones. Less than 10 specimens are represented in each of these artifact types.

Projectile Points

Seven arrow points, 12 dart points, and 1 unidentifiable projectile point were recovered from 9 sites. Of the 20 projectile points, 14 are assigned to named type categories and 6 are classified as untypeable. Elton Prewitt classified these points. Table 3.18 summarizes the type classifications and metric attributes for all of the projectile points.

Arrow Points

GRANBURY

This specimen is a proximal fragment that was manufactured from an indeterminate dark

Table 3.17. Summary of artifacts recovered

Site	Subarea	Unidentified projectile point	Arrow points	Dart points	Perforators	Bifacial knives	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous bifaces	Side scraper	Miscellaneous unifaces	Gravers-Burins	Spokeshaves	Edge-modified flakes	Cores	Unmodified debitage	Hammerstone	Modified bones	Modified shell	Total
41BL195	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL239	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	3	–	–	–	4
41BL337	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41BL405	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	6
41BL520	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL522	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL657	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL658	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL660	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL662	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9	–	–	–	9
	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	D	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	9
41BL665	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL795	A	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3	–	–	–	4
	B	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	1	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	5
41BL797	–	1	3	3	–	–	5	6	6	–	4	–	1	32	2	2,593	1	–	–	2,657
41BL802	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL902	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11	–	–	–	11
41BL904	–	–	–	1	–	–	1	–	–	1	–	–	–	–	–	10	–	2	–	15
41BL905	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL906	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL907	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3.17, continued

Site	Subarea	Unidentified projectile point	Arrow points	Dart points	Perforators	Bifacial knives	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous bifaces	Side scraper	Miscellaneous unifaces	Gravers-Burins	Spokeshaves	Edge-modified flakes	Cores	Unmodified debitage	Hammerstone	Modified bones	Modified shell	Total
41BL908	A	–	–	–	–	–	–	1	–	–	–	–	–	5	1	38	–	–	–	45
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	0	0	0	0	1	0	0	0	0	0	5	1	38	0	0	0	45
41BL909	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	7
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	4
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	11
41BL911	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	14	–	–	–	15
41BL912	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8	–	–	–	8
41BL914	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL915	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL917	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41BL918	A	–	–	1	–	–	–	–	–	–	–	1	–	3	–	47	–	–	–	52
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	1	0	0	0	0	0	0	0	1	0	3	0	47	0	0	0	52
41BL919	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL920	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL925	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL926	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
41BL927	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	137	–	–	–	138
41BL929	A	–	–	–	–	–	–	–	–	–	–	–	–	1	2	151	–	–	–	154
	B	–	–	–	–	–	–	3	2	–	–	–	–	–	–	175	–	–	–	180
	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	D	–	1	–	–	–	–	1	–	–	1	–	–	1	–	220	–	–	–	224
Subtotal		0	1	0	0	0	0	4	2	0	1	0	0	2	2	546	0	0	0	558

Table 3.17, continued

Site	Subarea	Unidentified projectile point	Arrow points	Dart points	Perforators	Bifacial knives	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous bifaces	Side scraper	Miscellaneous unifaces	Gravers-Burins	Spokeshaves	Edge-modified flakes	Cores	Unmodified debitage	Hammerstone	Modified bones	Modified shell	Total
41BL930	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL931	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	B	–	1	1	–	1	3	5	–	–	9	1	–	14	1	2,387	–	–	–	2,423
	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	D	–	–	1	–	–	1	–	–	–	–	–	–	3	–	110	–	–	–	115
Subtotal		0	1	2	0	1	4	5	0	0	9	1	0	17	1	2,497	0	0	0	2,538
41BL932	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41BL933	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41BL934	–	–	1	1	2	–	3	5	–	–	–	–	1	5	–	1,569	–	–	–	1,587
41BL935	–	–	–	2	–	–	2	6	1	–	–	1	–	4	–	467	–	–	–	483
41BL936	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41CV92	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41CV580	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	B	–	–	–	–	–	2	–	–	–	–	–	–	–	–	10	–	–	1	13
Subtotal		0	0	0	0	0	2	0	0	0	0	0	0	0	0	10	0	0	1	13
41CV1415	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
41CV1553	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
41CV1540	A	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
	B	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		1	7	12	2	2	17	28	9	1	14	3	2	70	6	7,980	1	2	1	8,158

Table 3.18. Classification and metric attributes of projectile points

Site	Subarea	Lot No.	Point Type	Chert type	Maximum length	Maximum thickness	Blade length	Blade width	Stem length	Neck width	Base width
ARROW POINTS											
41BL926	–	001a-02	Granbury	indeterminate dark gray	18.7	3.5	–	–	–	–	19.2
41BL797	–	003a-02	Scallorn	Fort Hood Yellow	15.9	2.6	–	–	4.6	7.5	11.0
41BL797	–	008a-01	Scallorn	Fort Hood Yellow	33.1	3.8	26.2	14.0	6.9	5.3	8.5
41BL934	–	019a-01	Scallorn	Fort Hood Yellow	18.7	2.5	–	15.6	5.5	5.9	8.1
41BL797	–	002a-06	untypeable	Owl Creek Black	16.2	1.9	–	–	–	–	–
41BL929	D	014a-01	untyped	Fort Hood Gray	37.3	2.7	–	–	–	–	–
41BL931	B	016a-01	untyped	indeterminate dark brown	9.8	2.9	–	–	–	–	–
DART POINTS											
41BL797	–	003a-08	Darl	Owl Creek Black	10.0	4.0	–	–	–	–	13.3
41BL918	A	002a-01	Darl	Owl Creek Black	34.2	5.6	–	21.0	12.3	14.8	–
41BL926	–	001a-01	Darl	indeterminate dark brown	28.4	4.9	–	20.9	9.8	14.4	–
41BL935	–	007a-01	Darl	indeterminate dark gray	38.5	5.0	27.2	18.8	11.3	15.6	–
41BL935	–	006a-01	Darl	Fort Hood Gray	28.9	5.6	–	–	10.5	14.1	15.3
41BL797	–	004a-01	Fairland	gray-brown-green	53.0	7.2	40.9	25.6	12.1	20.2	20.8
41BL797	–	003a-01	Figueroa	indeterminate light brown	38.2	6.0	29.0	19.4	9.2	15.8	–
41BL931	B	022a-01	Kent	indeterminate light gray	50.2	12.9	39.2	20.3	11.0	11.2	8.3
41BL931	D	055a-01	Pedernales	indeterminate light brown	46.7	9.7	32.9	28.3	13.8	16.8	–
41BL934	–	019a-03	untypeable	Owl Creek Black	37.3	4.4	–	–	–	–	–
41BL795	–	001a-01	untyped	indeterminate white	–	5.8	–	–	–	–	–
41BL904	–	003a-01	Wells	gray-brown-green	79.8	8.9	47.8	26.6	32.0	20.2	5.1
UNIDENTIFIED PROJECTILE POINT											
41BL797	–	006a-01	untypeable		9.9	2.3	–	–	–	–	–

gray chert (Figure 3.27). It does not show patination, but has been lightly heat-treated.

SCALLORN

Three Scallorn arrow points are part of this assemblage (see Figure 3.27). One specimen is complete, and the other two are proximal fragments. One of the proximal fragments is unifacial and has a ground base. All of the Scallorn arrow points are manufactured from Fort Hood Yellow chert and all have been lightly heat-treated. Only one of the Scallorn points shows patination.

UNTYPEABLE ARROW POINTS

Three arrow points are untypeable or untyped (see Figure 3.27). Two of these are distal tips, and the third is a proximal fragment. One distal tip is alternately beveled. The proximal fragment is unifacial and is triangular in section. None of the specimens exhibit patination. All three have been heated, one intensively.

Dart Points

DARL

Five Darl dart points represent the largest class of typed projectile points (Figure 3.28). Of these, four are proximal fragments, and one is nearly complete. Three of the five specimens were alternately beveled. One has a ground base, and another has a ground base and ground stem edges. All of the specimens have been heat treated, and one shows heavy patination. Two of these dart points were manufactured from Owl Creek Black chert.

FAIRLAND

The base of the one nearly complete Fairland arrow point has been reworked and exhibits edge grinding (Figure 3.29). It is manufactured from Gray-Brown-Green chert and exhibits light patination and light heat treatment.

FIGUEROA

This nearly complete specimen exhibits a double burin blow and is highly patinated (see Figure 3.29).

KENT

This is a complete but crudely made or heavily reworked specimen exhibiting a high degree of patination (see Figure 3.29).

PEDERNALES

This is a nearly complete specimen that is lightly patinated and has been lightly heated (see Figure 3.29). It is crudely made or heavily reworked.

WELLS

This nearly complete specimen exhibits ground lateral stem edges and a minor amount of cortex on the distal tip (see Figure 3.29). It is highly patinated and has been lightly heat treated.

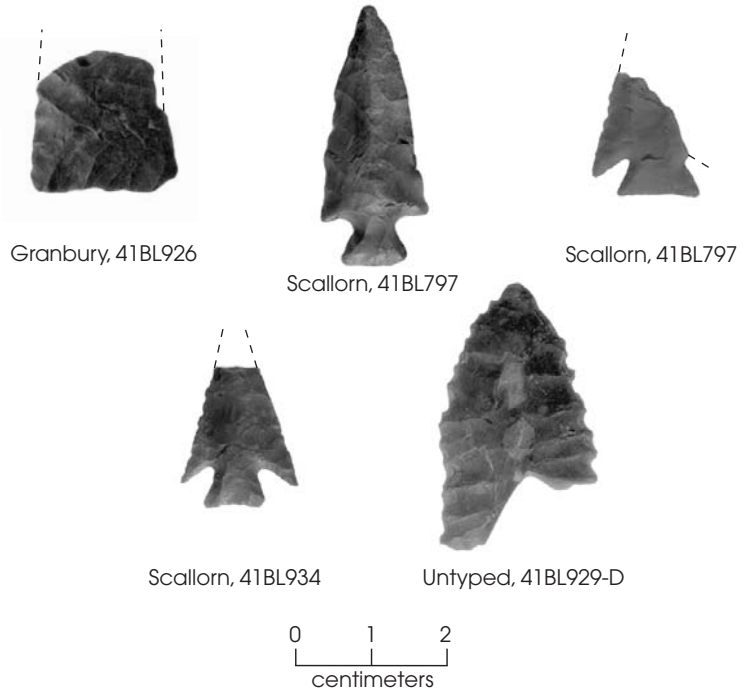

Figure 3.27. Arrow points.

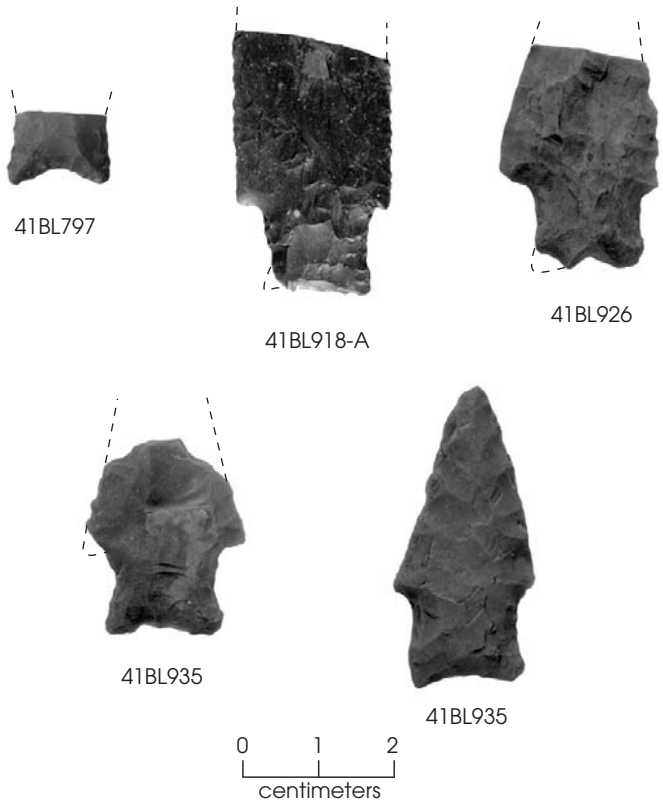

Figure 3.28. Darl dart points.

UNTYPED DART POINT

There are two distal fragments of untyped dart points in this assemblage. One has a late lanceolate form with ground lateral edges, and the other is highly patinated (see Figure 3.29).

Unidentified Projectile Point

This specimen is a distal fragment that is too small to identify whether it is an arrow point or dart point.

Bifaces

The biface assemblage consists of 56 specimens. Of these, 44 (78.6 percent) are distributed among four of the sites.

Early- to Middle-stage Bifaces

This artifact category contains 17 specimens (Table 3.19). Most (n = 12, 70.6 percent) are complete.

Late-stage to Finished Bifaces

This artifact category contains 28 specimens. Slightly more than one third (n = 10) of the specimens are proximal fragments (see Table 3.19). One proximal fragment shows a utilized lateral edge.

Miscellaneous Bifaces

Of the nine miscellaneous bifaces identified in this assemblage, four are edge fragments, two are proximal fragments, two are distal fragments, and one is complete (see Table 3.19).

Bifacial Knives

Two bifacial knives were recovered (Figure 3.30; see Table 3.19). One nearly complete bifacial knife was manufactured on a recycled Castroville dart point. It is large (120.2x43.0 mm) and has utilized lateral edges. The smaller knife (70.1x27.1 mm) is a corner tang knife with utilized lateral edges and a smooth base suggestive of haft wear.

Unifaces

This artifact category consists of 14 miscellaneous unifaces and 1 side scraper. Five of the miscellaneous unifaces are complete, and 4 are proximal fragments. The remainder are edge and distal fragments. The side scraper is a complete specimen.

Spokeshaves

Two complete spokeshaves were identified in this lithic assemblage.

Gravers and Burins

This category consists of 3 complete specimens.

Edge-modified Flakes

Seventy flakes exhibit modification in the form of edge retouch (Table 3.20). These are

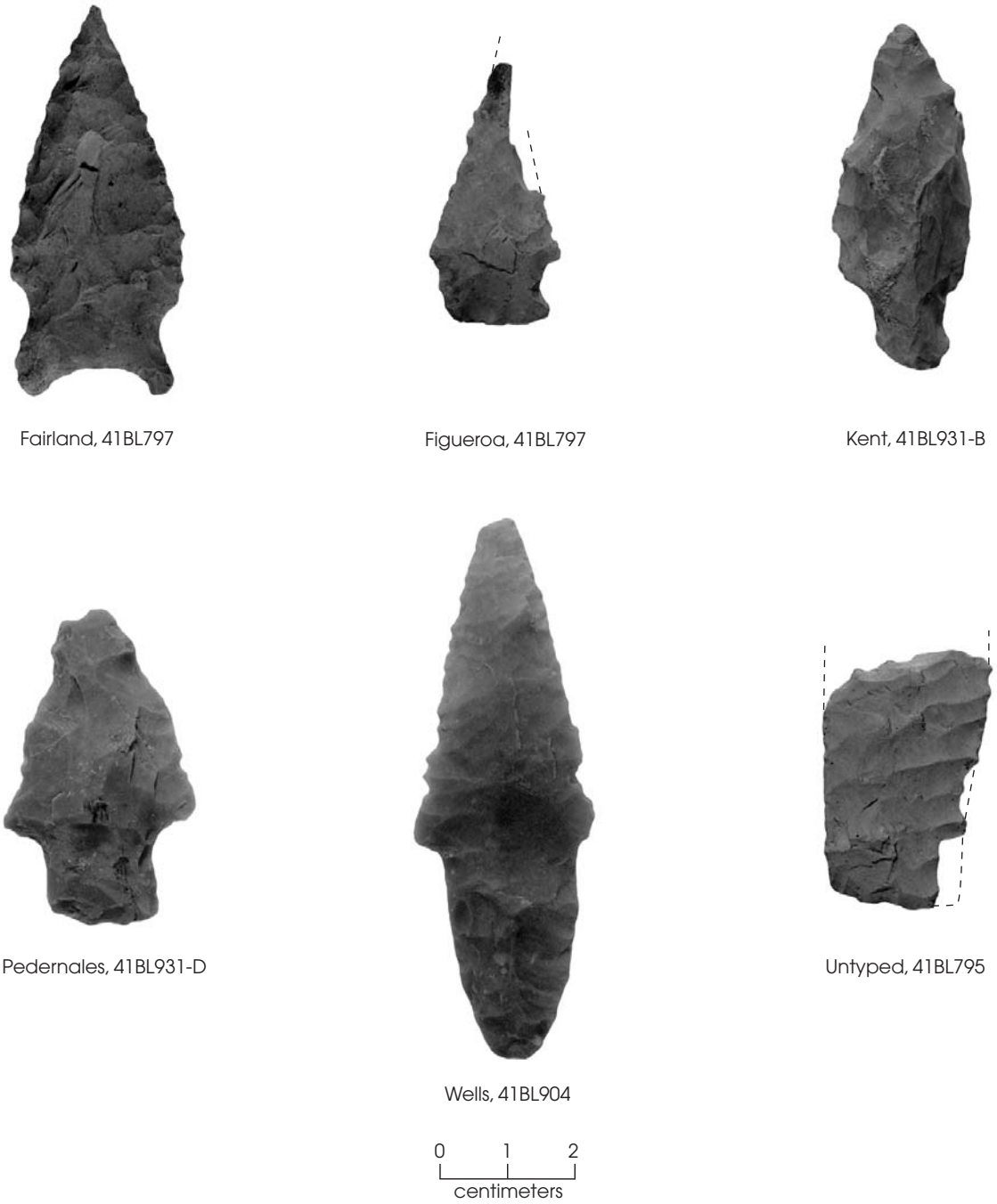

Figure 3.29. Other dart points.

Table 3.19. Summary of bifaces by completeness

Completeness	Early- to middle-stage	Late-stage to finished	Miscellaneous	Bifacial knives	Total
Complete	12	4	1	–	17
Nearly complete	1	–	–	2	3
Proximal fragment	1	10	2	–	13
Medial fragment	–	5	–	–	5
Distal fragment	1	6	2	–	9
Edge fragment	1	3	4	–	8
Indeterminate fragment	1	–	–	–	1
Total	17	28	9	2	56

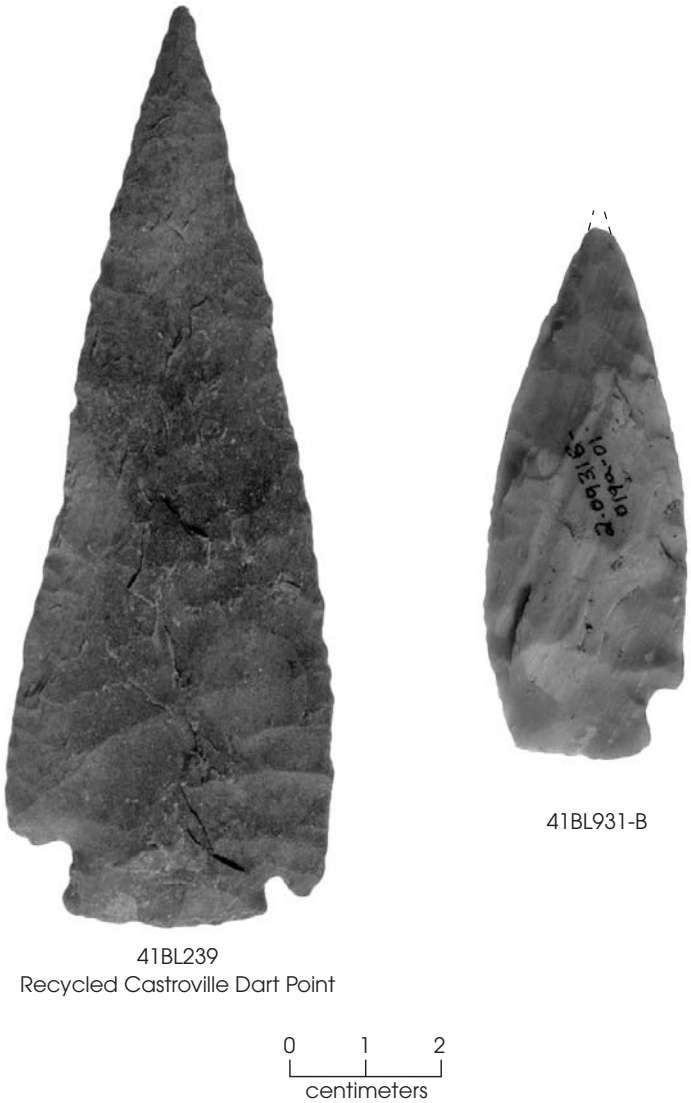

Figure 3.30. Bifacial knives.

Table 3.20. Summary of edge-modified flakes by completeness

Completeness	No. of Specimens
Complete	34
Nearly complete	0
Proximal fragment	18
Medial fragment	1
Distal fragment	14
Edge fragment	3
Indeterminate fragment	0
Total	70

expedient tools exhibiting only minimal retouch or use wear.

Unmodified Debitage

Of the 7,980 pieces of unmodified debitage, 40.3 percent (n = 3,214) are chips, and 76.3 percent (n = 6,089) lack cortex. Most (n = 4,717, 59.1 percent) of the flakes are unidentified cherts, but the rest (n = 3,263, 40.9 percent) represent 16 of the 28 named chert types from Fort Hood. If only the largest samples (i.e., the nine sites that each have more than 100 unmodified flakes) are considered, 3,183 named chert types are identified in the sample of 7,809 specimens (Table 3.21). Of the identified chert types, Fort Hood Yellow chert (n = 1,037, 32.6 percent) is the dominant variety.

Hammerstone

A single quartzite hammerstone was recovered from 41BL797. It is complete and is 73 mm long, 67 mm wide, and 41 mm thick. The hammerstone is a purple quartzite river cobble, probably obtained from an upland lag gravel source.

Modified Bone

Two fragments of modified bone were recovered from two levels at 41BL904. One fragment is the distal end a bone awl that measures 38.7 mm. It has been shaped to taper toward the distal end. The other is a medial fragment, 42.4 mm long, that exhibits only minimal shaping. Both specimens are lightly weathered, unburned, and have angular breakage. The fragments fit together, forming a larger distal section of a single bone awl measuring 81.1 mm (Figure 3.31).

Modified Mussel Shell

One nearly complete right valve of an *Amblema* plicata (Threeridge) has been modified with a drill hole (see Figure 3.31). This specimen was recovered from 41CV580-B.

Unmodified Bones

The recovered faunal assemblage consists of 426 unmodified bones from 11 sites or subareas. Sites 41BL239 and 41BL797 yielded 366 (85.9 percent) of these faunal remains (see Appendix C). At 41BL797, the larger number of specimens is in part because of the flotation of soil samples collected from a burned rock midden (Feature 1). Vertebrata (n = 197, 46.2 percent), Mammalia (n = 171, 40.1 percent), and Artiodactyla (n = 21, 4.9 percent) are the largest species groups represented in this sample. Seventy-three (17.1 percent) specimens exhibit spiral fractures and one Mammalia long bone fragment from 41BL797 shows an impact fracture. All of the unmodified bones that exhibit charring or calcining (n = 108, 25.4 percent) were recovered from 41BL239 and 41BL797.

Unmodified Mussel Shells

Eight sites produced a total of 45 unmodified mussel shell valves, umbos, or cardinal teeth; none appear to have been burned. Identified species and counts are given in Table 3.22. The assemblage was dominated by *Amblema plicata* (Threeridge) specimens (n = 19, 42.2 percent). The unidentifiable specimens are primarily cardinal tooth fragments that are too small to identify. All of the species represented could have been collected locally.

Burned Rocks

A total of 2,146 pieces of burned limestone and chert rocks were observed (but not collected) in excavations at 20 sites or subareas (Table 3.23). Burned rock middens at three sites (41BL797; 41BL931, Subarea B; and 41BL935) contained 68.8 percent (n = 1,476) of these burned rocks.

Table 3.21. Summary of selected unmodified debitage assemblages by site or subarea and chert type

Chert type	41BL797	41BL927	41BL929-A	41BL929-B	41BL929-D	41BL931-B	41BL931-D	41BL934	41BL935	Total
Heiner Lake Blue-light	–	–	–	–	–	–	–	1	–	1
Cowhouse White	19	2	3	–	20	95	2	24	4	169
Anderson Mountain Gray	20	2	2	–	–	22	1	11	3	61
Seven Mile Mountain Novaculite	–	–	–	–	–	1	–	–	–	1
Texas Novaculite	24	2	2	–	–	18	4	8	3	61
Heiner Lake Tan	35	1	2	–	2	20	–	7	2	69
Fossiliferous Pale Brown	13	–	–	–	–	–	–	–	–	13
Fort Hood Yellow	365	27	7	14	44	304	36	191	49	1,037
Heiner Lake Translucent Brown	1	–	–	–	–	4	–	1	–	6
Heiner Lake Blue	27	1	1	–	1	41	–	4	1	76
East Range Flat	125	1	6	1	–	88	8	145	22	396
East Range Flecked	109	2	–	1	1	36	3	16	3	171
Fort Hood Gray	78	1	2	–	1	61	6	75	2	226
Gray-Brown-Green	143	7	–	1	1	131	8	22	42	355
Leona Park	63	–	4	2	1	37	–	12	4	123
Owl Creek Black	161	13	4	2	–	131	7	67	19	404
Cowhouse Dark Gray	12	–	–	–	–	–	–	2	–	14
Identified Type Subtotal	1,195	59	33	21	71	989	75	586	154	3,183
Indeterminate white	33	3	–	7	2	62	3	17	2	129
Indeterminate yellow	5	3	–	–	1	13	–	9	1	32
Indeterminate mottled	114	1	17	14	9	102	5	43	15	320
Indeterminate light gray	302	16	56	60	84	364	7	277	60	1,226
Indeterminate dark gray	464	14	26	21	30	345	10	402	79	1,391
Indeterminate light brown	225	12	16	21	14	253	8	65	42	656
Indeterminate dark brown	141	14	2	8	9	153	2	56	50	435
Indeterminate black	98	12	1	19	–	79	–	104	59	372
Indeterminate blue	2	–	–	–	–	1	–	–	–	3
Indeterminate red	13	3	–	4	–	26	–	10	5	61
Indeterminate nonlocal	1	–	–	–	–	–	–	–	–	1
Indeterminate Subtotal	1,398	78	118	154	149	1,398	35	983	313	4,626
Total	2,593	137	151	175	220	2,387	110	1,569	467	7,809

Note: Includes only sites with more than 100 unmodified flakes.

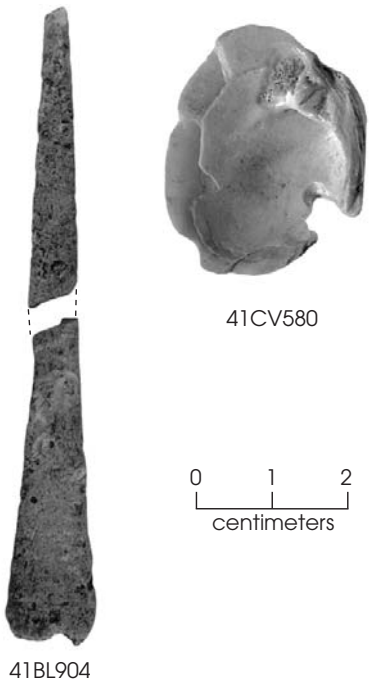

Figure 3.31. Modified bones and drilled mussel shell.

Snail Shells

Rabdotus is the most common species of snail occurring throughout the Holocene deposits at Fort Hood. Whenever snail shells were encountered, a sample was collected and total counts were recorded. Although the presence of snail shells can be useful in interpreting the integrity and chronology of archeological deposits, no attempt was made to qualitatively analyze shells collected during this project.

Table 3.22. Summary of mussel shell species recovered

Species	No. of Specimens
Amblema plicata (Threeridge)	19
Lampsilis teres (Yellow Sandshell)	2
Lampsilis sp.	2
Leptoeda fragilis (Fragile Papershell)	1
Leptoeda sp.	1
Tritogonia verrucosa (Pistolgrip)	2
Quadrula apiculata (Southern mapleleaf)	2
Quadrula petrina (Texas pimpleback)	1
Quadrula sp.	5
Unidentified	10
Total	45

Table 3.23. Summary of burned rocks observed during excavations

Site	Subarea	No. of Burned Rocks Observed*
41BL239	–	1
41BL405	–	1
41BL662	B	14
41BL797	–	709
41BL902	–	29
41BL908	A	6
41BL909	A	3
41BL911	–	19
41BL912	–	6
41BL918	A	68
41BL927	–	22
41BL929	A	27
41BL929	D	55
41BL929	B	244
41BL931	B	520
41BL931	D	32
41BL934	–	81
41BL935	–	247
41CV580	–	13
41CV1415	–	49
Total		2,146

*Includes feature and nonfeature contexts.

SITE ASSESSMENTS

Table 3.24 summarizes the National Register assessments and site types for the 66 sites and subareas reported here. As summarized in Table 3.25, 49 (74 percent) of the 66 investigated sites and subareas are recommended as not eligible for listing in the National Register, but 1 subarea is a gated cave that could not be entered. This subarea (41BL917-A) was later evaluated as not eligible, however, based on observations made by cave investigators. Thirteen sites or subareas (20 percent) are recommended as potentially eligible and will require further testing to determine their eligibility. Three sites (5 percent), all rockshelters, are recommended as eligible for listing in the NRHP because the level of testing was sufficient to determine that they meet all of the eligibility criteria established by Ellis et al. (1994).

All but two of the 66 investigated sites or subareas are classified into 10 different site types (see Table 3.25). One subarea is classified as unknown because the limited

Table 3.24. Summary of National Register assessments

Site	Subarea	Site Type	Landform	Features	National Register Assessment	Recommendations
41BL195	–	lithic scatter	upland		NE	no further work
41BL239	–	cave	slope		NE	no further work
41BL337	A	lithic scatter	Pleistocene terrace		NE	no further work
	B	lithic scatter	slope		NE	no further work
41BL405	–	lithic scatter	terrace		NE	no further work
41BL520	–	lithic scatter	slope		NE	no further work
41BL522	–	lithic scatter	upland		NE	no further work
41BL657	–	lithic scatter	upland		NE	no further work
41BL658	–	lithic scatter	upland		NE	no further work
41BL660	–	lithic scatter	upland		NE	no further work
41BL662	A	undefined*	flood plain (T_0)		NE	no further work
	B	open campsite	terrace (T_1)		PE	National Register testing
	C	open campsite	Pleistocene terrace with travertine		PE	National Register testing
	D	open campsite	slope		NE	no further work
41BL665	–	open campsite	slope		NE	no further work
41BL795	A	lithic scatter	Holocene terrace		PE	National Register testing
	B	open campsite	Pleistocene terrace		NE	no further work
	C	lithic scatter	upland		NE	no further work
41BL797	–	rockshelter	bluff	F1: burned rock midden	E	protection or mitigation
41BL802	–	lithic scatter	upland		NE	no further work
41BL902	–	rockshelter	bluff		NE	no further work
41BL904	–	cave	bluff		NE	no further work
41BL905	–	rockshelter	bluff		NE	no further work
41BL906	–	lithic scatter	upland		NE	no further work
41BL907	A	cave	upland		NE	no further work
	B	lithic scatter	upland		NE	no further work
41BL908	A	lithic scatter	Holocene terrace		PE	National Register testing
	B	lithic scatter	Pleistocene terrace		NE	no further work
	C	lithic scatter	slope		NE	no further work
41BL909	A	lithic scatter	terrace (T_1)		PE	National Register testing
	B	lithic scatter	terrace (T_0)		NE	National Register testing
41BL911	–	rockshelters	bluff		NE	no further work
41BL912	–	rockshelter	bluff		NE	no further work

Table 3.24, continued

Site	Subarea	Site Type	Landform	Features	National Register Assessment	Recommendations
41BL914	–	LRPA	upland		NE	no further work
41BL915	–	LRPA	midslope bench		NE	no further work
41BL917	A	cave	upland		NE**	no further work
	B	lithic scatter	upland		NE	no further work
41BL918	A	open campsite	Holocene terrace		PE	National Register testing
	B	lithic scatter	Pleistocene terrace		NE	no further work
	C	lithic scatter	toeslope or slope		NE	no further work
41BL919	–	lithic scatter	upland		NE	no further work
41BL920	–	lithic scatter	slope		NE	no further work
41BL925	–	lithic scatter	slope		NE	no further work
41BL926	–	lithic scatter	midslope bench		NE	no further work
41BL927	–	rockshelter	bluff		PE	no further work
41BL929	A	rockshelters	bluff	–	NE	no further work
	B	open campsite	bench	F1: hearth	NE	no further work
	C	lithic scatter/ LRPA	upland	–	NE	no further work
	D	rockshelter	bluff	F2: soil discoloration; F3: burned rock concentration	E	protection or mitigation
41BL930	–	lithic scatter	bench		NE	no further work
41BL931	A	lithic scatter	Pleistocene terrace		NE	no further work
	B	open campsite with burned rock midden	toeslope	F1: midden; F2: midden	PE	National Register testing
	C	LRPA	slope		NE	no further work
	D	open campsite	Holocene terrace		PE	National Register testing
41BL932	–	open campsite	upland		NE	no further work
41BL933	A	open campsite	upland		NE	no further work
	B	LRPA	upland		NE	no further work
41BL934	–	rockshelters	bluff		E	protection or mitigation
41BL935	–	burned rock midden	terrace (T_0)		PE	National Register testing
41BL936	–	lithic scatter	slope		NE	no further work
41CV92	–	LRPA	Pleistocene terrace		NE	no further work

Table 3.24, continued

Site	Subarea	Site Type	Landform	Features	National Register Assessment	Recommendations
41CV580	A	unknown***	terrace		PE	National Register testing
	B	open campsite	toeslope		PE	National Register testing
41CV1415	–	Paluxy	slope-Paluxy	F1:burned rock concentration	PE	National Register testing
41CV1533	–	lithic scatter	upland		NE	no further work
41CV1540	–	open campsite	upland		NE	no further work

*This subarea cannot be classified because it contains no prehistoric cultural materials or features, nor does it have potential to contain such evidence. It is a noncultural subarea embedded within a prehistoric site.
**Prewitt and Associates did not investigate this cave, but the assessment of not eligible is based on observations made by cavers who entered it in June of 2000.
***Site type is unknown because testing did not recover any archeological materials, but potential is good.

Table 3.25. Summary of sites and subareas by National Register eligibility and site type

Site Type	Eligible	Potentially Eligible	Not Eligible	Total
Unknown or undefined	–	1	1	2
Lithic scatter	–	3	26	29
Lithic scatter and lithic resource procurement area	–	–	1	1
Lithic resource procurement area	–	–	5	5
Open campsite	–	5	8	13
Open campsite with burned rock midden	–	1	–	1
Burned rock midden	–	1	–	1
Rockshelter	3*	1	5	9
Cave	–	–	4	4
Paluxy site	–	1	–	1
Total	3	13	50	66

*There are actually four eligible rockshelters in three sites or subareas.

testing was insufficient to determine its site type, though it does have archeological potential. Another subarea was classified as undefined because the investigation confirmed that it contains no archeological remains and has no research potential (i.e., it is a nonarcheological subarea surrounded by other archeological subareas). The 10 site types encompassing the other 64 sites or subareas are discussed individually below. Specific management recommendations for the 3 eligible and 13 potentially eligible sites are summarized in Table 3.26.

Lithic Scatters and Lithic Resource Procurement Areas

Thirty-five of the sites or subareas assessed during this project are lithic scatters or lithic resource procurement areas. Lithic scatters are open sites that consist of varying quantities of chipped lithic artifacts in a definable area that do not have other associated cultural manifestations (i.e., burned rock hearths). These artifacts may be buried or unburied. Lithic resource procurement area sites consist of natural outcrops with associated evidence of

Table 3.26. Summary of management recommendations for National Register-eligible and potentially eligible sites or subareas

Site	Subarea	Site type	NRHP assessment	Management recommendation
41BL662	B	open campsite	PE	5 m^2 of hand excavation; 5 backhoe trenches
	C	open campsite	PE	4 m^2 of hand excavation; core sample in travertine deposits
41BL795	A	lithic scatter	PE	4 m^2 of hand excavation; 6 backhoe trenches
41BL797	–	rockshelter	E	protection or mitigation (maximum of 372 m^2; ca. 180 m^3)
41BL908	A	lithic scatter	PE	5 m^2 of hand excavation; 6 backhoe trenches
41BL909	A	lithic scatter	PE	3 m^2 of hand excavation; 4 backhoe trenches
41BL918	A	open campsite	PE	4–5 m^2 of hand excavation; 6–7 backhoe trenches
41BL927	–	rockshelter	PE	no further work (cannot reach deposits under roof boulders)
41BL929	D	rockshelter	E	protection or mitigation (maximum of 30 m^2; ca. 30 m^3)
41BL931	B	open campsite with burned rock midden	PE	4 m^2 of hand excavation; 6 backhoe trenches
	D	open campsite	PE	5 m^2 of hand excavation; 10 backhoe trenches
41BL934	–	Rockshelter A	E	protection or mitigation (maximum of 117 m^2; ca. 94 m^3)
	–	Rockshelter B	E	protection or mitigation (maximum of 107 m^2; ca. 64 m^3)
41BL935	–	burned rock midden	PE	3 m^2 of hand excavation
41CV580	A	unknown	PE	4 m^2 of hand excavation; 2 backhoe trenches
	B	open campsite	PE	4 m^2 of hand excavation
41CV1415	–	Paluxy	PE	8 m^2 of hand excavation; 3 backhoe trenches

*For potentially eligible sites, the recommended effort is an estimate of the minimum amount of excavation needed for National Register testing. For the eligible rockshelters, an estimate of the maximum area and volume of shelter sediments is given.

use by prehistoric people (i.e., selection and reduction). In many cases, these areas are found in conjunction with other site types, particularly lithic scatters. Because the geomorphic context, archeological integrity, and artifact content of lithic scatters and lithic resource procurement areas are often similar, they are discussed together here.

Thirty-two of the 35 lithic scatters and lithic resource procurement areas are considered not eligible for National Register listing. Most of these sites consist of eroded upland surfaces containing only thin, residual soils, or steep, active colluvial slopes. Five of the ineligible lithic scatter and lithic resource procurement area sites (41BL337-A, 41BL908-B, 41BL918-B, 41BL391-A, and 41CV92) are located on Pleistocene terraces. This landform predates human occupation, so cultural materials observed on these surfaces are unlikely to be in primary context. With respect to the site significance model for Fort Hood (Ellis et al. 1994), all 32 ineligible sites or subareas have contextual fatal flaws, of which the most important is lack of integrity. Consequently, they have little or no research potential and warrant no further work.

Three of the lithic scatters (41BL795-A, 41BL908-A, and 41BL909, Subareas A and B) are considered potentially eligible for National

Register listing. All three are located on T_1 or T_0 terraces of Holocene age deposits. Though buried cultural materials were encountered at these sites and subareas, the presence of stratigraphically discrete archeological deposits was not definitely confirmed. Formal testing is required to determine their National Register eligibility (see Table 3.26).

To adequately assess 41BL795-A, 4 m^2 of hand excavation and six backhoe trenches are recommended. Subarea A is composed of discontinuous wedges of terrace along Bear Creek that may prove inaccessible to a backhoe; in such a case, additional hand excavation should be substituted for trenching. The total volume of excavations required is difficult to estimate because the depth of deposits is variable, but the average depth of the deposits appears to be between 60 and 80 cm.

Site 41BL908-A consists of an irregular strip of terrace that forms three distinct wedges. Minimum testing recommended for this subarea is 5 m^2 of hand excavation and six backhoe trenches. These excavations should be conducted on the broader wedges of terrace. The depth of deposits ranges between 40 and 100 cm, so total volume of hand excavation should exceed 3.5 m^3.

Subarea A at 41BL909 will require 3 m^2 of hand excavation and four backhoe trenches. Shovel testing did not indicate areas with increased probability for containing intact cultural deposits.

Open Campsites

Open campsites are defined by the presence of burned rock features, or concentrations of burned rock dense enough to indicate processing or cooking activities. Though they may vary greatly in length and intensity of occupation, they usually indicate more involved activities than those represented by lithic scatters.

Eight of 14 open campsites (one containing burned rock middens) assessed during the 1999 season investigations are considered ineligible for listing in the National Register. Sites 41BL195, 41BL932, 41BL933-A, and 41CV1540 are located on upland surfaces. Site 41BL795-B is situated on a Pleistocene terrace, 41BL662-D and 41BL665 are situated on slopes, and 41BL929-B is situated on a midslope bench. Though cultural materials were observed on the surface of these sites, past experience shows that the landforms on which they are situated are unlikely to contain intact archeological deposits in good context. The research potential of these sites therefore is limited and no further management is recommended.

The other six open campsites, one of which contains burned rock middens, are assessed as potentially eligible for National Register listing. Two sites—41BL918-A and 41BL931-D—are located on terraces of Holocene age deposits that contained buried cultural materials. Sites 41BL931-B and 41CV580-B are situated on toeslopes where looting has exposed cultural materials indicating a sealed cultural deposit. Site 41BL662-B is a T_1 terrace, and 41BL662-C, a Pleistocene terrace covered with travertine deposits. Though the presence of intact cultural deposits was not demonstrated at all of these sites or subareas, they all have the potential to contain National Register-eligible cultural deposits. Further testing is needed to determine if the deposits have a viable research potential, and formal testing to determine National Register eligibility is recommended (see Table 3.26).

Site 41BL662-B contains Holocene deposits ranging in depth from 20 to 80+ cm. A minimum of 5 m^2 of hand excavation and four backhoe trenches are recommended to assess National Register eligibility adequately. Trenching should be concentrated on the eastern portion of Subarea B where the terrace is broader. Based on the results of trenching, further hand excavation may be necessary.

An extensive travertine mound caps 41BL662-C. Trenching in this mound is not an ecologically or archeologically viable option, but a core sample could provide invaluable paleoenvironmental information. Also, 4 m^2 of hand excavation may be warranted, particularly if a core indicates the presence of cultural materials at significant depths.

Site 41BL918-A consists of two discontinuous sections of Holocene terrace. The eastern section is significantly larger, but a third to a half of this section has been severely scoured and is unlikely to contain intact cultural deposits. The smaller western section produced the most cultural materials during shovel testing, so testing should be fairly evenly divided between the two sections of Subarea A. Overall testing should include at least 4–5 m^2 of hand excavation and 6–7 backhoe trenches. The depth

of deposits is variable, but 60–100 cm of deposit should be expected.

Subarea B at 41BL931 is an extensive open camp with two large associated burned rock middens. These middens have both been extensively potted, and looting activities appear to be continuing; nevertheless, shovel testing indicates that significant portions are still intact. Shovel testing also indicates that cultural materials are ubiquitous throughout Subarea B. Some of these peripheral cultural materials are undoubtedly associated with the middens. Others may not be, and testing should attempt to evaluate feature and nonfeature portions of the subarea. The minimum amount of excavation recommended for testing is 4 m^2 of hand excavations and six backhoe trenches.

Site 41BL931-D is on a Holocene terrace and covers a large area, with deposits that may be well over 1 m thick. Though shovel testing clearly indicated discrete cultural deposits, the their extent and depth throughout the rest of the terrace is unknown. Testing in this subarea therefore should include a high percentage of trenching. Hand excavation of 5 m^2 and 10 backhoe trenches are recommended for initial investigation. Results of these 10 trenches may indicate the need for additional hand excavation. Discrete cultural deposits were observed in Shovel Test 6 at 60–100 cm, and at least some of the testing should be directed in this area.

Site 41CV580-B is a small area of toeslope on which looting has exposed cultural materials indicating the presence of sealed archeological deposits. The one shovel test placed on the perimeter of the looting activities indicates that deposits are intact and appear to be ca. 50 cm deep. Because the subarea is small and the deposits not particularly deep, trenching is not recommended on this site. Instead, 4 m^2 of hand excavation should be sufficient to assess the eligibility of this site. Some excavations should be concentrated near the potholes where cultural deposits are known. The archeological potential of the rest of the subarea is not known and should be investigated.

Burned Rock Midden

This site type is composed of isolated midden deposits, most likely associated with other site types (i.e., open campsites) at some point in their history. Only 41BL935 was composed entirely of midden deposits. This small site is situated on a T_0 terrace between a bend in a tributary and the upland slope. Past looting has been pervasive, destroying ca. 50 percent of the midden deposits. No recent looting was observed, and shovel testing indicates that the remaining deposits have good integrity. The site is too small and inaccessible to warrant trenching, so 3 m^2 of hand excavation is recommended during testing (see Table 3.26). Total volume of excavation will depend on the actual extent of damage from looting, but the cultural deposits may be as thick as 1 m, and a minimum of 3 m^3 of hand excavation should be expected to assess the site adequately for National Register eligibility.

Rockshelters

Rockshelters are sites that occur in and around natural overhangs cut out of the limestone substrate exposed beneath escarpment rims. These sites vary greatly in the length and nature of occupation. Some rockshelters such as 41BL797 have an associated talus midden, indicating an extended period of use and range of activities. Others contain only sparse cultural materials and probably represent only a temporary shelter.

Five of the rockshelters assessed are considered ineligible for National Register listing. In most cases, only shallow, externally derived deposits are present. These represent relatively recent deposition from the upland surface. Cultural materials encountered at these sites are redeposited from the upland surfaces above the shelter and thus are in secondary or tertiary context. At most of these sites, shallow deposition indicates regular flushing during erosional activities. Like the ineligible upland lithic scatters discussed above, the primary flaw of these sites for research potential is their lack of integrity.

Site 41BL927 is a rockshelter that is recommended as potentially eligible for listing in the NRHP. Test excavations inside this shelter revealed only sparse and largely uninterpretable cultural deposits, and cultural materials on the talus slope have been seriously disturbed. A series of large, collapsed ledge boulders appear to cover and protect a substantial portion of the deposits, however. But because the deposits with archeological potential are well protected and

further archeological testing would be impractical and expensive, no further work is recommended.

Three of the rockshelter sites (41BL797, 41BL929-D, and 41BL934) are considered eligible for National Register listing (see Table 3.26). Testing at these rockshelters indicates the presence of stratified intact archeological deposits. One rockshelter, 41BL797, contains a mostly intact talus midden. Excavations at 41BL929-D encountered an intact hearth at considerable depth, and the two rockshelters at 41BL934 showed considerable deposition containing dense cultural materials. Because these rockshelters contain intact stratified deposits, they have considerable research potential and should be protected.

If protection is not possible, then mitigation in the form of comprehensive data recovery may be necessary. Because rockshelters are generally small, responsible data recovery will usually entail a complete excavation of the shelter because it is not possible to protect only part of a rockshelter. In some cases, however, looting and erosion have damaged the integrity of portions of a rockshelter enough to recommend concentration of data recovery in areas where reconnaissance and testing have indicated intact deposits exist.

At 41BL797, the greatest extent of intact deposits appear to be within a talus midden that extends both inside and outside the overhang of the shelter. The midden deposits are below extensive backdirt piles that appear to be the result of looting activities inside the overhang. Data recovery should concentrate on investigating these midden deposits, which will require ca. 45 m^3 of hand excavation. Shovel testing indicates that the depth of deposit within the overhang is minimal and has been significantly damaged by looting. Nevertheless, a human premolar associated with the backdirt suggests the potential for human remains within the overhan, so further investigation of the shallow interior deposits is warranted if an agreement on treatment of human remains can be reached with the appropriate Native American tribes. This would require ca. 20 m^3 of hand excavation inside the rockshelter. The total mitigation recommended for 41BL797 is a minimum of 65 m^3 of hand excavation.

Site 41BL929-D represents extensive intact deposits, at least 1 m thick. During testing, an intact feature was encountered between 76 and 87 cm, indicating that the full depth of the shelter will need to be excavated. The talus slopes down dramatically less than 2 m from the back wall of the shelter. Nevertheless, data recovery must include all of the talus above this sharp break, so mitigation will include a minimum of 22 m^3 of hand excavation.

Site 41BL934 consists of two looted rockshelters. Testing indicated that most of the intact archeological deposits are along the talus edge beneath the outside edge of the overhang. Shallow pothole disturbance is concentrated toward the back wall of the shelters where deposits are also most shallow, but deeper, more localized looting has occurred on the talus edge. Because the depth of deposits throughout the shelters is highly variable, even areas significantly disturbed by looting will need to be investigated to ascertain where intact deposits survive. Complete mitigation at each shelter will require a minimum of 32 m^3 of hand excavation, or a total of 64 m^3 of hand excavation for the whole site.

Caves

The four caves assessed during these investigations are considered ineligible for National Register listing. Three of the caves proved to contain externally derived and recently deposited soils with negligible cultural content. These sites lack both integrity and context. The fourth cave is gated, and direct observations were impossible. But the environmental studies done by cave investigators in 2000 indicate no potential for buried cultural deposits in the cave. Because they lack basic integrity, these sites have limited research potential; no further management is recommended.

Paluxy Sites

Paluxy sites at Fort Hood are located on outcrops of Paluxy sandstone formations. They are characterized by gentle slopes and are usually located near small tributaries. Burned rock mounds or other burned rock features are one important feature of this site type. Cultural activity on this site type appears to be concentrated in a range from the Late Archaic to the Late Prehistoric Austin phase in central Texas (Kleinbach et al. 1999).

One Paluxy site, 41CV1415, was assessed during these investigations and conforms closely to this topographic and geomorphic type. Also, a concentration of burned rock is visible on the surface of 41CV1415 that corresponds with the characteristic presence of burned rock features on Paluxy sites. Only sparse cultural materials were encountered during shovel testing. Though intact cultural deposits could not be demonstrated, there were deep Paluxy deposits present. Paluxy deposits have demonstrated high research potential at Fort Hood, and further testing is necessary to determine whether National Register-eligible deposits may exist at 41CV1415.

Recommended levels of effort for determining the eligibility of this site should include a minimum of 8 m^2 of hand excavation and three backhoe trenches (see Table 3.27). The volume of these excavations is difficult to estimate deposition on this site varies, but the estimate indicates the minimum surface area that should be tested to the base of deposition to assess the site's research potential adequately. These excavations should concentrate on the feature and on the midslope portions of the site. In general, the depth of deposits conform to the pattern of other Paluxy sites—that is, a tapering profile with the deeper deposits upslope and increasingly shallower deposits downslope (Abbot 1995c). But in this case, the underlying Paluxy sandstone on the extreme upslope end of the site is less decomposed than that in the middle and downslope portions of the site. The deeper deposits therefore appear to be in the middle of the site, particularly in the vicinity of Feature 1.

NATIONAL REGISTER TESTING OF 12 SITES: WORK ACCOMPLISHED AND METHODS OF INVESTIGATION

Gemma Mehalchick

4

This chapter summarizes the work carried out and methods used at the 12 sites where formal National Register eligibility testing was done. The archeological research Prewitt and Associates (PAI) conducted is consistent with the Fort Hood Cultural Resources Management Plan as defined by Jackson (1994a) and with previous prehistoric site investigations TRC Mariah Associates (Mariah) conducted (Abbott and Trierweiler 1995; Ellis et al. 1994; Trierweiler, ed. 1994; Trierweiler 1996). PAI adopted many of the same field and analytical methods Mariah developed in compliance with Fort Hood directives. Methods and procedures in four main areas were wholly adopted or only slightly modified.

PAI continued to use the research contexts and specific assessment criteria developed by Ellis et al. (1994) for evaluating National Register significance (see Chapter 2). In terms of field implementation of the research design, PAI continued to employ red flag data sets. The limited site testing in 1999 was designed to determine whether sites contained certain types of data that would make them eligible for listing on the National Register. Testing was terminated at each site once there was sufficient evidence to identify the presence of red flag data sets. This limited level of testing does not generate large samples of material culture and features, nor does it adequately address the problem of establishing site boundaries for extensive open sites. Although this level of investigation is less intensive than those typically employed for National Register testing in Texas, it follows Fort Hood's Cultural Resources Management Plan philosophy of minimizing the costs of evaluating large numbers of sites.

The current investigations also strove for long-term consistency in lithic analysis and identification of material sources. Previous researchers had recognized relationships between the geographic distribution of many distinctive varieties of Edwards cherts and their occurrence in prehistoric sites. Mariah developed a chert typology based on extensive field investigations and laboratory research using lithic samples collected from chert outcrops during the archeological survey of the base and during Mariah's resurvey of lithic resource procurement sites (Frederick and Ringstaff 1994:125–181). Fort Hood is the largest chert-rich area in Central Texas where lithic sources have been examined thoroughly, so Mariah's work provides a substantial foundation for beginning to address research questions relating to prehistoric use of lithic materials. PAI continues to use the established chert typology as a baseline from which to begin its lithic material investigations.

Continuity with previous research also was maintained in quality control for archeological field and laboratory investigations. PAI's quality control program follows the same basic procedures Mariah used, although some procedures and quality control forms were modified to reflect the corporate structure of PAI more closely. The quality control program results in a rigorous internal review of the consistency of archeological methods and data.

Each of these four topics is discussed in more detail in this chapter, which also summarizes the fiscal year 1999 site investigations and the wide range of archeological methods and procedures PAI used during its Fort Hood prehistoric site testing program.

NATIONAL REGISTER SIGNIFICANCE CRITERIA: RED FLAG DATA SETS

Formal archeological testing was intended to assess the eligibility of 12 prehistoric sites for listing in the National Register. Eligibility was evaluated according to the Fort Hood research design and the red flag site concept Ellis et al. (1994) developed. Red flag sites are identified as "sites which have a high probability of requiring further management attention" (Trierweiler 1994a:11). To carry out National Register significance criteria in the field, Mariah modified the red flag concept to include four red flag data sets. The presence of any one of these data sets establishes a site as having a high research potential and as being eligible for listing in the National Register. Abbott and Trierweiler (1995a:37) define the four red flag data sets as:

1. macroscopically visible organic remains (charcoal, bone, seeds, shell) in a primary, thin bedded, and stratigraphically discrete context;

2. multiple and stratigraphically discrete cultural occupations with high chronometric potential, as evidenced by abundant charcoal or hearths with fired substrates or in situ burned rocks;

3. human bone found in undisturbed stratigraphic contexts; and,

4. buried Paleoindian or Early Archaic components in primary and nondisturbed contexts.

Red flag data sets 1 and 2 pertain directly to the issues of site content and context, as defined in the model of site significance for Fort Hood by Ellis et al. (1994) and summarized in Chapter 2. Data set 3 recognizes the research potential of human remains in an intact archeological context. As originally used by Mariah, data set 4 was adopted because the Fort Hood research design has identified the Paleoindian and Early Archaic periods as major data gaps.

No human remains were found in any of the 12 sites tested for this report. Because the system of red flag data sets was employed, the overall testing at each prehistoric site was limited. The criteria of one or more of the three primary red flag data sets (excluding human remains) were often satisfied by only a few test units. This was particularly true for open sites in alluvial settings where, even on inspection of backhoe trenches, it was obvious that test units would produce organic remains and cultural materials in primary contexts associated with one or more stratigraphically discrete cultural zones.

Each site was reviewed before conducting test excavations, taking into account recommendations of the original excavators when possible. Because specifications of the delivery order for National Register testing limited overall testing, various levels of testing at individual sites were determined by distributing work (i.e., the number of trenches and total volume of hand-excavated units) according to the perceived testing goals for each site. Fort Hood approved recommended work levels, with a great deal of flexibility to reallocate based on actual field findings. Excavations at the 12 investigated sites consisted of 76 backhoe trenches and 54 test units (Table 4.1). Twenty analysis units were defined.

As used in this report, analysis units equate to definable cultural components, and one or more may be identified at any given site. An analysis unit was defined when an artifact assemblage or a group of features and artifacts was spatially discrete (horizontal or vertical separation) and sufficient chronological evidence (diagnostic artifacts, soil stratigraphy, radiocarbon dates or any combination of these) allowed for a reasonable temporal assessment of the remains. Analysis units may represent very short occupations or broader periods of time. For all sites where the contextual and chronological data were too limited to identify meaningful components, all archeological remains are grouped as a single analysis unit.

FIELD METHODS

Field methods described in this section were employed during formal National Register testing at the 12 sites. Methods used in the geomorphic reconnaissance and shovel testing investigations of the 45 sites are presented in Chapter 3.

Formal testing consisted of a site reconnaissance, backhoe trenching, or manually

Table 4.1. Summary of work accomplished at 12 National Register-tested sites

Site	Subarea	No. of Backhoe Trenches	No. of Test Units	No. of Excavation Levels	No. of Analysis Units Defined
41BL192	A	0	2	9.4	1
41BL349	–	4	3	35.4	1
41CV41	A	5	6	79.0	3
41CV94	A, B	10	5	50.1	1
41CV579	–	7	6	105.2	3
41CV668	B	3	2	17.0	1
41CV956	B	9	3	31.5	1
41CV1441	–	5	6	69.5	1
41CV1443	A	6	4	73.5	2
41CV1553	–	8	6	33.7	3
41CV1555	–	6	6	30.5	2
41CV1556	B	13	5	44.5	1
Total		76	54	579.3	20

excavated test units at 11 open sites and 1 rockshelter (41BL192, Subarea A). With the site records and maps made by previous investigators in hand, the project archeologist conducted a reconnaissance to reevaluate each site. The goals were to become familiar with the site layout; re-locate surface or subsurface features, artifact concentrations, and previous shovel tests or test pits; assess the geomorphic interpretations and subarea designations previous researchers made (generally based on landforms); and evaluate the condition of the site to determine if further damage had occurred since the last investigation.

To avoid disturbing endangered species habitats or other protected areas, mechanical excavations could not be undertaken before inspection of the area by a representative from the Nature Conservancy of Texas, Natural Resources Branch. After checking site locations on military installation maps and corresponding aerial photo sheets and reviewing site sketch maps showing specific areas to be trenched, the Conservancy granted permission to proceed.

Trenching on open sites was done to furnish exposures for interpreting depositional events and to assess site geomorphology, prospect for buried cultural deposits, and provide access to deeply buried components warranting manual excavation. The Directorate of Environment and Housing, Maintenance Division, Pavement Section, at Fort Hood provided a backhoe and an extremely proficient operator. The project archeologist always accompanied the backhoe operator to monitor trenching. Trench placement was based on the results of shovel testing, past and present investigators' observations (such as cultural materials noted in exposures), and the need for adequate horizontal coverage of the site area. Although mechanical and manual excavations were typically conducted within previously delineated site boundaries, in some cases these boundaries were restricted to a small portion of a landform extending hundreds of meters in one or more directions. At times, these circumstances necessitated excavating trenches beyond a previously defined site perimeter, and in some cases, site boundaries were modified based on new subsurface finds. But in no case was mechanical testing done specifically to establish site limits, which was beyond the scope of the current investigations.

In consultation with the geomorphologist or the project manager, the project archeologist determined all backhoe trench locations and dimensions. Trenches were numbered consecutively, and a wooden datum stake was placed next to the corresponding trench. The project archeologist noted trench locations on the site sketch map and recorded standardized information about each trench on a backhoe trench data form. Trench orientation was recorded as the direction of the long axis relative to magnetic north. Trench dimensions were recorded in meters. The geomorphologist profiled selected trench walls and described strata on a geologic profile form. When stratigraphic profiles were similar, only one or two

profiles were recorded. Specific information about methods used to describe geologic profiles is found in Appendix B. All trench excavations were monitored and trench profiles inspected for cultural remains by the field personnel. As a general rule trench fill was not screened, but diagnostic artifacts were collected from trench walls and backdirt. When appropriate, in situ samples, such as charcoal and bulk sediment samples, were collected. Each sample was given a unique number consisting of the first letter of the sample type followed by a number (e.g., the first charcoal sample collected from a site was designated C1, the first flotation F1, etc.). All similar types of samples were numbered consecutively and recorded on a sample inventory form.

Test units were excavated to sample buried cultural deposits, to afford exposures for stratigraphic interpretation, and to provide areal coverage of subsurface deposits across the site. The project archeologist determined locations of test units in consultation with the geomorphologist or the project manager. These decisions were contingent on the trenching results, previous investigators' observations, a general reinspection of the site area, and the results of shovel testing. When test units were excavated beside a backhoe trench, the unit's orientation corresponded to that of the trench. Isolated units generally were oriented to magnetic north, although units excavated along the edges of cutbanks or tank trails often were oriented in relation to the exposure. Test units generally measured 1x1 m, with deviations from the standard size consisting of 1x0.5-m units by backhoe trenches to sample sediments where no cultural evidence was observed or suspected or oversized units (1.5x1 m) to remove entire or larger portions of features visible in backhoe trenches, cutbanks, or tank trails. Some units expanded in size with depth because of a naturally occurring slope, but others were reduced in size with depth to best sample deeper sediments.

As with the backhoe trenches, test units were numbered sequentially beginning with number one. All units were excavated in arbitrary 10-cm levels, with the ground surface at the highest corner of each unit used as the datum for elevation control. When test units were excavated on the safety benches of backhoe trenches or overburden was intentionally removed, excavation levels were numbered from the surface.

Hand-excavated fill was dry screened through 1/4-inch-mesh hardware cloth. Any samples of charcoal and a maximum of 15 land snail shells were collected from each general level context. All cultural materials were collected except for unmodified mussel shell fragments lacking hinges (presence noted), burned rocks (sorted by size, counted, and weighed), and intrusive historic and modern items (presence noted). When the upper levels of a test unit were determined to be sediments of recent origin or were clearly redeposited, these upper levels were removed as overburden without being screened.

An excavation record form was completed for each level of each test unit, and an artifact frequency distribution summary form and inventory of field bags were filled out for every test unit. Selected profiles of test units, particularly those revealing features or cultural lenses in cross section, were drawn. If necessary for stratigraphic interpretation, the geomorphologist described geologic profiles of isolated test units.

Features were typically excavated and removed as discrete provenience units, and nonfeature matrix surrounding features was removed according to arbitrary levels and screened separately. Exceptions include midden deposits and an in-filled gully (e.g., Features 1 and 2 at 41BL349 and Feature 1 at 41CV579), which were completely excavated in arbitrary 10-cm levels. A feature data form was completed for each feature, and plan and profile views were drawn. Whenever possible, separate charcoal samples were taken from the feature fill. In many cases, all of a feature's matrix was removed as a flotation sample. Individual flotation samples, contingent on feature size and type of fill, ranged from 1.25 to 45.25 liters and averaged ca. 18.5 liters. If only a portion of the feature was sampled, the remaining matrix was screened through 1/4-inch-mesh hardware cloth. When special samples such as flotation or charcoal were taken from features, they were assigned specific sample numbers and listed on sample inventories. The project archeologist noted test unit locations on the site sketch map and recorded excavation progress on daily journal forms. When necessary, a general data form was used for recording additional excavation information or daily notes.

Whenever possible, test units were excavated to bedrock, abundant gravels, deposits that were not culturally relevant in age, or combinations thereof. At some sites containing Holocene deposits typically greater than 2–3 m, however, test excavations were terminated at an arbitrary depth at or below the maximum depth of cultural materials observed in trenches or other exposures.

Each site and its excavations were photographed and videotaped. Black-and-white print and color slide photographs were taken to document all phases of the investigations, including site and area overviews, backhoe trench and test unit profiles, cultural features, and other unusual archeological remains. Video recording of the work in progress and the completion of site testing provided further documentation.

All open sites were mapped using a Sokkia electronic total station, but mapping concentrated only on subareas that were tested. Subareas not tested were partially mapped or completely excluded. A permanent site datum marked by a rebar in the ground was established at each site and assigned an arbitrary elevation of 100 m. Topographic data for each site are relative to these datum points. Every site map includes the natural topography, cultural features visible on the surface, all mechanical and manual excavations, natural and manmade landmarks, and a site or subarea boundary based on the known or suspected spatial limits of surface or buried deposits. A plan and profile of the rockshelter at 41BL192-A was mapped with tape, compass, and line level.

During the course of the test excavations, the project archeologist reviewed records and maps for consistency and quality. The project manager and the quality control officer periodically reviewed records (see Quality Control below).

The final field task consisted of backfilling all test excavations. The backhoe filled in each backhoe trench and all accessible test units on open sites. The archeologists manually filled in test units on open sites that could not be reached by the backhoe and excavations placed in the rockshelter.

Once fieldwork was completed the project archeologist and geomorphologist wrote preliminary site reports for each of the 12 tested sites. The project manager reviewed and then submitted these reports, along with corresponding attachments and videotape, to the Fort Hood staff archeologist.

LABORATORY METHODS

Before fieldwork began, the methods and standards the Fort Hood Cultural Resources Management Program required for laboratory processing and curation of collections were reviewed thoroughly. Artifact and material collections also were processed and curated according to federal curation guidelines, Council of Texas Archeologists standards, and current curation and conservation standards. A laboratory manual outlining the procedures to be used and the standards to be met was created.

All collections were organized, processed, and curated by site. Collections from different sites were not intermingled at any stage of processing. As artifacts and samples were brought in from the field, they were organized by provenience and checked against the inventory of field bags and the sample inventory form completed in the field for any problems or inconsistencies with provenience information. If a problem was noted, it was corrected by referring to other excavation records or by consulting with the project archeologist. Collection bags were also checked for special information or instructions, and these materials were handled accordingly.

Once the field bags were checked, the materials were taken to the wet lab for cleaning. Some artifact categories, such as bone, charcoal, and vegetal matter, were finger- or dry-brushed rather than cleaned with water. Other artifacts were cleaned using tap water and occasionally a soft toothbrush. After cleaning, artifacts were placed on a drying rack and allowed to air dry thoroughly before being cataloged.

For some stone artifacts, it was necessary to remove calcareous deposits that would hinder analysis. This was done using a 5 percent solution of hydrochloric acid in water. Each artifact was soaked for 10 minutes in clear tap water and then soaked in the HCl solution until most of the effervescence ceased. The artifact was then soaked in clear tap water for at least 30 minutes to remove any remaining acid from the lithic surface. A list of artifacts that received this treatment is included in the project records.

After cleaning, the artifacts were bagged by material type within provenience designation. Each group of provenienced artifacts was assigned a unique provenience-specific accession number. A specimen inventory, organized by site and in accession number order, was compiled, with each artifact type listed under its assigned accession number. Recorded on the specimen inventory were the accession number, associated provenience data, the name of the excavator(s), the date of excavation, any other information recorded on the field bag, and the type and quantity of artifacts recovered. For some material categories, such as charcoal, a weight (usually in grams) was recorded rather than a count.

All categories of artifacts were cataloged with site and accession numbers. Lithic tools were assigned unique specimen numbers within each accession number. When assigned, this number was added after the accession number on the artifact. Artifacts received a base coat of PVA (a 10 percent solution of Polyvinyl Acetate Resin-AYAT in acetone). When dry, the site, accession, and specimen numbers were recorded using a rapidograph pen. This catalog number was then covered with a top coat of PVA.

Each artifact type was placed into a 4-mil polyethylene bag. Archival curation tags documenting the name of the project, project number and date, site number, provenience data, accession number, artifact type, and the number of specimens (or weight) were placed into 1.5-mil polyethylene bags and placed within each artifact bag. Artifacts were grouped by artifact types or subtypes if appropriate. For example, projectile points were bagged by type name rather than as one unit.

Flotation samples were processed using the Flote-Tech flotation system, which provides a multimodal method of separating materials in a sediment sample. The process resulted in a light fraction that was used for special analyses (such as macrobotanical) and a heavy fraction that was checked for artifacts larger than ¼ inch. Roots and unmodified rocks were removed and discarded. Any artifacts found were processed following the procedures outlined above.

The photographic materials were also organized by site. Black-and-white photographs and negatives were checked against the photo logs to ensure that frame numbers and captions correlated and that the recorded information was accurate. The contact sheets were labeled on the back with project, site, photo, roll, and frame numbers. The negatives were labeled with project, site, and photo numbers. A 4x5-inch print was made from each negative; these also were labeled with project, site, and photo numbers, as well as a caption. Color slides were checked against the photo log to ensure that the frame numbers and captions correlated and that the recorded information was accurate. Each slide was labeled with project name and number, site number, slide number, and caption. All of the photographic materials were placed into the appropriate archival holders. Videotapes of site investigations were labeled with project name and number, site number, and appropriate provenience information.

All forms and records used in the field and the lab were printed on archival paper and filled out in pencil. Maps drawn on nonarchival grid paper, which were later treated in the lab with a deacidification solution, were the exception. All field, lab, and analysis records were organized by project and then by site. Records were grouped by categories such as daily journal notes, testing forms, feature forms, specimen inventories, and so on. The only exception is that all photographs were curated as a unit, with all of the black-and-white photographs together and all of the color slides together. All written and photographic materials were placed in archival folders, archival record boxes, and archival curation boxes. An inventory detailing contents was included with each curation box. Curated photographic records also contain a computer-generated copy of the photo log, a cross-referenced photo log organized by site, and a disk copy of the computerized photo logs.

ANALYTICAL METHODS

Analyses of material culture (see Chapter 6) varied considerably depending on the class of artifacts being analyzed, the number of specimens within each artifact class, and the specific goals of the analysis. The material culture classification scheme employed during this analysis is outlined in Table 4.2. Artifacts were grouped first by type of material, and each material group, they were further classified into morphological and functional classes and subclasses. Systematic observations of selected attributes were defined for different classes of artifacts. Within each class, each specimen was

analyzed individually and its specific attribute data were recorded on a computer coding form and entered into the computer database (see Data Manipulation below). The detailed attributes recorded for stone artifacts, the most abundant artifact type recovered, are summarized in Table 4.3. For smaller artifact classes, such as modified bones or shells, specimens are described individually and detailed attributes were not recorded in the database.

The rest of this section defines the various artifact classes and subclasses, the attributes recorded for stone artifacts, and the methods of manipulating the material culture data. Attributes recorded for all nonlithic artifacts are described in the appropriate sections of the material culture chapter (see Chapter 6).

Definitions of Artifact Classes

The artifact classification and attribute analysis systems are the same as those used by PAI for the 1996 and 1997 prehistoric site testing (Kleinbach et al. 1999; Mehalchick, Kleinbach et al. 2000). They also generally correspond to the artifact analyses previously conducted by TRC Mariah (Abbott and Trierweiler 1995a:56–68; Trierweiler 1996:54–63) and with general morphological descriptions of chipped and ground stone artifacts by Turner and Hester (1993). In this analysis, more emphasis is placed on simple morphological groupings of artifacts rather than on inferring tool function derived from detailed analyses of flaking technology and use wear. This streamlined approach is justifiable given the small sizes of site-specific artifact samples in this study and the inherent limitations of behavioral interpretations that may be derived from such data.

Chipped Stone Artifacts

Arrow and dart points are functional groupings that denote stone artifacts probably used to tip projectiles. They are generally characterized as bifacially (sometimes unifacially) flaked specimens with triangular to leaf-shaped blade sections, sharply pointed distal ends, and sharp lateral blade edges. The distinction between arrow and dart points is one of size, with arrow points generally having a smaller blade and neck (or stem) width (the latter generally less than 8 mm for arrow points). When possible, arrow and dart points were further classified by named types defined in archeological literature. Specimens that could not be assigned to a named type are classified as untyped, complete or nearly complete points that do not conform to any specific type, and untypeable fragments are points that are too incomplete to be typed. Elton Prewitt assigned all projectile points to types.

Perforators are characterized as having relatively long and tapered projecting bits with

Table 4.2. Classification of material culture

CHIPPED STONES	˅ Core tools
˅ Arrow points	˅ Multifunctional tools
named types	˅ Edge-modified flakes
untyped	˅ Cores
untypeable fragments	˅ Unmodified debitage
˅ Dart points	
named types	GROUND AND BATTERED STONES
untyped	˅ Manos
untypeable fragments	˅ Metates
˅ Perforators	˅ Mano-Hammerstones
˅ Gouges	˅ Hammerstones
unifacial	˅ Other ground stones
bifacial	˅ Indeterminate fragments
˅ Bifaces	
early- to middle-stage	CERAMICS
late-stage to finished	
beveled knifes	BURNED ROCKS
miscellaneous bifaces	
˅ Unifaces	FAUNAL REMAINS
end scrapers	˅ Vertebrate
side scrapers	modified bones
end-side scrapers	unmodified bones
other scrapers	˅ Invertebrate
miscellaneous unifaces	modified shells
spokeshaves	unmodified shells
˅ Cobble tools-choppers	
˅ Gravers-burins	MACROBOTANICAL REMAINS

Table 4.3. Summary of attributes recorded for stone artifacts

Attributes Recorded	Arrow and dart points	Unmodified debitage	Chipped stone Tools	Ground stone tools
Site number, accession (lot) number, and provenience data*	x	x	x	x
Type name	x	–	–	–
Tool class or subclass	x	–	x	x
Raw material	x	x	x	x
Chert type	x	x	x	–
Completeness	x	x	x	x
Cortex**	–	x	x	–
Patination**	x	x	x	–
Heated**	x	x	x	x
Size (by groups)	–	x	–	–
Maximum length (mm)	x	–	x	x
Maximum width (mm)	–	–	x	x
Maximum thickness (mm)	x	–	x	x
Blade length (mm)	x	–	–	–
Blade width (mm)	x	–	–	–
Haft length (mm)	x	–	–	–
Neck width (mm)	x	–	–	–
Base width (mm)	x	–	–	–
Comments***	x	x	x	x

*Provenience data recorded include backhoe trench or test unit number, excavation level, elevation or centimeters below surface (for piece-plotted specimens), feature association, flotation sample number, surface collection, and so on.
**Presence and absence or degree of this trait were noted.
***Comments field was used for additional observations.

diamond-shaped biconvex or planoconvex transverse cross sections. They generally exhibit use-related microflaking on both faces of each edge or on alternate faces of opposite edges. Polish and rounding are often evident on the blades as well. The bases of perforators may be unmodified flakes, unifaces, bifaces, or projectile points reworked into perforators. As a functional group, perforators are thought to have been used primarily for drilling or poking holes through various materials. No distinction is made between fine-tipped perforators, commonly called drills, and broad-tipped specimens, often called reamers.

Gouges are triangular or trapezoidal specimens with planoconvex transverse and longitudinal cross sections. They may be unifacially or bifacially flaked but have straight to concave, steeply beveled working edges. Use polish and microflaking are concentrated primarily on the tool's ventral face. Use wear studies indicate that some gouges were probably hafted tools that functioned like modern-day planes or adzes. As used in this analysis, gouges also include tools that some lithic analysts classify as wedges. Some of the Fort Hood specimens conform to the Clear Fork varieties (unifacial and bifacial) of gouges as defined by Turner and Hester (1993:246–249).

Bifaces include all varieties of bifacially flaked tools that are not included in other classes. Bifaces are grouped into three subclasses used in the same manner as defined by Mariah (Abbott and Trierweiler 1995a:60–61; Trierweiler 1996:56–57): early- and middle-stage bifaces; late-stage and finished bifaces; and miscellaneous bifaces. The first two subclasses represent different stages of the biface reduction sequence Callahan (1979), Collins (1975), Sharrock (1966), and others recognized. Early- and middle-stage bifaces approximate Callahan's Stages 2 and 3, Collins's initial trimming into primary trimming, and Sharrock's Stages 1 and 2. They have moderate to considerable amounts of cortex remaining and may have isolated knots resulting from inadequate flake removals. The edges are irregular and exhibit no clear central plane when viewed on end. Late-stage and finished bifaces approximate Callahan's Stages

4 and 5, Collins's primary trimming into secondary trimming, and Sharrock's Stages 3 and 4. They are characterized by few or no remnants of cortex, sinuous to straight edges centered on a longitudinal plane when viewed on end, and a well-defined outline shape. Some of the Fort Hood late-stage and finished bifaces conform to named types of tools, such as the Friday, Guadalupe, or San Gabriel bifaces Turner and Hester (1993:253, 256–258, 273) described. Finished bifaces generally have a clear ovate to triangular outline shape. Beveled knives are thin bifaces that were ovate when manufactured, but one or both ends are pointed from resharpening of alternate blade edges. The miscellaneous biface subclass is a catchall group that includes bifacially worked specimens too fragmentary or too irregular to be classified as early- and middle-stage or late-stage and finished bifaces. Miscellaneous bifaces may include specimens that functioned as scrapers or knives, or in other capacities.

Unifacial specimens are classified into six subclasses: end scrapers, side scrapers, end-side scrapers, other scrapers, spokeshaves, and miscellaneous unifaces. These subclasses are recognized by the morphology and location of unifacial retouch or use wear related to the flake on which the tool is made. End scrapers have significant retouch or use wear along their distal edges, side scrapers have one or more worked or worn lateral edges, and combination end-side scrapers have characteristics of both. These scrapers, particularly end scrapers, may exhibit evidence of hafting in the form of scarring or polishing on ventral ridges or proximal lateral edges. Other scrapers are unifacially worked implements with two or more retouched working edges that do not conform to the standard morphology of the end, side, or end-side scraper subclasses (e.g., a round scraper with its entire circumference serving as a working edge). Miscellaneous uniface is the catchall group for any unifacial tool that does not fit into another subclass. Miscellaneous unifaces include specimens that are irregularly shaped or have minimal unifacial working and retouch.

Spokeshaves are small flake tools with a worked concave edge that may have functioned as a plane to shave wood off of round sticks or shafts. The notchlike indentation may have been produced bifacially or unifacially. Spokeshave notches produced on other bifacial or unifacial tools (e.g., on an end scraper) are classified as multifunctional tools.

Cobble tools and choppers are unifacially or bifacially flaked implements made on cobbles or pebbles. Cobble tools exhibit extensive step fracturing, edge rounding, and polish indicating heavy wear. Large cobble tools are often called choppers and were probably used as hammers for heavy battering and crushing.

Gravers and burins are flake tools with one or more carefully chipped beaklike protrusions. They probably represent specialized tools used for fine cutting and engraving. Unifacial and bifacial tools with graver tips are classified as multifunctional tools. Burins probably functioned like gravers (i.e., for cutting and engraving) but were made by striking off a flake so that it ran along a flake or tool edge. This different technique leaves a very strong steep, or right-angle, edge where the flake was removed.

Core tools are cores (see below) that have had one or more edges subsequently modified, either intentionally prepared as a working edge or altered through use. These tools are likely cores that were picked up and used as scraping or battering tools. The primary distinction between core tools and cobble tools is that core tools originally functioned as cores before being made into or used as tools, but cobble tools did not.

Multifunctional tools are artifacts that appear to have been intentionally manufactured for and used in performing two or more functionally distinct tasks. Multifunctional tools may include artifacts that fall into two or more of the other artifact classes. For example, an end-side scraper with a spokeshave notch or graver beak would be classified as a multifunctional tool rather than as a spokeshave or graver.

Edge-modified flakes are flakes with one or more edges that exhibit very minimal retouch and use wear. These expedient tools were used with little or no preparation. Edge-modified flakes include tools that some lithic analysts call utilized flakes or minimally retouched flakes.

A core is a chipped stone that has had flakes removed, but its primary function was as a source of flakes. Cores exhibit no evidence of use, and the original intent was to remove flakes suitable for producing tools.

Unmodified debitage consists of flakes that show no evidence of having been further modified or used. For analytical purposes,

unmodified flakes were classified as complete, proximal fragments, chips (medial or distal fragments), and chunks (angular fragments). Although the amount of cortex present on flakes was recorded (see below), no attempt was made to define flakes according to their inferred reduction stage (such as biface thinning flakes, notching flakes, or unifacial manufacture or resharpening flakes). Before coding attributes, unmodified flakes also were sorted into the following size categories corresponding to standard-sized sieves: <0.25 inch, 0.25–0.5 inch, 0.5–1.0 inch, 1.0–1.5 inches, 1.5–2.0 inches, and >2.0 inches.

Ground and Battered Stone Artifacts

Ground and battered stone tools are classified into the following groups: manos, metates, mano-hammerstones, hammerstones, other ground stones, and indeterminate fragments. Manos are stones used for grinding and generally have one or two ground faces (i.e., unifacial or bifacial grinding). Metates are milling slabs on which manos were used, and they encompass a range of different forms and sizes. Mano-hammerstones functioned primarily as manos but also exhibit evidence of battering along one or more edges. Hammerstones exhibit extensive battering on one or more edges. Most are water-worn cobbles that often have heavy battering on their ends. The precise function of hammerstones is not always clear, but most specimens are thought to represent percussion hammers used in knapping other stone tools. Other ground stones is a class that can include a variety of tools such as anvils, abraders, pestles, nutting stones, and modified hematite. Indeterminate fragments are pieces of ground stone too fragmentary to identify their form or function. Morphologically distinctive ground stone tools are discussed individually in the artifact descriptions (see Chapter 6).

Ceramics

Prehistoric ceramics were recovered from only one site—41CV41, Subarea A. Most of the sherds are engraved, Caddoan ceramics, but one undecorated sherd may be Toyah in origin (see Chapter 6). Petrographic and neutron activation analyses were done on selected sherds to address research questions about manufacturing sources. Perttula et al. 2003 report the methods and results of the petrographic and neutron activation studies.

Burned Rocks

Burned rocks is a category that includes all nonchert rocks (primarily limestone) exhibiting evidence of heating such as thermal discoloration, angular fractures, or spalling. All thermally altered rocks were examined and quantified in the field (i.e., sorted by size and weighed) and then discarded if no other modifications were observed. The distributions of burned rocks within sites are discussed under each site module (see Chapter 5), but the data were not entered into the artifact database. Many burned rocks are directly associated with heating and cooking features, and even non-feature burned rocks are considered to have been heated intentionally and were probably used as heat-retaining stones in a heating and cooking feature at one time.

Faunal Remains

Faunal remains include vertebrate and invertebrate remains and are classified as unmodified or modified. Vertebrate faunal remains are discussed in detail in Appendix C. Depending on their archeological context and other factors, unmodified bones are considered to represent either discarded remains of animals that humans killed or remains that were deposited in sites by natural processes. Unmodified bones are specimens that exhibit no evidence of intentional modification but may include bones that humans modified incidentally or accidentally. These modifications (e.g., bones that show spiral fractures or cut marks resulting from butchering an animal) are often the result of human activities but are recorded as attributes of unmodified bones rather than as modified bones. A detailed analysis of all unmodified bones is presented in Appendix C.

Modified bones are specimens intentionally cut, ground, or otherwise altered in the process of manufacturing a tool or ornament. This category may also include specimens that exhibit use wear and were used as tools.

Invertebrate faunal remains include land snail shells and freshwater mussel shells. Snail

shells, primarily various species of *Rabdotus*, are ubiquitous in cultural deposits at Fort Hood but are believed to occur naturally in most contexts because organic-rich detritus in habitation sites likely attracted the snails. Consequently, the presence and abundance of snail shells was always noted in excavation records, but only a small sample was collected from any given provenience for possible radiocarbon dating or amino acid racemization studies. Mussel shell valves and fragments also were abundant in the cultural zones at a few sites, but these are thought to represent materials humans introduced. Although most shells found in archeological contexts are thought to represent the discarded byproducts of eating mussels, some shells were modified to make tools and ornaments. All unmodified mussel shell valves with an umbo (whole or partial) were collected, but other unmodified fragments were discarded in the field. Mussel valves or shell fragments with evidence of intentional modification, such as cut edges or drilled holes, were collected and are considered to be artifacts. Discolored or calcined shells indicate that shells were heated intentionally, perhaps to remove the mussels, or burned accidentally, possibly being discarded into fires.

Macrobotanical Remains

Samples of macrobotanical remains, primarily charred wood and sediments (i.e., flotation samples), were taken from cultural sediments. The presence, absence, or abundance of macrobotanical remains is discussed for individual sites (see Chapter 5) but was not entered into the artifact database. A detailed analysis of macrobotanical remains from selected sites is presented in Appendix D.

Definitions of Stone Artifact Attributes

Aside from provenience data and classification attributes, other attributes recorded for stone artifacts consist of subjective observations and objective measurements of metric data. Subjective attributes include identifications of raw materials and chert types and assessments of artifact completeness, presence or absence of cortex and patination, and evidence of heating. Objective (i.e., metric) attributes consist of measurements (in millimeters) used to characterize individual specimens. When appropriate, comments about nonstandard attributes or observations for individual specimens were added to the database.

Raw Materials and Chert Types

Raw material types identified among the chipped, battered, and ground stone artifacts are chert, quartzite, limestone, sandstone, and hematite. Specimens identified as chert consist of opaque to partially translucent cryptocrystalline or microcrystalline materials. Fine-grained cherts lack visible crystalline structure, have weak to moderate luster, and are partially translucent. Coarse-grained cherts have visible crystalline structure, an opaque appearance, and a generally grainy fill. Quartzites are metamorphic rocks consisting mainly of recrystallized quartz. Most recovered quartzite specimens are characterized by fine-grained crystalline structures and a reddish purple color. Various types of Cretaceous limestones (carbonate-rich, fine-grained sedimentary rocks) are the most abundant rocks found in cultural deposits at Fort Hood (see burned rocks). No attempt was made in the field or laboratory to sort types of limestones, but excavators noted the approximate frequencies of fossiliferous vs. nonfossiliferous limestones in many cultural features and sites. Some varieties of sandstone, fine- to coarse-textured sand grains cemented by silica or carbonates, are found in the Cretaceous limestone deposits in the Fort Hood area. Other types of sandstone appear to be nonlocal in origin. Hematite nodules—iron oxide concretions in advanced stages of weathering—occur naturally in certain localities (e.g., Paluxy sediments).

All chert specimens, regardless of artifact class, were compared with the established Fort Hood chert typology. Because central Texas is important as a chert resource area for local and extra-regional use (Shafer 1993:55), much attention has been devoted to developing a typology of the chert resources present on Fort Hood (Abbott and Trierweiler 1995b; Dickens 1993a, 1993b; Frederick and Ringstaff 1994). The Fort Hood chert typology established by previous researchers was employed in this study and is summarized in Table 4.4.

Table 4.4. Fort Hood chert types

Type Number	Type Name	Abbreviation	Chert Province*
1	Heiner Lake Blue-Light	HLB-LT	Southeast Range
2	Cowhouse White	CW	Southeast Range
3	Anderson Mountain Gray	AMG	West Fort
4	Seven Mile Mountain Novaculite	SMN	West Fort
5	Texas Novaculite	TN	North Fort
6	Heiner Lake Tan	HLT	Southeast Range
7	Fossiliferous Pale Brown	FPB	Southeast Range
8	Fort Hood Yellow	FHY	North Fort
9	Heiner Lake Translucent Brown	HLTB	Southeast Range
10	Heiner Lake Blue	HLB	Southeast Range
11	East Range Flat	ERF	North Fort
13	East Range Flecked	ERFL	Southeast Range
14	Fort Hood Gray	FHG	North Fort
15	Gray-Brown-Green	GBG	North Fort
16	Leona Park	LP	North Fort
17	Owl Creek Black	OCB	Cowhouse Alluvial
18	Cowhouse Two Tone (or Mottled)	CTT	Cowhouse Alluvial
19	Cowhouse Dark Gray	CDG	Cowhouse Alluvial
20	Cowhouse Shell Hash	CSH	Cowhouse Alluvial
21	Cowhouse Light Gray	CLG	Cowhouse Alluvial
22	Cowhouse Mottled with Flecks	CMF	Cowhouse Alluvial
23	Cowhouse Banded and Mottled	CBM	Cowhouse Alluvial
24	Cowhouse Fossiliferous Light Brown	CFLB	Cowhouse Alluvial
25	Cowhouse Brown Flecked	CBF	Cowhouse Alluvial
26	Cowhouse Streaked (or Striated)	CS	Cowhouse Alluvial
27	Cowhouse Novaculite	CN	Cowhouse Alluvial
28	Table Rock Flat	TRF	West Fort
29	indeterminate white	–	–
30	indeterminate yellow	–	–
31	indeterminate mottled	–	–
32	indeterminate light gray	–	–
33	indeterminate dark gray	–	–
34	indeterminate light brown	–	–
35	indeterminate dark brown	–	–
36	indeterminate black	–	–
37	indeterminate blue	–	–
38	indeterminate red	–	–
39	indeterminate nonlocal	–	–

Note: No Type 12 was assigned.

*Trierweiler (1994:Figures 9.1 andG.1) and Abbott and Trierweiler (1995:679–734) defined chert provinces.

Completeness

Each stone artifact is described as complete, nearly complete, proximal fragment, medial fragment, distal fragment, edge fragment, indeterminate fragment, or barb. For incomplete specimens, no attempt was made to interpret the nature of the breakage (manufacture vs. use breaks).

Cortex

The amount of cortex present on a chipped stone artifact provides evidence of the raw material source and can reveal much about the stage of manufacture. Cortex on each chipped stone artifact was recorded as 0 percent, 0–50 percent, 50–99 percent, or 100 percent. No attempt was made to describe different types of cortex.

Patination

The degree of patination on chert artifacts was noted as being none, light, or heavy. Patination is the complex weathering process by which cherts develop a colored rind around their exterior surfaces. For central Texas cherts, Frederick et al. (1994:6) use the term patina to refer to the weathering rind that is visible in petrographic thin sections and is "white or light gray to the unaided eye." Patination is a time-dependent process and can be used in a gross fashion as an age indicator, although the absence of patination says nothing about an artifact's age. There are too many variables involved in the chemical process of patination to derive meaningful chronological interpretations based on variations in the degree of patina.

Heating

Artifacts that show evidence of low- to moderate-intensity heating—such as slight discoloration, reddening, and a glossy surface texture—may have been intentionally heat treated. When artifacts were intensively heated—as evidenced by heat spalling, fracturing, or crazing—it is likely that the heating was accidental, but distinguishing between intentional and accidental heating is subjective. For this analysis, degree of heating was recorded as none, low, or high for all stone artifacts. Most of the chert specimens that were heated show evidence of low- to moderate-intensity heating and are thought to represent intentionally heat-treated pieces.

Metric Attributes

For most stone tools the only measurements taken were maximum length, width, and thickness. For projectile points the standard measurements taken were maximum length, blade length, blade width, haft width, neck width, base width, and maximum thickness. All measurements were taken in millimeters with digital calipers and read to one-tenth of a millimeter.

Data Manipulation

After artifact data was put onto coding sheets, they were entered into a database for manipulation. ACCESS for OFFICE 97 was the software used to code and analyze the data.

QUALITY CONTROL PROGRAM

To ensure that a high standard of quality was maintained, a quality control (QC) program established procedures for conducting periodic independent reviews of the work. The primary objectives of the program were to establish a system of communication to ensure that responsibilities and job descriptions of various project personnel were clearly understood and followed, to maintain consistency among individual site investigations conducted under all delivery orders and among different field seasons, and to maintain a high quality of work by establishing periodic review of all phases and aspects of field, laboratory, and analysis work by a company employee not directly involved with the project, to ensure that National Register criteria were being uniformly applied and that site evaluations were conducted consistently and replicably. The quality control program generally followed guidelines previously established by Mariah for their intensive shovel testing program (Trierweiler, ed. 1994:92–95), but was modified to meet the specific requirements of the testing and evaluation phase.

To meet the first two objectives stated above, PAI prepared two procedures manuals outlining the methods and standards of archeological field and laboratory and analytical work. These were used throughout the project. The *Field Procedures Manual for Archeological Testing and Evaluation at Fort Hood, Texas* (unpublished manual by Prewitt and Associates, Inc., 1996) outlines the duties and responsibilities of all major project and field personnel, including crew members. It also describes the field methods and techniques employed and presents examples of standard data forms used in the field. The *Laboratory and Analysis Procedures Manual for Archeological Testing and Evaluation at Fort Hood, Texas* (unpublished manual by Prewitt and Associates, Inc., 1995), outlines the duties of all key project and laboratory personnel. It also describes standard laboratory and data analysis procedures and presents examples of the standard forms used in the lab.

RESULTS OF NATIONAL REGISTER TESTING AT 12 SITES

Gemma Mehalchick, S. Christopher Caran, and Karl W. Kibler

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The small sample of 12 sites comprising the 1999 field season are scattered across Fort Hood, so grouping sites by shared geographic or environmental settings (Kleinbach et al. 1999; Mehalchick, Kleinbach et al. 2000) was meaningful. Seven sites are isolates situated in different drainage systems or geomorphic settings (e.g., Paluxy and rockshelter), 3 sites are situated within the Owl Creek valley, and 2 are in the Clear Creek drainage. Seventy-six backhoe trenches and 54 test units (579 levels) were excavated (see Table 4.1), and 20 analysis units are identified at the 12 sites (Table 5.1). They consist of a rockshelter (41BL192-A), a burned rock midden (41BL349), and 10 open campsites. Site 41CV1553 also contains both Paluxy and non-Paluxy sediments.

41BL192

Site Setting

Site 41BL192 is situated on Seven Mile Mountain overlooking the valley of Clear Creek. It consists of a lithic resource procurement area and rockshelter on the high upland Manning surface. Shin oak, juniper, redbud, and aromatic sumac dominate vegetation on the bedrock surface. A dirt road and overhead electric lines parallel the western escarpment edge. Situated immediately below the rim of Seven Mile Mountain, vegetation at the mouth of the rockshelter includes Texas red oak, Carolina buckthorn, and mustang grape. There is military and modern refuse present among large boulders (breakdown) in front of the overhang and on the slope. Site elevation is 350–360 m above mean sea level.

Previous Work

White and Thomas (Fort Hood Archeological Society) first recorded 41BL192 on 20 December 1978. Measuring 13x8 m, this west-facing rockshelter contained lithic artifacts, including one collected Darl dart point, and small bones and teeth. In the deepest part of the shelter, a line of rocks and modern burned wood was observed along the back wall. No other disturbance was noted, and the rockshelter appeared relatively undisturbed. Concentrations of lithic materials and various chert types also were observed on the upland surface above the rockshelter.

On 3 February 1993, Frederick and Mehalchick (Mariah Associates) visited and evaluated the site. Based on differing archeological potentials and geomorphic contexts, the site was divided into Subareas A and B, but site dimensions were established only for Subarea A.

Subarea A consisted of a west-southwest-facing rockshelter formed at the nick point of a drainage where it crossed the edge of the Manning surface and flowed westward onto the Killeen surface. The maximum interior shelter dimensions were 12x6x1 m, with many large limestone roof fall blocks immediately outside the overhang. A narrow (1–2-m wide) strip of yellow silty and loamy internally derived fill, situated by the back wall, was best preserved at the northern end of the shelter. Fragments of limestone spalls ranging from granule- to-boulder-sized were intermixed. The thickness of this fill was estimated to be less than 1 m and possibly less than 50 cm. Water from the drainage had flowed into the shelter and carved out an arcuate area along its western and

Table 5.1. Summary of analysis units defined at 12 sites

Site	Subarea	Analysis Unit	Site Type	Landform
41BL192	A	–	rockshelter	rockshelter
41BL349	–	–	burned rock midden	colluvial slope
41CV41	A	1	open campsite	Owl Creek terrace (T_1)
		2	open campsite	tributary terrace (T_1)
		3	open campsite	tributary terrace (T_1)
41CV94	A, B	–	open campsite	terraces (T_2/T_0–T_1)
41CV579	–	1	open campsite	terrace (T_1)
		2	open campsite	terrace (T_1)
		3	open campsite	terrace (T_1)
41CV668	B	–	open campsite	terrace (T_1)
41CV956	B	–	open campsite	terrace (T_1)
41CV1441	–	–	open campsite	terraces (T_0–T_1–T_2)
41CV1443	A	1	open campsite	terraces (T_0–T_1)
		2	open campsite	terrace (T_1)
41CV1553	–	1	Paluxy site	slope (Paluxy)
		2	Paluxy site	slope (Paluxy)
		3	open campsite	slope/terrace (non-Paluxy)
41CV1555	–	1	open campsite	terrace (T_1)
		2	open campsite	terrace (T_1)
41CV1556	B	–	open campsite	terraces (T_0–T_1)

southern margins. An externally derived dark gray clay loam with several limestone fragments dominated the fill deposited during this process. At the time of the investigation, much of the area containing this deposit was under water. Because sheet erosion is active in this portion of the shelter, only the internally derived fill along the back wall was considered to have archeological potential. Sparse debitage (probably redeposited) was observed along the edge of the overhang and on the talus slope. Unmodified chert chunks, as well as bird and other animal bones, were noted within the overhang. Some displaced rocks along the back wall were probably associated with the modern campfire recorded in 1978. Erosion and military activities disturbed 50–60 percent of the shelter. Because the rockshelter might contain discrete cultural deposits, shovel testing was warranted.

Subarea B subsumed the Manning surface immediately above the rockshelter. A thin, discontinuous mantle of a truncated ancient soil (A-R, A-Bt-R, or Bt-R profile) and exposed bedrock covered the area. Scattered chert nodules and cobbles, burned rocks, debitage, and bifaces were observed on this surface. Previous site assessments noted the presence of naturally occurring chert and cultural materials here, but no site maps or dimensions were delineated for this area. Also, the IGAS (contour) map depicted only the rockshelter location. Similar observations for the upland surface were noted at this time, but boundaries were not defined for Subarea B. Nonetheless, the shallow deposits and sheet erosion indicated that Subarea B had negligible potential for intact cultural deposits, and no further work was recommended.

On 17 February 1993, a crew excavated two shovel tests near the back wall of the rockshelter (Subarea A). Both contained lithic artifacts and bone fragments. The shovel test in the middle of the shelter encountered weathered limestone at 30 cm, and the second test near the north end of the shelter was terminated at 15 cm (bedrock). Based on these results, Subarea A had the potential to contain intact archeological deposits. The recommended testing effort to determine National Register eligibility consisted of a

minimum of 2 m^2 of manually excavated test units (Trierweiler, ed. 1994:A92–95).

Work Performed

Before excavations began, the rockshelter and the surrounding area were reinspected. Trash among the large boulders in front of the overhang and on the slope included large flat sheets of metal, a rusted vise, and parts of a Howitzer. Displaced burned rocks associated with the campfire observed in 1978 were still visible on the shelter floor near the back wall. On the upland directly above the middle of the shelter, a rubble pile contained chert cobbles and bricks.

On 15 September 1999, formal testing of Subarea A at 41BL192 was completed (Figure 5.1). Testing consisted of two 1x1-m test units (Test Units 1–2), for a total manually excavated area of 0.94 m^3.

The two test units were terminated at a highly indurated sediment layer. Excavated to a maximum depth of 54 cm, Test Unit 1 was placed ca. 25 cm from the back wall and oriented to 290˚. Situated 2 m east of Test Unit 1, Test Unit 2 was about 90 cm from the back wall near the center of the shelter and in the vicinity of where the previously reported campfire was observed. This unit was aligned to 320˚ and terminated at 40 cm.

Site Extent and Depth

Adjoining the back wall, Subarea A, the rockshelter, has maximum dimensions of 12x6x1.2 m. The only apparent appreciable deposits are unconsolidated silty sediments covering an area 1.0–1.5 m wide and approximately 13 m long. The rest of the shelter floor and the mouth of the shelter show active sheet erosion. The paucity of cultural materials suggests that definable cultural components are not present.

Sediments and Stratigraphy

The 28-cm-thick deposit in Test Unit 2 exposed a CB-Bkmb-2Bkm^{2}b profile (see Appendix B). The thin CB horizon is a pale brown, gravelly to stony silt loam containing few laminae consisting of brittle calcite films precipitated from seepage. The 9–24-cm-thick Bkmb horizon consists of a very pale brown silt loam. This zone underlies the CB horizon in the northeast wall but is not present in the southeast wall of the unit. The upper two horizons correspond to Abbott's Type 1 rockshelter fill (Abbott and Trierweiler 1995b). A highly calcareous clay in beds 3–10 cm thick separated by 1–4-cm-thick lenses consisting of sandy loam makes up the white 2Bkm^{2}b horizon that corresponds to Abbott's Type 2 fill. The hard, dry clay beds preserve weak horizontal laminae. They are compacted, recemented, and show massive soil structure. At the southern and northern ends of the northeastern wall, this horizon is separated from the overlying deposit by a very abrupt, irregular, inclined lateral boundary.

Cultural Materials

In Test Unit 1, only Level 2 (10–20 cm) produced any cultural material: an *Odocoileus* sp.(deer) tooth (see Appendix C). The upper 30 cm of deposits in Test Unit 2 contained 1 flake, 1 core, and 11 Mammalia, Artiodactyla, and *Didelphis virginiana* (opossum) bones. Charcoal fragments noted at 10–20 cm are probably intrusive material from the nearby campfire first recorded in 1978. Floral and faunal bioturbation was evident in both excavations.

Discussion

There are sparse lithic artifacts and animal bones present in a bioturbated, internally derived matrix. This narrow strip of sediment occurs only along the back wall of the shelter, whereas the remainder of the floor continues to experience erosion and redeposition of matrix and other materials from the upland surface. Based on the testing results, Subarea A at 41BL92 has limited archeological research potential and is recommended as not eligible for listing in the National Register.

41BL349

Site Setting

Site 41BL349 is comprised of a burned rock midden situated on a colluvial slope next to an unnamed tributary of North Reese Creek.

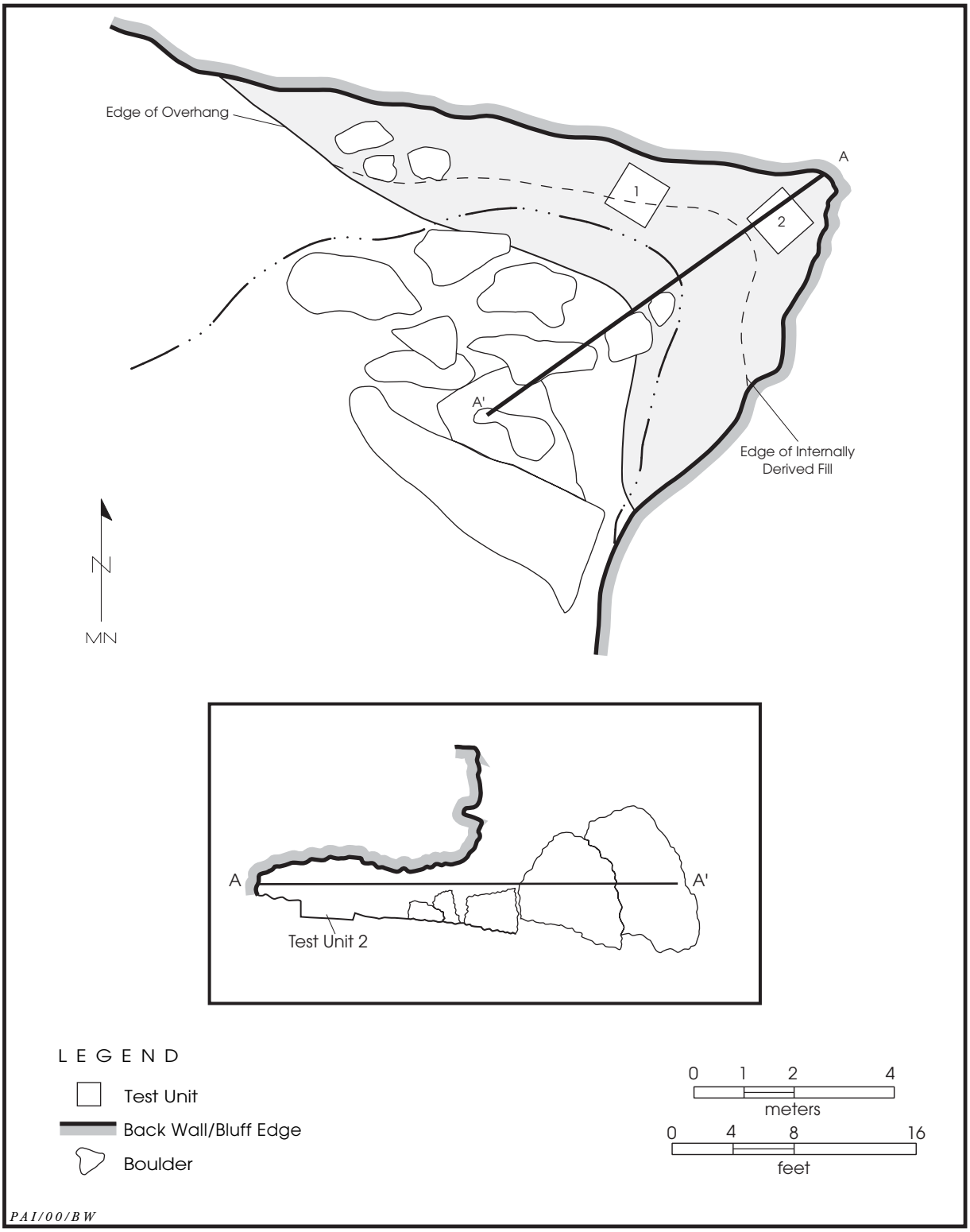

Figure 5.1. Plan and profile of rockshelter, 41BL192-A.

Looter's potholes have minimally disturbed the midden deposit. Approximately half of the area is open and covered with grasses, and the remainder of the site supports an oak-juniper woodland. Site elevation is 260 m above mean sea level.

Previous Work

On 19 May 1981, Nightengale (Texas Archeological Survey) recorded the site as a 40x34-m burned rock midden with debitage, scrapers, cores, bifaces, and dart points (including one Pedernales point). One large pothole was observed and appeared to be relatively recent. Vandalism and erosion damaged an estimated 20 percent of the site.

Meizner (Texas A&M University) monitored the site on 25 March 1983. A previously unmapped pothole was discovered, and the site size estimate was expanded to 60x40 m to encompass this vandalism. It was unclear whether this disturbance had occurred since the site was first recorded. Nonetheless, the estimated amount of site disturbance was unchanged. A dilapidated wire fence with "Off Limits" signs and open gates bordered the western site boundary.

An unsigned letter dated 28 March 1983 in the site file states that putting signs on the existing barb wire fences "constituted our protection measures" and that this needed to be clear on the monitoring form. Although unsigned, this handwritten note was probably written by Fred Briuer, then the Fort Hood archeologist.

The site was monitored by Strychalski (Texas A&M University) on 10 February 1986. Site size estimate was again enlarged (to 75x60 m), but no reason was given for expanding the boundaries. No recent vandalism was noted, but erosion, vandalism, and animals disturbed an estimated 50 percent of the site. The fence was considered an effective barrier, "although it was noticed to be down in places and there were open gates." Recommended protective measures consisted of repairing the fence and preventing erosion from destroying the site.

On 12 August 1997, Nordt (Baylor University) and Kleinbach (Prewitt and Associates) revisited and evaluated the site. The site dimensions established in 1986 were found to be correct. The site was recorded as being situated on a colluvial toeslope by a tributary of North Reese Creek. The eastern half of the site supported a dense oak-juniper woodland, and the western portion was subject to minor sheet erosion. Vegetation consisted of small tree mottes. Potholes revealed 30 cm of dark loamy sediments of apparent colluvial origin. The associated geomorphic surface graded down to an elevation that projected above the modern floodplain. Thus, the colluvial deposit probably accumulated concurrently with a middle to late Holocene floodplain surface. East of the site, a cutbank exposed modern stratified floodplain deposits showing minimal pedogenesis, indicating high energy fluvial deposition within the last 1,000 years. Based on this exposure, the colluvium was estimated to be less than 1 m thick. The previously recorded burned rock midden was re-located and designated Feature 1. The midden appeared to be minimally damaged by looters, and most of the site was undisturbed. Debitage, stone tools, and burned rocks were observed in potholes and along the fringes of Feature 1. Based on the areal extent of the cultural materials, the midden was estimated to measure 40 m northwest-southeast by 20 m northeast-southwest and was at least 30 cm thick. Because buried cultural deposits were observed in the profiles of the potholes, shovel testing was not warranted. Site 41BL349 contained potentially intact cultural deposits of unknown significance. Recommended testing to determine National Register eligibility consisted of at least one backhoe trench and 4–6 m^2 of manually excavated test units (Kleinbach 2000:238–239).

Work Performed

Before trenching, the site area was examined and the burned rock midden was re-located. Potholes drawn on the 1997 site map were found, but no evidence of recent looting was observed. Because of a lack of exposure, no cultural materials were observed in the tributary cutbank. On 29 September 1999, formal testing of 41BL349 was completed (Figure 5.2). Test excavations consisted of four backhoe trenches (Backhoe Trenches 1–4) and three 1x1-m test units (Test Units 1–3). A total of 3.54 m^3 was manually excavated.

Extending from the edge of the tributary, Backhoe Trench 1 bisected Feature 1, the burned

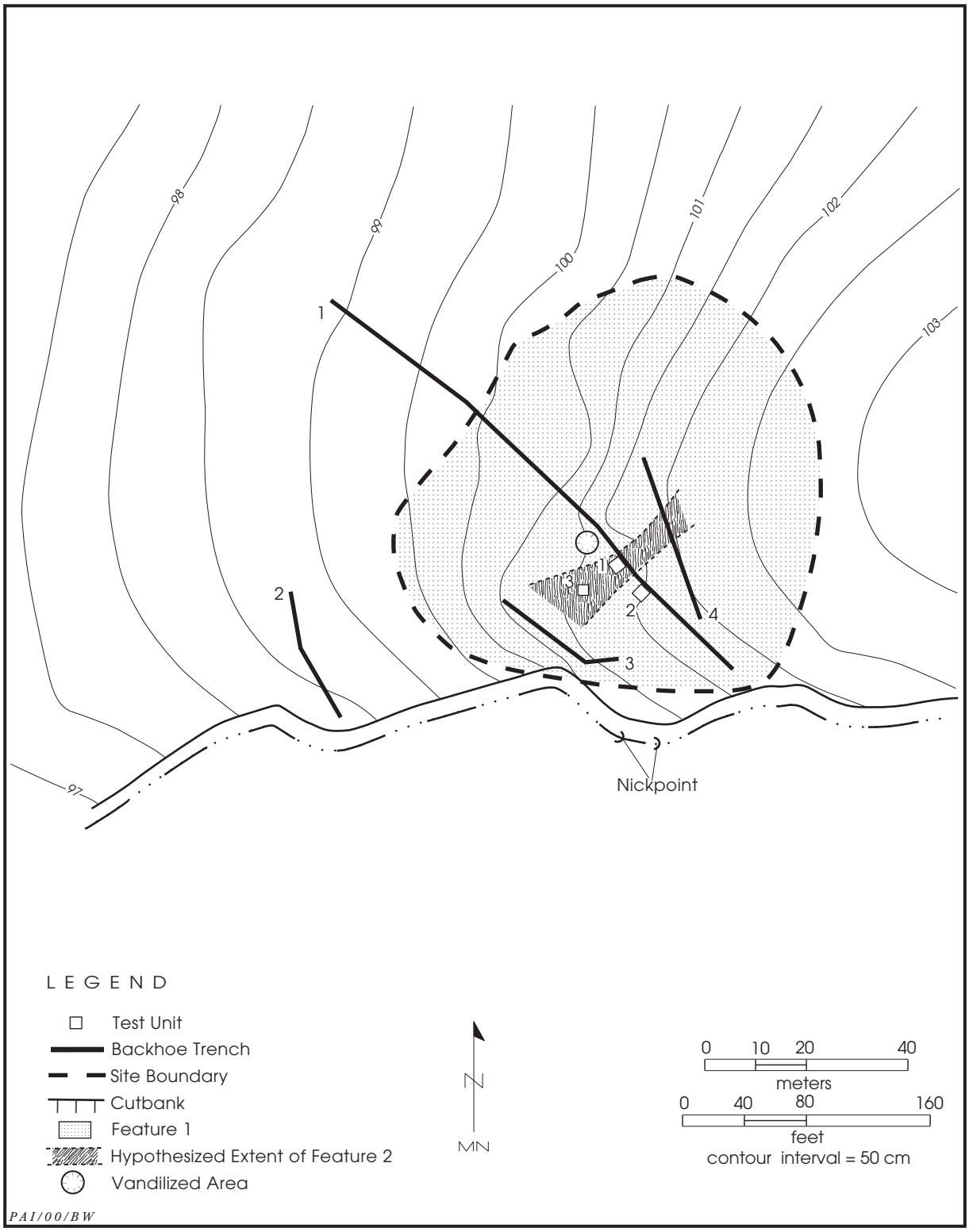

Figure 5.2. Site map of 41BL349.

rock midden, from southeast to northwest and continued downslope through shallow, non-midden deposits. The trench was oriented between 310° and 320° and had maximum excavated dimensions of 108x0.6x1.7 m. Exposed in both trench walls, Feature 1 was 50 m long and up to 60 cm thick. Toward the southern end of the trench, a large pit (designated as Feature 2) was well defined in the west wall. The southern end of the trench exposed highly resistant limestone, closer to the creek, whereas this feature cut down through heavily weathered bedrock. Inside the trench, Feature 2 appeared as an irregular pit measuring 300 cm at its widest point and was present from 50 cm (at the base of the midden) to a maximum depth of 165 cm. It contained dark midden soil and many burned and unburned rocks. At its northern margin, there was a line of large, tabular burned rocks along the sloping edge of the pit. The outline of the feature was visible in the east wall of the trench, but it is smaller and irregular. Feature 2 appeared to represent a natural gully filled in with cultural debris and organic-stained sediment, but the possibility that it was a manmade feature or that the gully was purposefully modified could not be discounted.

Backhoe Trench 2 was placed ca. 50 m southwest of Backhoe Trench 1 and 5 m north of the tributary. The southern half of the trench was aligned to 340°, and the northern portion turned to 355°. The trench measured 28x0.6x0.75 m and exposed no cultural materials.

Excavated to weathered limestone at a maximum depth of 184 cm, Test Unit 1 was placed along the west wall of Backhoe Trench 1 and above a section of Features 1 and 2. It was excavated to a maximum depth of 184 cm and sampled both Features 1 and 2. Approximately 5 m south of Test Unit 1, Test Unit 2 also was located by the west wall of Backhoe Trench 1. This unit was excavated to sample an area where a few larger burned rocks were observed at 30 cm within Feature 1. The test unit was terminated at the base of Feature 1 at 50 cm. Excavated to weathered limestone at a maximum depth of 120 cm, Test Unit 3 was dug approximately 5 m west of Test Unit 1 to define the southwestern extent of Feature 2.

When Test Unit 3 failed to provide conclusive evidence that Feature 2 was a natural gully, two more backhoe trenches were excavated on either side of Backhoe Trench 1 to assess the extent of Feature 2. Backhoe Trench 3 was excavated downslope, ca. 20 m west of Trench 1. From south to north, the trench was oriented at 85° with a dogleg to 290° and had maximum excavated dimensions of 26x0.6x1.3 m. Feature 1 midden deposits were exposed from 0 to 60 cm in both walls for the entire length of the trench. Although no distinct pit was apparent, deeper portions of Feature 1 may actually represent Feature 2, the infilled gully, which appeared to be wider to the west.

The south end of Backhoe Trench 4 was situated 3 m east of Backhoe Trench 1. It was oriented to 330° and measured 35x0.6x1.5 m. Exposed in both walls the entire length of the trench, Feature 1 was visible from the surface to a maximum depth of 60 cm. Feature 2 was encountered from 50 to deeper than 150 cm in the central portion of the trench, a location that corresponded to its location in Backhoe Trench 1. The pit was broad in the west wall of Backhoe Trench 4, but it consisted of two shallow pits in the east wall.

Site Extent and Depth

Based on the excavation results, exposures provided by looter's potholes, and extent of surfacial cultural material, the site area is restricted to the burned rock midden (Feature 1). This feature has estimated maximum dimensions of 85 m northeast-southwest by 80 m northwest-southeast. Subsurface exposures reveal that Feature 1 is up to 60 cm thick. Although cultural materials associated with Feature 2 were found to a depth of 186 cm in Test Unit 1, this feature is interpreted as a natural gully containing a secondary deposit of cultural materials (i.e., redeposited materials from the midden).

Sediments and Stratigraphy

The 176-cm-thick deposit in Backhoe Trench 1 exhibits an A-BA-Bkm profile (see Appendix B). The A horizon consists of a black silty clay that thickens downslope to the northwest. A very dark gray gravelly silty clay comprises the BA horizon, which is partly anthropogenic. This deposit ranges from 24 to 161 cm thick in Features 1 and 2. Both of these

horizons consist of slopewash deposits probably equivalent to the West Range fill. The basal Bkm horizon consists of a mature pedokarstic petrocalcic sandy loam possibly correlating to the Jackson alluvium, but unweathered limestone is exposed at the upslope (southeast) end of the trench.

Cultural Materials

A total of 1,890 stone artifacts, 37 bones, and 3 mussel shells was recovered from the three test units (Table 5.2). Only 2.5 levels consisted of nonfeature fill; these produced a total of 2 small burned rocks and 4 flakes. Features 1, the burned rock midden, and 2, the infilled gully, produced dense amounts of cultural materials (see Cultural Features).

Cultural Features

In 14 levels excavated from Test Units 1–3, the Feature 1 midden yielded 1 Castroville, 1 Darl, 2 Pedernales, 1 reworked untyped dart point, 2 untypeable dart points, 3 perforators, 20 bifaces, 2 scrapers, 1 miscellaneous uniface, 11 edge-modified flakes, 1 core, 892 flakes, 1 metate fragment recycled as a burned rock, 10 unmodified bones (primarily Mammalia), 1 unmodified mussel shell umbo (*Quadrula* sp.), and 1,038 burned rocks (152.5 kg). The midden was 40–50 cm thick in the hand excavations.

Feature 1 is a burned rock midden with evidence of minimal disturbance from looting. Based on the extent of surfacial cultural materials and subsurface exposures, its dimensions are estimated to be 85 m northeast-southwest by 80 m northwest-southeast, and up to 60 cm thick. The fill contains dense amounts of cultural materials, but none of the mechanical or manual excavations encountered internally discrete features. Diagnostic dart points indicate that the area was used intensively during the Late Archaic period. Most of the midden rests on highly calcareous sediment derived from in situ weathering of the bedrock, but hard limestone underlies it near the tributary. The midden matrix exhibits severe floral and faunal bioturbation.

Feature 2 was observed in Backhoe Trenches 1 and 4 and sampled in Test Unit 1 from 50 to 184 cm and Test Unit 3 from 60 to 120 cm. The feature matrix produced 1 Castroville, 1 Darl, 1 Godley, 1 Lange, 3 Pedernales, 3 untyped dart points (1 with a beveled stem edge), 3 untypeable dart points, 4 bifaces, 3 miscellaneous unifaces, 1 spokeshave, 1 graver, 1 multifunctional tool consisting of a spokeshave and edge-modified flake, 12 edge-modified flakes, 1 core, 912 flakes, 27 unmodified bones (mostly Mammalia), 2 unmodified mussel shell umbos (*Quadrula apiculata* and possible *Quadrula* sp.), and 922 burned rocks (211.55 kg). In both units, the base of Feature 2 was very irregular and varied in elevation.

The excavations indicate that Feature 2 represents an ancient gully that subsequently filled with midden matrix. Several lines of evidence support this interpretation. Sediment exposures in Backhoe Trenches 1 and 4 and in Test Units 1 and 3 revealed the bottom and sides of the feature are irregular and undulating. The outline of the gully was clearly demarcated in the trench profiles, but its width varied from 3 m in the west wall of Backhoe Trench 1 to 5 m in the west wall of Backhoe Trench 4. No gully walls were observed in Backhoe Trench 3, and it appears that the gully was wider and flatter or had disappeared at this point. These exposures show that the gully extends horizontally at least 25 m, trends from the northeast to the southwest, and drops in elevation from northeast to southwest following the modern slope.

Feature 2 is essentially a long linear depression that varies in width and has undulating bottom that follows the natural slope direction. The modern ephemeral tributary channel at the south edge of the site was a dry gully at the time of the investigation, and it has all the same characteristics as Feature 2. The modern channel has two prominent nick points, where the channel drops and creates a small whirlpool basin, approximately 3.25 m apart. The upstream basin measures 180x180 cm, is relatively flat, and is 80–100 cm deep. The second basin, situated 3.25 m downstream, 200 cm long, 100 cm wide, and 150 cm deep. In cross section, the lower nick point in the modern gully is narrow and deep, and its sides are undercut to form slight overhangs where the modern surface is held together by root. Above these two nick points, the channel is shallow and varies in width, but it is deeper and very broad below the second basin. This comparison suggests that the bottom (at 180 cm below surface) of Test Unit 1 may have

Table 5.2. Summary of cultural materials from 41BL349, Test Units 1–3

Provenience	Dart Points	Perforators	Bifaces	End Scraper	Side Scraper	Miscellaneous Uniface	Spokeshave	Graver-Burin	Multifunctional Tool	Edge-modified Flakes	Core	Unmodified Debitage	Metate	Unmodified Bone	Unmodified Shell	Total
TEST UNIT 1																
Feature 1 (0–10 cm)	–	–	4	–	–	–	–	–	–	–	–	4	–	–	–	8
Feature 1 (10–20 cm)	–	–	6	–	–	–	–	–	–	2	–	47	–	–	–	55
Feature 1 (20–30 cm)	–	–	1	–	–	–	–	–	–	–	–	96	–	–	–	97
Feature 1 (30–40 cm)	1	–	2	–	–	1	–	–	–	1	–	145	–	2	–	152
Feature 1 (40–50 cm)	–	–	–	–	–	–	–	–	–	–	–	103	–	3	–	106
Feature 2 (50–60 cm)	1	–	–	–	–	–	–	–	–	–	–	77	–	4	–	82
Feature 2 (60–70 cm)	2	–	–	–	–	–	–	–	–	2	–	37	–	3	–	44
Feature 2 (70–80 cm)	1	–	1	–	–	–	–	–	–	–	1	70	–	1	–	74
Feature 2 (80–90 cm)	3	–	–	–	–	1	–	–	–	1	–	48	–	1	–	54
Feature 2 (90–100 cm)	2	–	–	–	–	1	1	–	–	2	–	74	–	–	–	80
Feature 2 (100–110 cm)	–	–	–	–	–	–	–	–	–	1	–	84	–	2	–	87
Feature 2 (110–120 cm)	1	–	–	–	–	–	–	1	–	–	–	87	–	8	–	97
Feature 2 (120–130 cm)	–	–	–	–	–	–	–	–	1	–	–	71	–	1	1	74
Feature 2 (130–140 cm)	1	–	–	–	–	–	–	–	–	1	–	35	–	–	–	37
Feature 2 (140–150 cm)	1	–	–	–	–	–	–	–	–	–	–	20	–	1	–	22
Feature 2 (150–160 cm)	–	–	–	–	–	–	–	–	–	1	–	16	–	1	–	18
Feature 2 (160–170 cm)	–	–	–	–	–	–	–	–	–	–	–	15	–	–	–	15
Feature 2 (170–184 cm)	–	–	–	–	–	–	–	–	–	1	–	15	–	–	–	16
Subtotal	13	0	14	0	0	3	1	1	1	12	1	1,044	0	27	1	1,118
TEST UNIT 2																
Level 1 (0–10 cm)	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	4
Feature 1 (10–20 cm)	1	–	–	–	–	–	–	–	–	1	–	22	–	–	–	24
Feature 1 (20–30 cm)	–	–	2	–	–	–	–	–	–	–	–	46	–	–	–	48
Feature 1 (30–40 cm)	–	–	–	–	–	–	–	–	–	2	–	24	–	–	–	26
Feature 1 (40–50 cm)	–	–	–	–	–	–	–	–	–	1	–	25	–	–	1	27
Subtotal	1	0	2	0	0	0	0	0	0	4	0	121	0	0	1	129

Table 5.2, continued

Provenience	Dart Points	Perforators	Bifaces	End Scraper	Side Scraper	Miscellaneous Uniface	Spokeshave	Graver-Burin	Multifunctional Tool	Edge-modified Flakes	Core	Unmodified Debitage	Metate	Unmodified Bone	Unmodified Shell	Total
TEST UNIT 3																
Level 1 (0–10 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Feature 1 (10–20 cm)	2	–	3	–	1	–	–	–	–	–	–	109	1	3	–	119
Feature 1 (20–30 cm)	1	–	1	1	–	–	–	–	–	–	–	107	–	1	–	111
Feature 1 (30–40 cm)	–	–	–	–	–	–	–	–	–	1	1	73	–	–	–	75
Feature 1 (40–50 cm)	2	1	1	–	–	–	–	–	–	3	–	37	–	–	–	44
Feature 1 (50–60 cm)	–	2	–	–	–	–	–	–	–	–	–	54	–	1	–	57
Feature 2 (60–70 cm)	–	–	1	–	–	–	–	–	–	–	–	32	–	–	–	33
Feature 2 (70–80 cm)	1	–	–	–	–	–	–	–	–	1	–	71	–	2	–	76
Feature 2 (80–90 cm)	–	–	1	–	–	1	–	–	–	1	–	55	–	1	–	59
Feature 2 (90–100 cm)	–	–	–	–	–	–	–	–	–	1	–	63	–	2	–	66
Feature 2 (100–110 cm)	–	–	–	–	–	–	–	–	–	–	–	31	–	–	–	31
Feature 2 (110–120 cm)	–	–	1	–	–	–	–	–	–	–	–	11	–	–	–	12
Level 11 (100–105 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal	6	3	8	1	1	1	0	0	0	7	1	643	1	10	1	683
Total	20	3	24	1	1	4	1	1	1	23	2	1,808	1	37	3	1,930

exposed a deep circular basin at a nick point and that the ancient gully became much wider immediately downstream.

The cultural fill inside the gully is defined as Feature 2 (see Figure 5.2) is essentially a burned rock midden matrix, with abundant burned rocks, artifacts, and organic stained sediment. No evidence of in situ burning or other activities was observed, however, anywhere along the gully walls or bottom, or within the midden matrix. The irregular line of rocks observed in the west wall of Backhoe Trench 1 was along the north edge of the gully and clearly followed the slope of the gully edge as if the rocks had been thrown down or tumbled down the slope. In addition, a portion of this irregular line of rocks was excavated from 130 to 150 cm in Test Unit 1, and the rocks were essentially jumbled and showed no discernable patterning.

Precisely how the cultural midden debris got into the gully is not known with certainty, but two scenarios are possible. The higher midden, Feature 1, clearly extends over the debris-filled gully, but it blends into and is difficult to separate from the lower Feature 2 debris. In one scenario, the gully was present first, and people camping and cooking on the adjacent surface simply threw their debris into the gully. At the point that the gully was filled with cultural debris, a large midden on the surface simply continued go grow over the now-filled gully. In the second scenario, the gully formed after a portion of the upper Feature 1 midden was already in place and most of the Feature 2 debris washed into the gully.

The evidence at hand suggests that the Feature 2 debris accumulated as some combination of both of these processes. Excavators observed a high frequency of unburned limestone gravels and fossilized oyster shells in many of the Feature 2 excavation levels, indicating that a significant portion of cultural debris did in fact wash in and become intermixed with noncultural debris. At the same time, however, the uppermost portion of the gully was definitely being filled in as the upper midden continued to accumulate, thus rendering the Feature 1 and Feature 2 deposits virtually inseparable.

Discussion

Although 41BL349 contains a spatially discrete burned rock midden (Feature 1) that is relatively untouched by looters, the absence of intact internal features, thinness of the midden deposits, and the lack of stratigraphy severely limit the potential for identifying isolable cultural components. A portion of the midden accreted over a natural gully that had been filled in with cultural midden debris (Feature 2). All evidence indicates that it was a natural gully and not a manmade or intentionally modified feature. The bulk of the cultural deposits in the ancient gully probably represent materials that were washed in, rather than a primary cultural deposit. Based on the testing results, 41BL349 has limited archeological research potential and is recommended as not eligible for listing in the National Register.

41CV41

Site Setting

Site 41CV41 is situated on a series of terraces and steep erosional slopes south of Owl Creek (Figure 5.3). A north-flowing unnamed tributary bisects the site near its western margin. A few dirt roads crisscross the area, and a portion of a terrace at the western site boundary has been cleared and is used as pasture. Although most of the area supports a dense oak-juniper thicket, a diverse riparian woodland—including chinquapin oak, live oak, bigtooth maple, rusty blackhaw viburnum, spicebush, black walnut, redbud, wafer ash, rough-leaf dogwood, and red mulberry—occurs along the tributary.

Previous Work

Rodgers and Shirah (Fort Hood Archeological Society) first recorded the site on 22 April 1972. Situated on a north-facing slope, this small site extended 40x30 m and was considered a special activity site that probably was used temporarily. Scattered projectile point bases and "bulk lithics" were noted, with the depth of deposits less than 30 cm thick. No excavation was warranted because there was so much erosion.

Shirah (Fort Hood Archeological Society) re-recorded the site on 4 August 1972. The site was situated on the lowlands and a mesa top, and two point bases were listed as artifacts. The site size was unchanged, and the area was

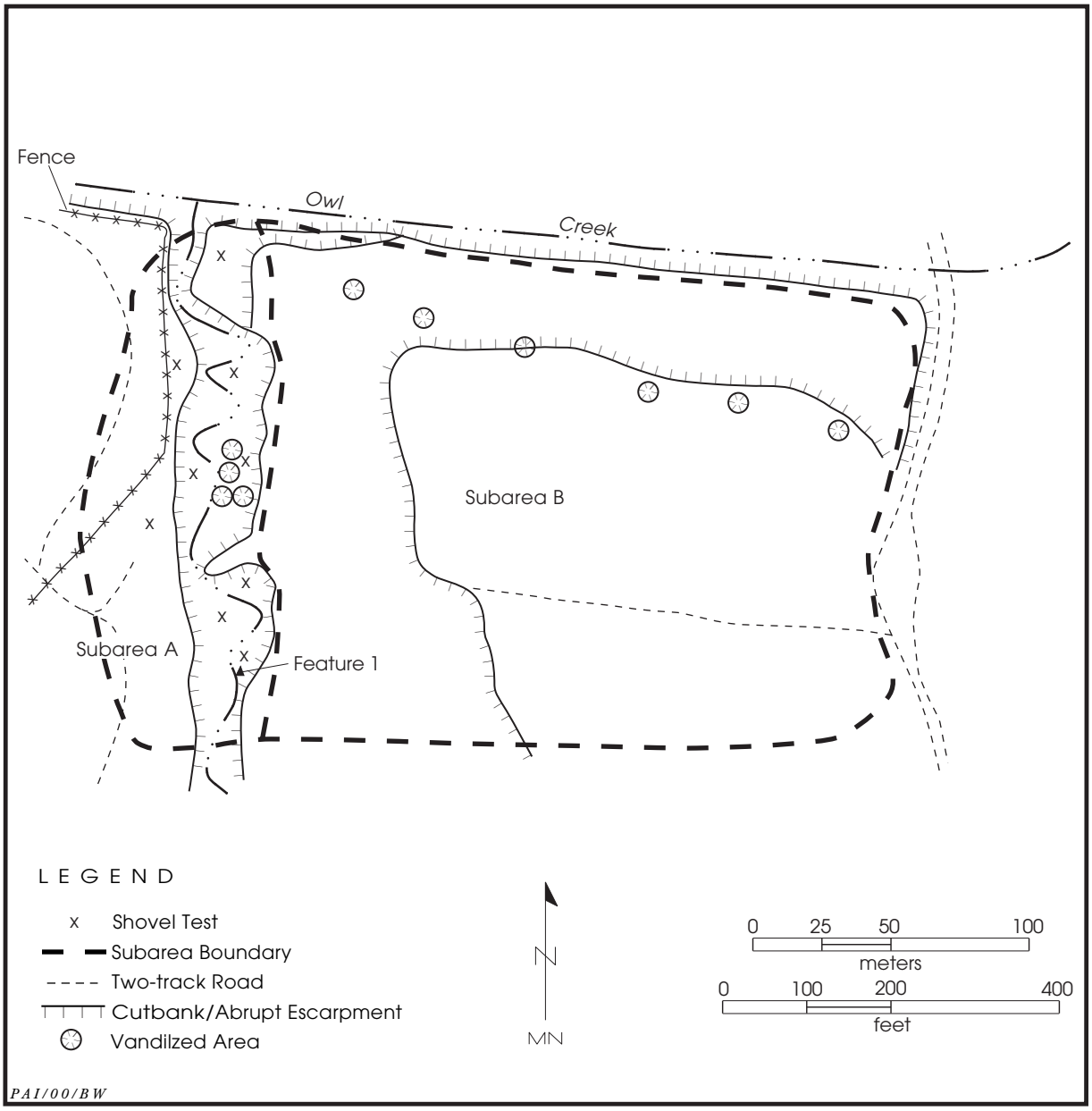

Figure 5.3. Site map of 41CV41 (modified from Trierweiler, ed. 1994:A608).

considered undisturbed. The site evaluation discussed specific named areas (i.e. Buzzard Point and Tabby Point) and recommended that undisturbed rockshelters in or near these areas be tested.

On 10 January and 1 February 1976, Thomas (Fort Hood Archeology Society) analyzed lithic artifacts collected from this site. The collection included knives, choppers, utilized flakes, cores, a drill, a burin, and three dart points (a Williams, a Pedernales variant, and a Castroville).

On 14 November 1983, Thomas (Texas A&M University) visited the site and noted that six military bunkers or foxholes had recently been dug along the edge of the bluff at the northern site margin. He recommended that these holes be carefully backfilled. Two dart points and one biface were collected.

On 26 July 1984, Ensor and Turpin (Texas A&M University) recorded 41CV41 as a habitation site consisting of an extensive lithic

scatter and midden situated on a series of benches and alluvial terraces. The site dimensions were enlarged to 325x175 m because of the extent of cultural materials. Bifaces, burned rocks, mussel shells, flakes, and a graver were observed, and arrow points, dart points, and scrapers were collected. The depth of deposits was less than 50 cm, and vandalism and erosion disturbed an estimated 7 percent of the site. Although potholes were drawn on the site map, no discussion or location of the midden was noted.

On 22 December 1992, Frederick and Mehalchick (Mariah Associates) visited and reevaluated the site. Based on differing archeological potentials and geomorphic contexts, the site was divided into Subareas A and B. Based on the extent of cultural materials and Holocene deposits, the site dimensions were enlarged slightly, to 325x175 m.

Constituting approximately 20 percent of the site, Subarea A consisted of the Holocene terraces along Owl Creek and the inset Holocene terraces along the unnamed tributary. Within the tributary valley, a deposit showed an A-Bw or Bk-C profile that was tentatively identified as the West Range alluvium (Nordt 1992). Inset into this fill was another unit that exhibited an A-C to A-Bw profile that probably correlated to the Ford alluvium. Both of these tributary deposits were inset into a West Range alluvium deposited by Owl Creek that showed an A-Bk-C profile. Exposed in the east bank of the tributary, Feature 1 is a probable basin-shaped hearth encapsulated within the West Range alluvium at 80–85 cm. It measured 60 cm long and 20 cm thick and comprised five burned rocks and charcoal flecking. A moderate density of burned rocks and lithic artifacts was exposed near 30–40-cm-thick potholes on the terrace east of the tributary. Away from the looted area, vegetation and leaf litter rendered visibility poor. Scattered debitage was observed on the terrace west of tributary. Overall, looting activities, clearing, animal burrows, and military activity disturbed the area. Based on the depth of the Holocene deposits and the potential for buried cultural materials, shovel testing was warranted in Subarea A.

Subarea B consisted of a high terrace of Owl Creek and the moderate to steep colluvial-erosional slopes around the tread of this ancient surface. Based on the elevation above the Owl Creek channel (>30 m) and exposures immediately to the east, an A-Bk-K-C profile indicated that this alluvial deposit was late Pleistocene and correlated with either the Jackson or Reserve alluvium. The colluvial slope exhibited an A-R profile. Burned rocks, flakes, bifaces, cores, one point tip, and one quartz flake were scattered across this deflated surface. Uprooted trees, foxholes, and sheet erosion severely damaged the subarea. Based on the negligible potential for intact cultural deposits, no further work was recommended for Subarea B.

On 14 October 1992, a crew excavated nine shovel tests in Subarea A and drew a profile of Feature 1 as exposed in the tributary cutbank. The profile indicated that Feature 1 measured 65 cm long and 10–15 cm thick and contained at least 12 burned rocks. A line of burned rocks and a few flakes were mapped 30–40 cm above Feature 1. Most of the shovel tests were excavated between 40 and 50 cm, but one test in the vandalized section of the terrace was dug to 80 cm. Seven flakes were recovered at 10–20 cm and 30–40 cm in five shovel tests located in the southern half of the subarea. Adjoining a looter's pothole, one shovel test contained dense burned rocks and lithic artifacts, as well as some bones, an incised (or engraved) ceramic sherd at 10–20 cm, and one Ensor dart point at 60–70 cm. Three shovel tests in the northern portion of the subarea yielded burned rocks, bones, and dense lithic artifacts.

Based on the testing results, intact cultural deposits of unknown significance were present in Subarea A. The recommended testing effort to determine National Register eligibility consisted of a minimum of six backhoe trenches and 4–6 m^2 of manually excavated test units (Trierweiler, ed. 1994:A607–609).

Work Performed

Before trenching, 11 cutbank exposures and terrace surfaces in Subarea A were reinspected. Feature 1, the hearth recorded in 1992, was relocated. A discrete lens of burned rocks, designated Feature 4, also was exposed ca. 15 cm above the hearth. The vandalized portion of the site noted in 1984 and 1992 was also found, but no recent potholes were apparent. Burned rocks, mussel shell fragments, and lithic artifacts were visible in backdirt piles; this midden deposit was later designated Feature 2. Approximately 20 m downstream from the vandalized area, a lens of burned rocks (designated Feature 3) was exposed at ca. 60 cm in the east cutbank.

On 6 August 1999, formal testing of 41CV41-A was completed (Figure 5.4). The excavations consisted of five backhoe trenches (Backhoe Trenches 1–5) and six test units (Test Units 1–6, and 7.9 m^3 was manually excavated. Subarea A was mapped, but the landforms were complex and the vegetation dense, no attempt was made to differentiate the terraces of the unnamed tributary, though it appears that two terraces (T_{1a} and T_{1b}) are present.

None of the backhoe trenches were excavated on the lower terraces along the tributary because of access problems and the possibility of damage to the unique riparian environment. All five trenches were located on the open terrace west of the tributary. Excavated south of a fenced pasture, Backhoe Trench 1 was oriented to magnetic north, and Backhoe Trench 2, to 95˚. The trenches were 10 m long, 0.6 m wide, 2.35–2.4 m deep, and exposed no cultural materials. Backhoe Trenches 3–5 were placed within the fenced pasture situated on a cleared terrace that was once probably an agricultural field. About 25 m southwest of the confluence of Owl Creek and its tributary, Backhoe Trench 3 was aligned to 12˚ and measured 8.5x0.6x2.2 m. Burned rocks and flakes were scattered throughout the profile from 0 to 40 cm, and burned rocks occurred at 100 and 150 cm. Oriented to 110˚, Backhoe Trench 4 (11x0.6x2.6 m) was located approximately 22 m southwest of Backhoe Trench 3. An isolated burned rock was observed at 110 cm. About 20 m southwest of Backhoe Trench 4, Backhoe Trench 5 (7.5x0.6x2.4 m) was aligned to 100˚ but exposed no cultural materials.

One test unit was placed by a backhoe trench, one was situated along the tributary cutbank, and the other four were free standing units oriented to magnetic north. Each test unit was terminated at an arbitrary depth or dense gravels. In the southern end of Subarea A, Test Unit 1 was placed perpendicular to the tributary cutbank above Features 1 and 4. The unit measured 1x1 m from the surface to 110 cm but was increased in size to 1.6x1 m at that depth because of the slope of the cutbank. The excavation was terminated at 160 cm.

Test Unit 2 (1x1 m) was placed on a level surface between two potholes and in the vicinity of a previously excavated shovel test that contained a prehistoric sherd. At 80–100 cm, only the northwest quadrant (0.5x0.5 m) of the unit was excavated because there were dense gravels present. The excavation was discontinued at 100 cm.

Test Unit 3 (1x1 m) was placed near the edge of the cutbank where Feature 3 was exposed. A gravel deposit was encountered at 100–110 cm, and only the southeast quadrant (0.5x0.5 m) of the unit was excavated from 110 to 130 cm. The excavation was halted at 130 cm.

Excavated to 150 cm, Test Unit 4 (1x1 m) was placed by the west wall of Backhoe Trench 3 and above a large burned rock at 100 cm. Approximately 25 m south of Test Unit 2, Test Unit 5 (1x1 m) was placed on a high, narrow terrace remnant. Because there were dense gravels present, only the northeast quadrant (0.5x0.5 m) of the unit was excavated from 100 to 110 cm. The excavation was halted at 110 cm. Terminated at 120 cm, Test Unit 6 (1x1 m) was located approximately 10 m east of Backhoe Trench 4 and close to a terrace scarp. This unit was in the vicinity of the only positive shovel test located west of the tributary and contained dense cultural materials from 0 to 40 cm.

Site Extent and Depth

Owl Creek to the north and a step slope to the east border the Holocene terraces constituting Subarea A. The tributary and adjacent terraces continue to the south, but a steep canyon forms less than 150 m away. The higher terrace associated with Owl Creek extends an unknown distance east. Based on the testing results, the subarea has minimum dimensions of 128 m north-south by 63 m east-west. Multiple components are buried in terraces associated with both drainages at depths ranging from 10 to 130 cm.

Sediments and Stratigraphy

The 107+-cm-thick profile of Test Unit 5 was described in detail, and soil geomorphology was assessed (see Appendix B). The test unit revealed an A-Ab-Bw profile correlating to the West Range alluvium. The 10-cm-thick A horizon consists of a very friable black clay. The Ab horizon (10–20 cm) is a black very gravelly silty clay, and the Bw horizon is made up of a dark gray gravelly sandy loam. These two lower horizons appear to be anthropogenic.

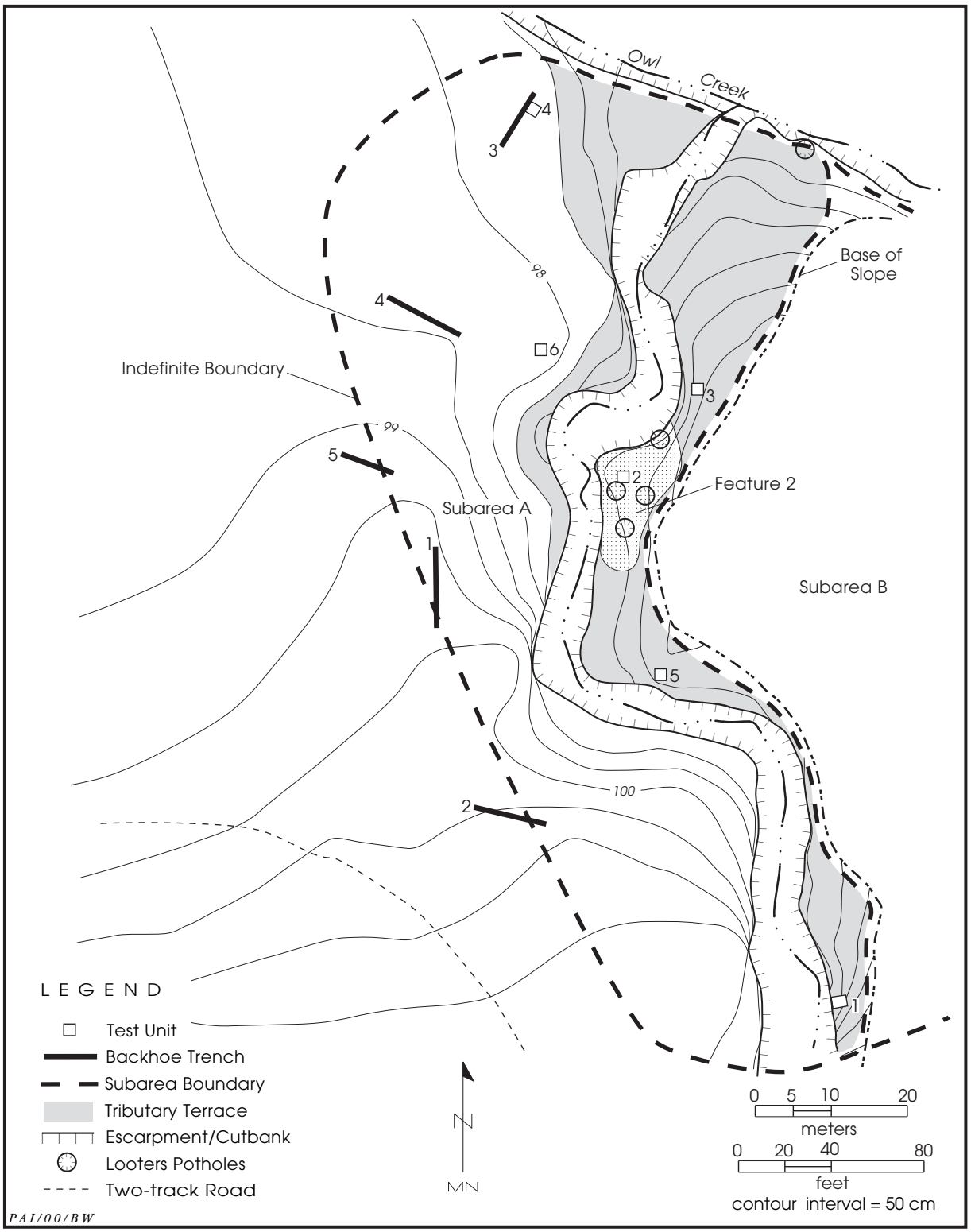

Figure 5.4. Map of 41CV41-A.

Definition of Analysis Units

Three analysis units were defined for 41CV41. Analysis Unit 1 consists of isolable cultural deposits encapsulated in the terrace deposits associated with Owl Creek. Analysis Units 2 and 3 are isolated terrace remnants east of the unnamed tributary channel. Both contain stratigraphically discrete features and dense deposits of cultural materials buried in the alluvial deposits.

Analysis Unit 1

West of the tributary, Analysis Unit 1 consists primarily of West Range sediments up to 240 cm thick deposited by Owl Creek. There is one dated feature present in Test Unit 4 at 85–105 cm. About 35 m south of Test Unit 4, Test Unit 6 contains discrete cultural deposits and an undated feature to a maximum depth of 110 cm.

Cultural Materials

The upper 60 cm of deposits in Test Unit 4 produced 15 burned rocks (2.85 kg), 56 flakes, and 1 biface (Table 5.3). Thirty-nine (68.4 percent) of the 57 stone artifacts occurred at 0–20 cm, and there were also M-16 cartridges and rusted wire present at 0–30 cm. Feature 5 was encountered at 85–105 cm (see Cultural Features). No artifacts were found from 60 to 150 cm, but Levels 8 (70–80 cm) and 12 (110–120 cm) produced four burned rocks (0.35 kg).

At 0–10 cm, Test Unit 6 contained 28 flakes, 32 burned rocks (4.5 kg), 1 cartridge casing, and 1 metal clasp. A peak in cultural materials from 10 to 40 cm included 1 untyped serrated arrow point; an Ensor dart point; 6 bifaces; 1 miscellaneous uniface; 1 multifunctional tool (typed as a Friday biface) that functioned as a knife and spokeshave; 4 edge-modified flakes; 207 flakes; 26 unmodified bones, including 16 unmodified Vertebrata, 9 Mammalia, and 1 Artiodactyla bones; 1 possibly cut mussel shell (*Tritogonia verrucosa*); and 296 burned rocks (47.5 kg). A flotation sample collected from the northwest quadrant at 30–35 cm yielded charcoal flecks (see Appendix D). Feature 6 was encountered at 34 cm and extended to 49 cm (see Cultural Features). At this depth, the outline of a small pit, probably the shovel test excavated in 1992, was visible in the north wall. It appeared that the test had encountered and disturbed the top portion of the feature. At 40–70 cm, the frequency of cultural materials decreased from the previous three levels. These three levels contained a Provisional Type 1 dart point, 1 edge-modified flake, 18 flakes, and 9 burned rocks (0.35 kg). From 70 to 110 cm, the unit produced 1 graver; 1 edge-modified flake; 91 flakes; 20 unmodified bones, including 1 Testudinata (turtle) shell fragment, 6 Vertebrata, and 13 Mammalia bones; and 22 burned rocks (0.7 kg). Level 12 (110–120 cm) yielded 1 edge-modified flake and 3 pieces of debitage.

Cultural Features

Feature 5, a basin-shaped hearth, was encountered from 85 to 105 cm in Test Unit 4. This slab-lined hearth consisted of a single layer of eight pieces of fossiliferous limestone (16.5 kg). The slabs ranged from 12x8x3 cm to 30x30x5 cm, with the largest one fractured in place. Its maximum excavated dimensions were 68 cm east-west by 50 cm north-south, and the hearth extended an unknown distance to the south. A few small gravels were noted just beyond the northwest edge of the feature. There was charcoal among and under the burned rocks, and one sample yielded a conventional radiocarbon age of 2340 ± 50 B.P. (Beta-136830, see Appendix A). Two flotation samples contained only charcoal flecks (see Appendix D). The feature fill did not produce any artifacts, and there was no evidence of disturbance apparent.

At 34–49 cm, a hearth feature designated Feature 6 was confined to the northwest quadrant of Test Unit 6. Maximum excavated dimensions were 50 cm north-south by 46 cm east-west, and the hearth continued to the north and west beyond the limits of the excavation. The feature comprised two burned rock layers (n = 24, 11 kg). About half were fist-sized angular pieces, and the rest consisted of larger tabular fragments (up to 15x14x3 cm). At 35 cm, the matrix around the hearth was a gravelly, lighter brown fill, and the feature matrix consisted of a darker gray brown sediment that obviously intruded into the underlying gravelly deposit. The feature fill contained 6 flakes and 11 unmodified Vertebrata bones. One flotation sample yielded charcoal flecks (see Appendix D). Aside from the previously excavated shovel test

Table 5.3. Summary of cultural materials from 41CV41-A, Analysis Unit 1, Test Units 4 and 6

Provenience	Arrow points	Dart points	Bifaces	Miscellaneous uniface	Graver-Burin	Multifunctional tool	Edge-modified flakes	Unmodified debitage	Unmodified bone	Unmodified mussel shell	Total
TEST UNIT 4											
Level 1 (0–10 cm)*	–	–	–	–	–	–	–	11	–	–	11
Level 2 (10–20 cm)*	–	–	–	–	–	–	–	28	–	–	28
Level 3 (20–30 cm)*	–	–	–	–	–	–	–	6	–	–	6
Level 4 (30–40 cm)	–	–	–	–	–	–	–	9	–	–	9
Level 5 (40–50 cm)	–	–	1	–	–	–	–	1	–	–	2
Level 6 (50–60 cm)	–	–	–	–	–	–	–	1	–	–	1
Level 7 (60–70 cm)	–	–	–	–	–	–	–	–	–	–	0
Feature 5 (85–105 cm)	–	–	–	–	–	–	–	–	–	–	0
Subtotal	0	0	1	0	0	0	0	56	0	0	57
TEST UNIT 6											
Level 1 (0–10 cm)*	–	–	–	–	–	–	–	28	–	–	28
Level 2 (10–20 cm)	1	1	2	–	–	1	1	70	1	1	78
Level 3 (20–30 cm)	–	–	2	–	–	–	1	78	3	–	84
Level 4 (30–40 cm)	–	–	2	1	–	–	1	59	22	–	85
Feature 6 (34–49 cm)	–	–	–	–	–	–	–	6	11	–	17
Level 5 (40–50 cm)	–	1	–	–	–	–	–	6	–	–	7
Level 6 (50–60 cm)	–	–	–	–	–	–	1	4	–	–	5
Level 7 (60–70 cm)	–	–	–	–	–	–	–	8	–	–	8
Level 8 (70–80 cm)	–	–	–	–	1	–	1	17	–	–	19
Level 9 (80–90 cm)	–	–	–	–	–	–	–	34	11	–	45
Level 10 (90–100 cm)	–	–	–	–	–	–	–	25	4	–	29
Level 11 (100–110 cm)	–	–	–	–	–	–	–	15	5	–	20
Level 12 (110–120 cm)	–	–	–	–	–	–	1	3	–	–	4
Subtotal	1	2	6	1	1	1	6	353	57	1	429
Total	1	2	7	1	1	1	6	409	57	1	486

* Contains recent intrusive items

disturbing the top of the hearth, no other disturbances were apparent.

Discussion

Use of the area during the middle of the Late Archaic period is indicated by the calibrated radiocarbon date of 410–385 B.C. (1 sigma) for the Feature 5 hearth at 85–105 cm in Test Unit 4. On the same terrace almost 35 m south of Test Unit 4, a peak in cultural materials occurred at 80–100 cm. This cultural deposit may represent a living surface associated with the dated hearth. If the date is correct and these two deeper components are contemporaneous, then the context of the Fort Hood Provisional Type 1 dart point at 40–50 cm is questionable. Discrete occupations containing this diagnostic artifact have dated between 5,500 and 3,200 B.P. at other Fort Hood sites (Kleinbach et al. 1999). Later prehistoric peoples could have collected and reused this dart point.

Also in Test Unit 6, the basin-shaped hearth (Feature 6) and another increase in cultural materials are present between 10 and 49 cm. No chronometric data are available, and the presence of an untyped arrow point, an Ensor dart point, and a Friday biface at 10–20 cm muddle the temporal context. Although this 40-cm-thick cultural deposit most likely dates to the end of the Late Archaic period or later, it is unclear whether one or more occupations are represented.

Analysis Unit 2

Analysis Unit 2 subsumes all of the isolated wedges of tributary alluvium (inset into the Owl Creek terrace) in three test units located east of the channel. These sediments are correlated to the West Range alluvium and are up to 160 cm thick. Multiple components are buried between 10 and 130 cm.

Cultural Materials

At 0–20 cm, Test Unit 1 was devoid of cultural materials (Table 5.4). Each level from 20 to 100 cm contained between 6 and 41 artifacts identified as 2 late-stage to finished bifaces, 1 end-side scraper, 23 edge-modified flakes, and 141 flakes. One small burned rock was found at 30–40 cm, and 24 (1.5 kg) occurred at 70–90 cm. Feature 4 was encountered from 77 to 100 cm (see Cultural Features). Levels 11–14 (100–140 cm) were mostly culturally sterile, but Feature 1 was present from 114 to 128 cm (see Cultural Features). One late-stage to finished biface was recovered at 140–150 cm, and the unit produced no cultural materials from 150 to 160 cm.

From the surface to 50 cm, Test Unit 3 contained 1 reworked, alternately beveled Ensor dart point (probable drill), 1 multifunctional tool consisting of a spokeshave and graver, 3 edge-modified flakes, 145 pieces of debitage, 98 burned rocks (5.75 kg), and 4 unmodified Mammalia and 2 Artiodactyla bones. Levels 6–9 (50–90 cm) yielded 13 flakes and 23 burned rocks (1.6 kg), and Feature 3 was present at 58–68 cm (see Cultural Features). From 90 to 130 cm, the unit produced only 3 small burned rocks at 90–110 cm.

Six edge-modified flakes, 70 flakes, and 6 small burned rocks were found from 0 to 30 cm in Test Unit 5. From 30 to 90 cm, the unit produced a moderate amount of burned rocks (n = 262, 27.25 kg) and faunal remains, as well as dense lithic artifacts. These cultural materials include 6 Ensor dart points (1 serrated), 1 Wilson dart point with a ground base, 1 untyped (probable Ensor) dart point, 1 untypeable dart point, 1 quartzite hammerstone, 2,107 unmodified flakes, 148 unmodified bones, and 1 unmodified mussel shell (*Tritogonia verrucosa*). Although Vertebrata and Mammalia remains (n = 136, 91.9 percent) dominate the unmodified bones, there were also 8 Artiodactyla and 4 *Odocoileus* sp. (deer) bones. Slightly less than 30 percent (n = 42) of the bones were spirally fractured. A charcoal sample collected at 55 cm yielded a conventional radiocarbon age of 2,030 ± 50 B.P. (Beta-136831, see Appendix A). The unit produced 1 late-stage to finished biface, 23 flakes, and 3 small burned rocks at 90–100 cm; only 2 small burned rocks were found at 100–110 cm.

Cultural Features

Feature 4, an occupation zone, was encountered at 77–100 cm in the western portion of Test Unit 1. Its maximum excavated dimensions were 100 cm north-south by 55 cm east-west, but the cutbank exposure indicated that the lens of burned rocks extended another

Table 5.4. Summary of cultural materials from 41CV41-A, Analysis Unit 2, Test Units 1, 3, and 5

Provenience	Dart points	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous biface	Side scraper	End-Side scraper	Miscellaneous unifaces	Spokeshave	Multifunctional tools	Edge-modified flakes	Core	Unmodified debitage	Hammerstone	Unmodified bones	Unmodified mussel shell	Total
TEST UNIT 1																
Level 1 (0–10 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Level 2 (10–20 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Level 3 (20–30 cm)	–	–	1	–	–	–	–	–	–	–	–	29	–	–	–	30
Level 4 (30–40 cm)	–	–	1	–	–	1	–	–	–	2	–	27	–	–	–	31
Level 5 (40–50 cm)	–	–	–	–	–	–	–	–	–	5	–	36	–	–	–	41
Level 6 (50–60 cm)	–	–	–	–	–	–	–	–	–	7	–	14	–	–	–	21
Level 7 (60–70 cm)	–	–	–	–	–	–	–	–	–	5	–	11	–	–	–	16
Level 8 (70–80 cm)	–	–	–	–	–	–	–	–	–	3	–	8	–	–	–	11
Feature 4 (77–100 cm)	–	2	–	–	–	–	–	–	1	5	–	3	–	–	–	11
Level 9 (80–90 cm)	–	–	–	–	–	–	–	–	–	1	–	10	–	–	–	11
Level 10 (90–100 cm)	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	6
Level 11 (100–110 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Level 12 (110–120 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Feature 1 (114–128 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Level 13 (120–130 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Level 14 (130–140 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Level 15 (140–150 cm)	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Level 16 (150–160 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal	0	2	3	0	0	1	0	0	1	28	0	144	0	0	0	179
TEST UNIT 3																
Level 1 (0–10 cm)	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	5
Level 2 (10–20 cm)	1	–	–	–	–	–	–	–	–	–	–	59	–	4	–	64
Level 3 (20–30 cm)	–	–	–	–	–	–	–	–	1	1	–	54	–	2	–	58
Level 4 (30–40 cm)	–	–	–	–	–	–	–	–	–	–	–	14	–	–	–	14
Level 5 (40–50 cm)	–	–	–	–	–	–	–	–	–	2	–	13	–	–	–	15
Level 6 (50–60 cm)	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	5
Level 7 (60–70 cm)	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	2
Feature 3 (58–68 cm)	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	7

Table 5.4, continued

Provenience	Dart points	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous biface	Side scraper	End-Side scraper	Miscellaneous unifaces	Spokeshave	Multifunctional tools	Edge-modified flakes	Core	Unmodified debitage	Hammerstone	Unmodified bones	Unmodified mussel shell	Total
TEST UNIT 3, *continued*																
Level 8 (70–80 cm)	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Level 9 (80–90 cm)	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	5
Levels 10–13 (90–130 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal	1	0	0	0	0	0	0	0	1	3	0	165	0	6	0	176
TEST UNIT 5																
Level 1 (0–10 cm)	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Level 2 (10–20 cm)	–	–	–	–	–	–	–	–	–	2	–	11	–	–	–	13
Level 3 (20–30 cm)	–	–	–	–	–	–	–	–	–	4	–	58	–	–	–	62
Level 4 (30–40 cm)	2	–	1	–	–	–	–	–	–	–	–	165	–	9	–	177
Level 5 (40–50 cm)	1	–	3	–	1	–	–	–	–	3	–	988	–	13	1	1,010
Level 6 (50–60 cm)	–	–	1	–	–	–	–	–	–	2	1	341	1	5	–	351
Level 7 (60–70 cm)	–	–	–	–	–	–	1	–	–	6	–	307	–	24	–	338
Level 8 (70–80 cm)	4	–	–	1	–	–	1	1	1	12	–	198	–	41	–	259
Level 9 (80–90 cm)	2	1	2	–	–	–	2	–	–	1	–	108	–	56	–	172
Level 10 (90–100 cm)	–	–	1	–	–	–	–	–	–	–	–	23	–	–	–	24
Level 11 (100–110 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Subtotal	9	1	8	1	1	0	4	1	1	30	1	2,200	1	148	1	2,407
Total	10	3	11	1	1	1	4	1	3	61	1	2,509	1	154	1	2,762

360 cm south beyond the limits of the excavation. Sloping from southeast to northwest, the 6–8-cm-thick occupation zone consisted of one to two layers of burned rocks (n = 107, 9.5 kg). About 65 percent of the rocks were small (<5 cm) angular pieces, and the rest were 5–15 cm in size. Approximately half of the rocks were fossiliferous limestone. The feature fill yielded 2 early- to middle-stage bifaces, 1 multifunctional tool consisting of an edge-modified flake and graver, 5 edge-modified flakes, and 3 pieces of debitage. Associated charcoal yielded a conventional radiocarbon age of 1120 ± 50 B.P. (Beta-136832, see Appendix A). One flotation sample did not produce charred plant remains (see Appendix D). There was a layer of *Rabdotus* snail shells (150+) just beneath the feature. The only apparent disturbance was from cutbank erosion.

About 14 cm below Feature 4, there was a basin-shaped hearth (Feature 1) at 114–128 cm in Test Unit 1. Comprising two rock layers, the hearth contained 52 burned rocks (11.5 kg), of which most were fist-sized, angular fragments and tabular pieces up to 12x8x3 cm. A few slabs averaging 20x10x5 cm also were fractured in place. Although its maximum excavated dimensions were 62 cm north-south by 44 cm east-west, the main portion of the basin measured 50x20 cm. No artifacts were recovered from the feature fill. Charcoal flecking was observed among and under the lowest burned rocks, and a sample identified as indeterminate hardwood (see Appendix D) yielded a conventional radiocarbon age of 1360 ± 50 B.P. (Beta-136833, see Appendix A). Salicaceae (willow) wood was present in one flotation sample (see Appendix D). Cutbank erosion displaced approximately half of the feature.

Feature 3, an occupation zone, was present at 58–68 cm along the western half of the Test Unit 3. A single burned rock layer (n = 59, 29.5 kg) comprised mainly fist-sized and smaller angular pieces, but there were also a few large slabs (up to 18x10x4 cm) present. The feature dipped slightly from southwest to northeast. Its maximum excavated dimensions were 80 cm north-south by 68 cm east-west, but the feature extended another 450 cm beyond the northern edge of the test unit. Here, the feature was ca. 15 cm thick and sloped downward to 85 cm toward the northern edge. Seven flakes were recovered from the feature matrix, and one flotation sample produced charcoal flecks (see Appendix D). Aside from cutbank erosion, no evidence of disturbance was noted.

Discussion

Three features and two discrete zones of cultural materials suggest that multiple occupations are buried in the tributary alluvium. Test Unit 5 contained a 60-cm-thick cultural deposit with Ensor dart points as the prevailing diagnostic artifact. A calibrated radiocarbon date of 80 B.C.–A.D. 30 (1 sigma) from the middle of this zone indicates use during the Late Archaic period. The recovered Wilson dart point seems to predate the deposit and is interpreted as a recycled artifact. As well as several expedient and formal tools, the assemblage includes mouse- to rabbit-sized and canid- to deer-sized mammal bones and deer remains.

A peak in cultural materials at 10–30 cm and Feature 3 (58–68 cm) were encountered in Test Unit 3. No radiocarbon assays are available, but the presence of a reworked Ensor dart point hints at a Late Archaic component.

In Test Unit 1, Features 1 (114–128 cm) and 4 (77–100 cm) yielded calibrated radiocarbon dates of A.D. 645 (665) 685 and A.D. 880 (910, 920, 955) 990, respectively. This chronometric data corresponds to the end of the Late Archaic period and the beginning of the Late Prehistoric period, Austin phase. Feature 1 also contained charred wood of the willow family. There were also cultural materials present in Test Unit 1 from 20 to 100 cm, but stratigraphically discrete lenses are difficult to distinguish with any degree of confidence. In general, debitage and edge-modified flakes dominate these eight levels.

Analysis Unit 3

Analysis Unit 3 encompasses the Ford and West Range alluvium in the unnamed tributary valley, as sampled from the surface to 100 cm in Test Unit 2. Here, Feature 2 was present from 10 to 50 cm.

Cultural Materials

Level 1 (0–10 cm) and Levels 6–10 (50–100 cm) consisted of nonfeature fill. Four of

six levels produced 6 burned rocks (0.6 kg), 1 edge-modified flake, and 91 flakes (Table 5.5). From 10 to 50 cm, Feature 2 contained dense cultural materials (see Cultural Features).

Cultural Features

Feature 2, a burned rock midden, was present across Test Unit 2 from 10 to 50 cm. The base of the midden rests on a very gravelly alluvial fill. The feature matrix produced the following stone artifacts: 1 Granbury arrow point (30–40 cm), 1 Pedernales dart point (10–20 cm), 10 bifaces, 3 miscellaneous unifaces, 1 graver, 4 core tools, 2 multifunctional tools (edge-modified flake and spokeshave; miscellaneous uniface and spokeshave), 48 edge-modified flakes, 2 cores, 958 flakes, and 1 quartzite mano-hammerstone. Seven engraved Caddo sherds representing one vessel were recovered from 10 to 20 cm. These sherds were identified as Taylor Engraved (see Chapter 6). This was also one undecorated fragment identified as a possible Toyah phase smoking pipe present at 10–20 cm. All of the ceramics were found in the southern half of the unit. Faunal remains consisted of 2 unmodified mussel shells (possible *Lampsilis* sp. and *Tritogonia verrucosa*), 64 unmodified Vertebrata and Mammalia bones, 1 unmodified *Odocoileus* sp. (deer), and 2 *Sylvilagus* sp. (rabbit) bones. Almost 36 percent (n = 24) of the bone assemblage was spirally fractured. The midden also contained 670 burned rocks (50 kg). Only three are 15–25 cm in size, and the rest are smaller than 15 cm. Charcoal collected at 10–20 cm yielded conventional radiocarbon ages of 760 ± 50 B.P., and that at 30–40 cm, 600 ± 50 B.P. (Beta-136828 and Beta-136829, see Appendix A). The dated sample collected at 10–20 cm was identified as *Quercus* sp. (oak) wood. One flotation sample contained charcoal flecks, and a second produced *Carya illinoensis* (pecan) shell fragments and *Quercus* sp. wood (see Appendix D).

Discussion

Although two calibrated radiocarbon (1 sigma) dates of A.D. 1235–1285 and A.D. 1300–1410 from Feature 2 do not overlap and are inverted (when compared using 1-sigma ranges), both indicate that the midden was accreting toward the end of the Austin phase and into the Toyah phase of the Late Prehistoric period. Diagnostic artifacts—a Granbury arrow point and Caddoan and Toyah phase ceramics—support the chronometric data. The decorated Caddoan bottle sherds appear to be Taylor Engraved pottery, commonly found in Titus phase contexts (ca. A.D. 1430–1680) from northeast Texas. A petrographic examination and instrumental neutron activation analysis of two of these sherds indicates that they were probably manufactured in northeast Texas somewhere north of the Sabine River (Perttula et al. 2003). The context of the Pedernales dart point found in the upper portion of the midden is unclear. It may represent an artifact that later peoples used or could also indicate that the midden began to accumulate in Late Archaic times and was reused much later. The midden also yielded numerous expedient and formal stone tools, carbonized pecan shells and oak wood, canid- to deer-sized mammal bones, and deer and cottontail rabbit remains. The midden is estimated to measure 20 m northeast-southwest by 12 m northwest-southeast based on exposures and the areal extent of the lower terrace associated with the unnamed tributary.

Summary and Conclusions

This complex, multicomponent site was repeatedly occupied during the Late Archaic and Late Prehistoric periods, based on dated components spanning at least 1,820 years (from 410 B.C. to A.D. 1,410). All three analysis units contain isolable cultural components and include diverse artifact assemblages, diagnostic artifacts, and perishable organic remains. Owl Creek Black is the most common chert type identified in each analysis unit, followed by Fort Hood Yellow. There are artifacts representing various stages of lithic reduction; hunting, gathering, and processing of foodstuffs; and possible interregional trade present. Although the faunal assemblage is dominated by unmodified vertebrate and mammal bones, remains of deer and rabbit were recovered. A high frequency of spirally fractured specimens suggests breakage for marrow extraction or grease rendering. Pecan shell fragments and unmodified mussel shells reveal exploitation of surrounding floral and aquatic resources. To date, Caddoan-style engraved, incised, or brushed ceramics have been recovered from five other sites at Fort Hood: 41BL596, 41CV48,

Table 5.5. Summary of cultural materials from 41CV41-A, Analysis Unit 3, Test Unit 2

Provenience	Arrow point	Dart point	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous bifaces	Miscellaneous unifaces	Graver-Burin	Core tools	Multifunctional Tools	Edge-modified flakes	Cores	Unmodified debitage	Mano-Hammer	Ceramics	Unmodified bones	Unmodified mussel shells	Total
Level 1 (0–10 cm)	–	–	–	–	–	–	–	–	–	1	–	73	–	–	–	–	74
Feature 2 (10–20 cm)	–	1	2	3	3	2	1	2	–	38	–	427	–	7	22	–	508
Feature 2 (20–30 cm)	–	–	–	–	–	1	–	–	2	5	1	202	–	1	40	1	253
Feature 2 (30–40 cm)	1	–	–	2	–	–	–	2	–	4	1	214	–	–	4	1	229
Feature 2 (40–50 cm)	–	–	–	–	–	–	–	–	–	1	–	115	1	–	1	–	118
Level 6 (50–60 cm)	–	–	–	–	–	–	–	–	–	–	–	10	–	–	–	–	10
Level 7 (60–70 cm)	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	6
Level 8 (70–80 cm)	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	2
Levels 9–10 (80–100 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Total	1	1	2	5	3	3	1	4	2	49	2	1,049	1	8	67	2	1,200

41CV344, 41CV1038-A, and an unreported site in the vicinity of 41CV92 (Abbott and Trierweiler 1995a; Thomas 1978; Trierweiler 1996; unreported site records 1981). These artifacts indicate trade with or influence from Caddo peoples of northeast Texas. Based on the testing results, Subarea A at 41CV41 is recommended as eligible for listing in the National Register.

41CV94

Site Setting

Site 41CV94 is an open campsite situated on a series of alluvial terraces by Owl Creek and an unnamed tributary. A gravel road crosses the southern portion of the site, and military maneuvers, tracked vehicles, and agricultural activities have severely disturbed approximately half of the area. Most of the site area has been cleared of vegetation and is covered with grasses, but there are pecan, juniper, and cedar elm next to the tributary. Site elevation is 210 m above mean sea level.

Previous Work

Thomas (Fort Hood Archeological Society) recorded the site on 22 March 1976. This occupation site extended 400x150–200 m on a terrace along the north bank of Owl Creek. Debitage, scrapers, bifaces, and cores were collected and analyzed. The site was considered to be in good condition, with some potential for buried cultural deposits because of the depth of the alluvial deposits.

On 19 July 1984, Turpin and Strychalski (Texas A&M University) re-recorded 41CV94. Site size was modified to 375x200 m, and the site was defined as a large lithic scatter and chert resource. Bifaces, unifaces, cores, hammerstones, and debitage were observed, and two dart points were collected. The depth of the deposits was at least 50 cm thick, and erosion, roads, and military activity damaged an estimated 35 percent of the site.

On 6 November 1992, Turpin and Abbott (Mariah Associates) visited and evaluated the site. Based on differing archeological potentials and geomorphic contexts, the site was divided into Subareas A and B. Based on the extent of cultural materials and Holocene deposits, the site dimensions were enlarged to 400x200 m.

Subarea A subsumed a relatively broad Pleistocene terrace of Owl Creek that lay 10–12 m above the modern stream. This cleared area was covered with grasses and mantled with chert lag gravels. Exposures along a gravel road that fronted Owl Creek revealed 40–60 cm of Holocene sediments consisted of a granular, dark brown clay loam (A horizon). This sediment was underlain by a fine blocky structured dark reddish brown stony clay loam (Bt horizon) and a strong Bk or K horizon less than 75 cm below the surface. Around the margin of the terrace scarp the upper drape was beveled, leaving a denser lag of chert gravels. A large, ephemeral scatter of flakes, bifaces, unifaces, cores, and dart point fragments was observed across the terrace. Roads, erosion, tank maneuvers, and plowing severely disturbed Subarea A.

Subarea B consisted of a relatively narrow lower Holocene terrace lying 5–7 m above the modern channels of Owl Creek and its tributary, along with a very low, discontinuous modern floodplain at their confluence. The Holocene terraces along both streams were level to gently sloping and supported grasses and thick stands of riparian woodlands. The tributary deposits were well exposed in a continuous cutbank and consisted of highly stratified gravels and clay loams with at least two weakly developed intercalated cumulic paleosols showing A-C profiles. Up to 2 m thick, these deposits were thought to correlate to the West Range and Fort Hood alluvial units (Nordt 1992). The fill exposed in the Owl Creek cutbank also consisted of gravels and grayish brown clay loams but lacked the intercalated paleosols and exhibited less distinctive stratification than the tributary fill. Here, the lack of diagenetic alteration, rubification, and very weak soil development suggested that the deposits represented late Holocene fluvial activity and were probably equivalent to the upper or lower members of the West Range alluvium (Nordt 1992). A scatter of debitage was noted across Subarea B, and one Ensor dart point was collected. Disturbances here were similar to those observed in Subarea A. Based on the depth of the Holocene deposits and the potential for buried cultural materials, shovel testing was warranted in Subareas A and B.

On 26 October 1992, a crew excavated 26 shovel tests in Subarea A and 4 in Subarea B. The shovel tests in Subarea A were excavated between 20 and 40 cm, and 21 (80.8 percent) of

26 contained lithic artifacts, including a Frio dart point at 0–10 cm. Most of the artifacts were confined to the upper 10 cm of deposit, but one test also produced historic items at this depth. Of the 4 shovel tests placed in Subarea B, 2 produced three flakes and an historic artifact at 0–20 cm, and a third yielded six burned rocks at 10–30 cm.

Based on the testing results and depth of the Holocene sediments, there were intact cultural deposits of unknown significance possibly present below 40 cm in Subareas A and B. Recommended testing to determine National Register eligibility consisted of a minimum of six backhoe trenches and 4–8 m^2 of manually excavated test units in both subareas (Trierweiler, ed. 1994:A694–698).

Work Performed

On 1 August 1999, formal testing of Subareas A and B at 41CV94 was completed (Figure 5.5). Test excavations consisted of 10 backhoe trenches (Backhoe Trenches 1–10), 4 test units measuring 1x1 m (Test Units 1, 2, 4, and 5), and 1 test unit measuring 0.5x0.5 m (Test Unit 3). A total of 5.01 m^3 was manually excavated.

Three backhoe trenches and two test units were excavated in Subarea A. Spaced across the Pleistocene terrace (T_2), Backhoe Trenches 5–7 were 6–7 m long, 0.6 m wide, 0.9–1 m deep. All three were culturally sterile. Two were generally oriented north-south, and the third was aligned east-west. Excavated to decomposing bedrock at 90 cm, Test Unit 4 was placed along the west wall of Backhoe Trench 7 where thicker Holocene deposits occurred. About 35 m northeast of Test Unit 4, Test Unit 5 (oriented to magnetic north) was terminated when dense gravels were encountered at 40 cm.

Seven backhoe trenches and three test units were excavated in Subarea B. North of the gravel road, Backhoe Trenches 1–3 were placed on the terrace (T_1) along the unnamed tributary. All three were generally aligned north-south, measuring 13–19 m long, 0.6 m wide, and 2.4–2.5 m deep. Although each trench exposed a buried soil horizon, no cultural materials were observed. Approximately 45 m west of Backhoe Trench 2, Backhoe Trench 4 was situated at the interface of the Holocene terrace and slope of the Pleistocene terrace. Oriented to 320˚, the trench had maximum dimensions of 10x0.6x1.8 m but contained no cultural materials. South of the gravel road, Backhoe Trenches 8–10 were situated on the terrace (T_0) adjoining Owl Creek. Oriented along a north-south axis perpendicular to the creek, the trenches were 9–11 m long, 0.6 m wide, and 2.2–2.4 m deep. No cultural materials were observed.

In Subarea B, three test units were placed along trenches where paleosols were exposed in the profiles. Test Units 1 and 2 were placed along the east walls of Backhoe Trenches 1 and 2, respectively. The units were terminated at arbitrary depths of 160 and 200 cm. Test Unit 3 was situated within the trench cut of Backhoe Trench 3. The upper deposits were mechanically removed, and hand excavation began at 157 cm. The excavation was discontinued when dense gravels were encountered at 200 cm.

Site Extent and Depth

Owl Creek and its unnamed tributary border the site to the south and east, respectively. Because the tributary bends, the northern boundary is partially delimited by the drainage, but the Pleistocene and Holocene terraces continue an unknown distance to the west and northwest. Based on previous investigations and the testing results, the maximum site dimensions are estimated to be 263 m east-west by 205 m north-south. The Pleistocene terrace (Subarea A) measures 160 m east-west by 150 m north-south, and the Holocene terraces (Subarea B) extend 205 m north-south by 140 m east-west. Based on sparse cultural materials in disturbed context in Subarea A and the absence of archeological remains in Subarea B, no isolable cultural components can be distinguished.

Sediments and Stratigraphy

Trench profiles in Subareas A and B were described in detail, and soil geomorphology was assessed (see Appendix B). In Subarea A, the 95+-cm-thick profile of Backhoe Trench 5 revealed Pleistocene channel deposits overlain by late Pleistocene and Holocene overbank deposits (Ap-Bt-Bkm profile). The Ap horizon (0–21 cm) is a hard, very dark gray to dark brown clay with a subtle platy structure resulting from plowing and compaction. Open vertical cracks occur to a depth of 17 cm. At 21–52 cm, the

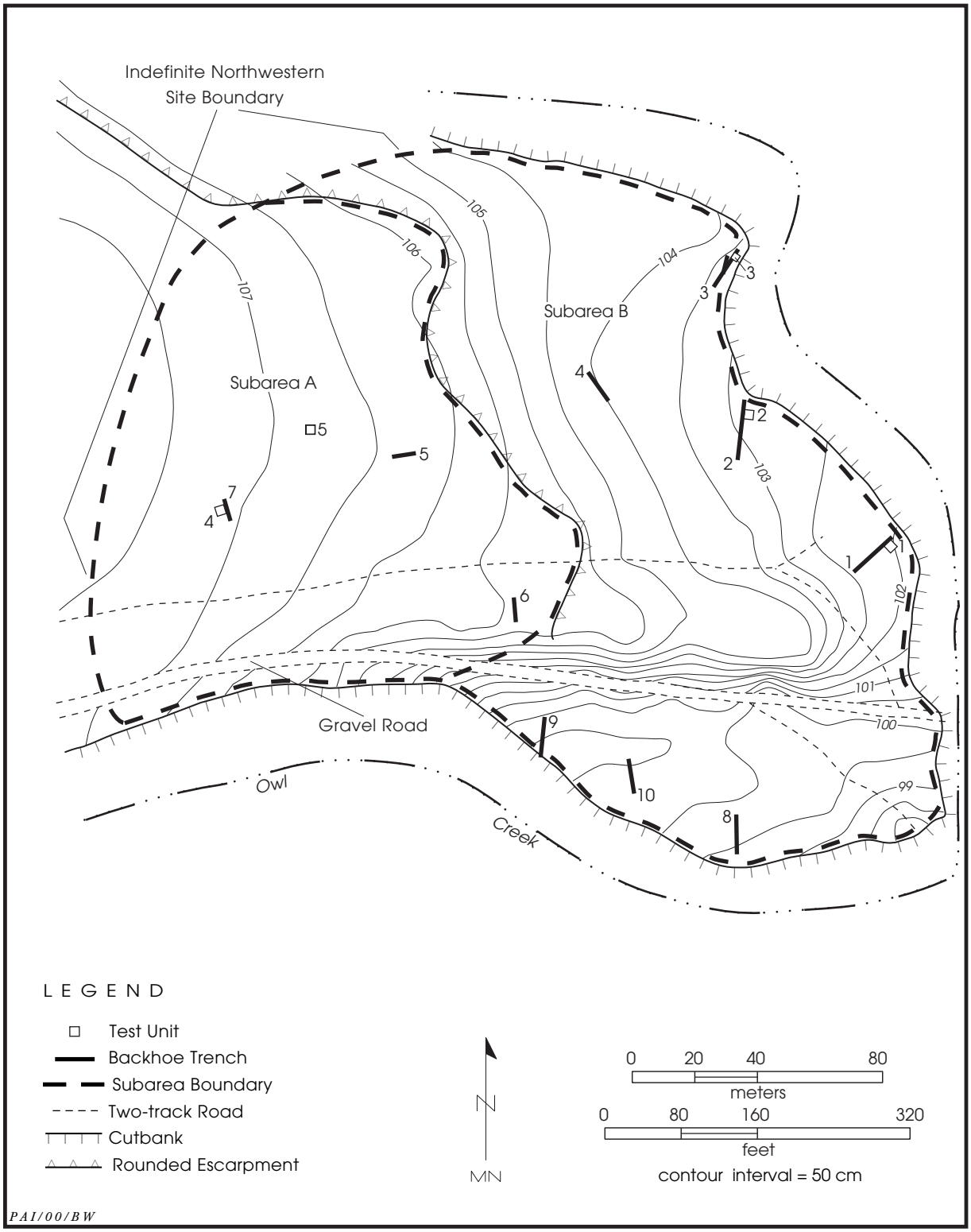

Figure 5.5. Map of 41CV94.

Bt horizon consists of friable, brown slightly gravelly clay loam. The Bkm horizon (52–95 cm) consists of light brown gravelly to extremely gravelly sandy loam.

In Subarea B, the exposure in Test Unit 2 (adjacent to Backhoe Trench 2) consists of Ford and West Range alluvial deposits. The Ford alluvium (0–78 cm) exhibits an A-CB1-CB2 profile. The A horizon is a dark gray clay, and the CB1 horizon fines upward from a dark gray gravelly sandy loam to clay. The CB2 horizon consists of a grayish brown slightly gravelly silty clay with gravelly sandy stringers. The West Range fill includes a buried soil (78–116 cm) imprinted on very dark gray gravelly clay (Ab horizon) that is underlain by a gray clay loam to extremely gravelly sandy loam (CBb horizon).

Cultural Materials

No cultural materials were recovered from 40 levels excavated in Test Units 1, 2, and 3 within Subarea B. In Test Units 4 and 5, 8 (61.5 percent) of 13 levels contained 1 miscellaneous uniface, 1 spokeshave, 4 edge modified flakes, and 34 flakes (Table 5.6). Thirty-nine of 40 artifacts found in Subarea A were confined to the upper 40 cm of fill, with 25 items found at 0–10 cm.

Discussion

Excavations at 41CV94-A (the higher Pleistocene terrace) did not encounter isolable cultural deposits or intact features. Ubiquitous and severe disturbance from tracked vehicles, vegetation clearing, and plowing also have compromised the integrity of the upper 30–40 cm of Holocene fill, where most artifacts were found. The complete absence of cultural materials in the Subarea B excavations, especially in the buried soil horizons, reveals that the Holocene alluvium here has very limited potential for subsurface cultural deposits. Based on the testing results, Subareas A and B at 41CV94 both have extremely limited archeological research potentials and are recommended as not eligible for listing in the National Register.

41CV579

Site Setting

Situated on a terrace south of a meander in the Leon River, 41CV579 is wedged between the perennial drainage and an active chute channel. A gravel road delimits the western site boundary, and the valley wall is just south of the site. The

Table 5.6. Summary of cultural materials from 41CV94-A, Test Units 4 and 5

Provenience	Miscellaneous uniface	Spokeshave	Edge-modified flakes	Unmodified debitage	Total
TEST UNIT 4					
Level 1 (0–10 cm)	1	–	2	12	15
Level 2 (10–20 cm)	–	1	–	6	7
Level 3 (20–30 cm)	–	–	1	3	4
Level 4 (30–40 cm)	–	–	–	1	1
Level 5 (40–50 cm)	–	–	–	–	0
Level 6 (50–60 cm)	–	–	1	–	1
Levels 7–9 (60–90 cm)	–	–	–	–	0
Subtotal	1	1	4	22	28
TEST UNIT 5					
Level 1 (0–10 cm)	–	–	–	10	10
Level 2 (10–20 cm)	–	–	–	1	1
Level 3 (20–30 cm)	–	–	–	–	0
Level 4 (30–40 cm)	–	–	–	1	1
Subtotal	–	–	–	12	12
Total	1	1	4	34	40

area supports cedar elm, bois d'arc, and hackberry trees. As defined in 1999, site dimensions are 150 m northwest-southeast by 40 m northeast-southwest. Site elevation is 220 m above mean sea level.

Previous Work

A Fort Hood Archeological Site Survey Form dated 2 March 1983 noted minimal information about 41CV579. The site was situated on the lowland near the Leon River. Exposure was fair, and pot hunting was listed as a disturbance. An attached map depicted the site's location on the military reservation, but no site dimensions were noted.

On 7 December 1987, Pry and Mesrobian (Texas A&M University) monitored the site. Looting, bulldozing, and cutbank erosion damaged an estimated 90 percent of the site. The extent of erosion defined site dimensions of 100x75 m. One piece of burned rock was exposed in the cutbank, but its depth was not noted. The investigator's notes remark, "We did not see the number of cast off artifacts (flakes, br [burned rocks], fragmentary tools, mussel shell) which one would expect in a potted site." The sediment was described as very dark and midden-like, and the area appeared to be a good location for a site.

On 26 January 1990, Kleinbach, Sanchez, Cargill, and Sandefor (Texas A&M University) recorded 41CV579 as an open campsite. In the south bank of the Leon River, debitage, mussel shells, and a possible hearth were exposed at 100–120 cm. The profile revealed a 105-cm-thick dark brown silty clay loam capped by recent flood deposits. Slumped sediments were present at the base of the profile, and one Darl dart point was found in this area. A Pedernales dart point also was recovered at approximately 88 cm. Based on the extent of the cultural materials, the minimum site size was 17x12 m. An estimated 80 percent of the site was disturbed by erosion and artifact collecting (based on information by a local informant). Because there were probably intact cultural deposits present, testing was recommended (Carlson et al. 1994:66–67).

On 13 August 1997, Nordt (Baylor University) and Kleinbach (Prewitt and Associates) visited and evaluated the site based on geomorphic contexts and the potential for intact cultural deposits. The site, situated on the south terrace of the Leon River, was covered with a continuous tree canopy. Impinging on the north side of the site, the 5–6-m-high cutbank exposed 50–100 cm of stratified loamy Ford alluvium overlying a buried soil developed on either West Range or Fort Hood alluvium (Nordt 1992). The Ford alluvium contained an A-C sequence. The buried soil had an Ab-ABb-Bkb-Bkssb profile, with silty clay loam to silty clay textures. The Ab and ABb horizons were black and up to 100 cm thick. The Bkb was a grayish brown zone with calcium carbonate filaments, and the Bkssb had filaments and nodules of calcium carbonate and slickensides. It was thought that the upper portions of the buried horizon might be equivalent to the Leon River paleosol identified at other sites within this drainage system (Mehalchick et al. 1999:213–220). A few burned rocks were observed between 100 and 150 cm in the paleosol, and there were sparse burned rocks, mussel shells, and debitage present in slumped sediments. Researchers observed that the floodplain extended perpendicularly away from the cutbank toward a slough that bisected the terrace surface and then continued south of the slough and onto the valley wall. The downstream (east) end of the site was truncated by channel erosion that occurred between formation of the buried soil and deposition of the Ford alluvium. This was evidenced by the fact that the contact between the Ford alluvium and West Range-Fort Hood alluvium was several meters lower here than at the west end of the site. Based on past and present observations, the site measured at least 33x14 m, but its actual size was indefinite and might be larger because the terrace extended west, south, and east. Because cultural materials were encapsulated in a paleosol at 100–150 cm, shovel testing was not warranted. This site contained potentially intact cultural deposits of unknown significance. The recommended testing effort to determine National Register eligibility consisted of at least four backhoe trenches and 4 m^2 of manually excavated test units (Kleinbach 1999:259–260).

Work Performed

Before trenching, the cutbank along the Leon River was reinspected. About 5 m beyond the western site margin established in 1997, a few burned rocks were exposed at ca. 100 cm in a buried soil horizon. Burned rocks, mussel

shell fragments, and a few flakes were observed in cutbank slump blocks near the eastern site boundary.

On 16 August 1999, formal testing at 41CV579 was completed (Figure 5.6). Test excavations consisted of seven backhoe trenches (Backhoe Trenches 1–7) and six test units (Test Units 1–6). A total of 10.52 m^3 was manually excavated.

Six backhoe trenches were spaced across the proximal margin of the terrace ($T_{1)}$ between the steep cutbank and chute channel. One trench was excavated toward the distal portion of the terrace south of the slough. Backhoe Trench 1 was placed just south of the cutbank where the 1997 site map depicted exposed cultural materials. Oriented to 320˚, the trench had maximum dimensions of 14.5x1.2x2.8 m. Recent flood deposits capped a lens of organic matter and aluminum cans at a depth of 100 cm. A buried soil was exposed at 122–163 cm in the northwest end of the trench (closest to the cutbank). This paleosol dipped to 200+ cm at the southeast end of Backhoe Trench 1. In the north wall of the trench near its midpoint, a probable burned rock feature was exposed at 210 cm in the bottom of the trench cut and the north wall. In this central portion of the trench, a safety bench was excavated to the top of the paleosol to facilitate manual excavation. Also, flakes and burned rocks were present in the backdirt from the northwest end of the trench.

Backhoe Trench 2 was situated about 25 m north-northwest of Backhoe Trench 1. The trench measured 12x0.6x2.5 m and was aligned to 60˚. Although the paleosol was visible from 40 to 120 cm, no cultural materials were observed.

About 35 m southwest of Backhoe Trench 1, Backhoe Trench 3 was equidistant between the slough and the valley wall. Oriented to 105˚, the trench (12.5x0.6x2 m) exposed no cultural materials. Backhoe Trenches 4 and 5 were wedged between Backhoe Trench 1 and the cutbank. Trench 4 was oriented to 130˚ and measured 6x0.6x3.2 m, and Trench 5 was aligned to 25˚ and had maximum dimensions of 8x0.6x2.9 m. In both trenches, the upper 110–120 cm consisted of recent overbank flood deposits. No cultural materials were observed.

Thirty meters east of Backhoe Trench 1, Backhoe Trench 6 was located near the area where cultural materials were observed in slump from the cutbank. Oriented to 15˚, the trench measured 3.5x0.6x2.5 m. The upper matrix was recently deposited, and no cultural materials were exposed.

Backhoe Trench 7 was excavated ca. 32 m southeast of Backhoe Trench 6 and 2 m south of the cutbank. The trench was oriented to 40˚ and measured 10.5x1.2x1.5 m. The top of the paleosol occurred at ca. 170 cm in the north end of the trench and appeared to slope upward to the south. There were burned rocks, mussel shells, and flakes present in the buried soil horizon, and the cultural materials extended the length of Backhoe Trench 7. To facilitate manual excavation, sediments overlying the paleosol were removed along the northern three-fourths of the trench, making this portion of the trench 1.2 m wide.

Three free-standing test units were oriented perpendicular to the cutbank, and the other three units were placed within trench cuts. Each test unit excavation was terminated at an arbitrary depth. Excavated to 200 cm, Test Unit 1 (1.5x1 m) was placed ca. 4 m southeast of Backhoe Trench 2 and along the cutbank, where burned rocks were exposed at ca. 100 cm. The upper 55 cm of deposits were manually removed and not screened because they resulted from modern flooding. Excavation began with Level 6 at 55–60 cm.

Situated about 17 m downstream from (southeast of) Test Unit 1, Test Unit 2 (1x1 m) was 4 m north of the northwest end of Backhoe Trench 1 and perpendicular to the cutbank. Recent flood deposits containing beer cans extended from 0 to 117 cm, and these deposits were manually removed and not screened. The excavation began with Level 12 at 117–120 cm and was terminated at 210 cm.

About 20 m east of Test Unit 2 and 8 m northeast of Backhoe Trench 4, Test Unit 3 was excavated along the edge of the cutbank. The unit measured 1.5x1 m from the surface to 140 cm. Modern overbank deposits containing aluminum and metal cans from 0 to 90 cm were manually removed and not screened; thus, the excavation started with Level 10 (90–100 cm). Beginning at 140 cm, only the northern third of the unit (0.5x1 m) was excavated. The excavation was discontinued at 160 cm.

Situated over a possible burned rock feature in Backhoe Trench 1, Test Unit 4 (1x1 m) encompassed the width of the safety bench and a portion of the bottom of the trench cut. The

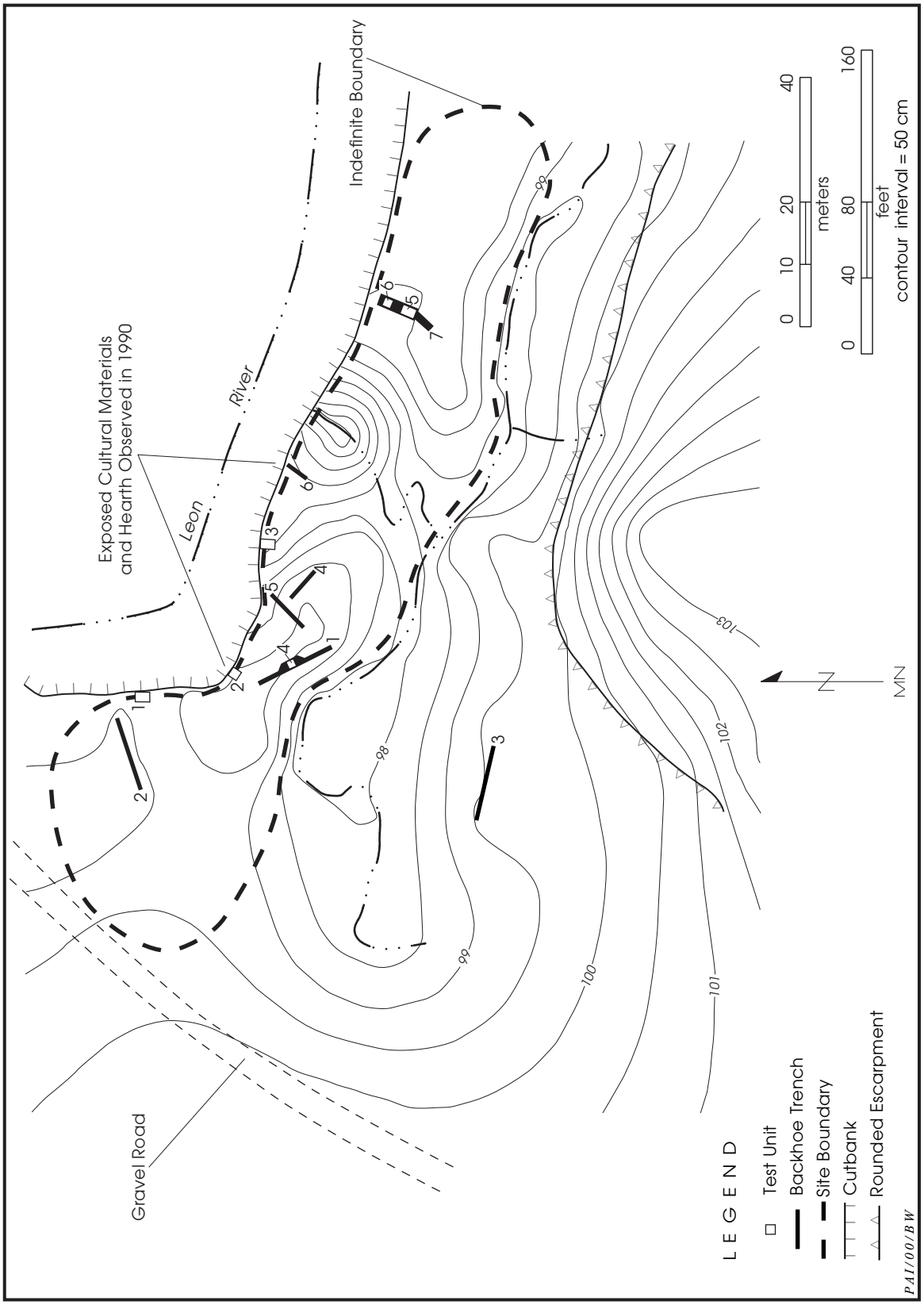

Figure 5.6. Site map of 41CV579.

upper 148 cm of sediment was removed during trenching, so the excavation began with Level 16 at 148–160 cm. Before excavating this unit, standing water from rains had to be bailed out of this section of the trench. Because it rained again a few days later, the unit was inundated. The trench walls began to slump, and the excavation was abandoned at 190 cm.

Excavated to 230 cm, Test Unit 5 (1.5x1 m) was placed near the southern end of Backhoe Trench 7 and within the trench cut. Because the upper 140 cm of deposits were removed during trenching, excavation began with Level 15 (140–150 cm) and continued to 230 cm.

Test Unit 6 (1x1 m) was placed ca. 1.5 m north of Test Unit 5 and also was inside the trench cut of Backhoe Trench 7. The upper 160 cm of sediment were removed during trenching, and excavation started with Level 17 (160–170 cm) and was terminated at 320 cm.

Looting Incident

On arrival at 41CV579 at approximately 7:45 A.M. on 12 August 1999, it was evident that looters had damaged the site the night before or early that morning. Several burned rocks and some of the matrix were removed from the south and west walls of Test Unit 5, situated in Backhoe Trench 7. This primarily disturbed Feature 2, a basin-shaped hearth (see Analysis Unit 2, Cultural Features), and the spoil was left in the test unit. Doug Boyd (Prewitt and Associates) and Kimball Smith (then Fort Hood archeologist) were notified immediately, and Smith then informed the game warden's office about the site damage. At this point, the main concern was that the excavations would be open over the weekend when no one would be at the site. The provost marshall's office requested that a formal complaint be filed with the Military Police. After explaining the situation to the Military Police, at 6:15 p.m., Project Archeologist Mehalchick (Prewitt and Associates) was instructed to meet Game Warden Mathes near the site area. At 7:15 P.M., Mehalchick showed Mathes the site and looting damage. Mehalchick gave a written sworn statement, and Mathes said that game warden personnel would patrol the area over the weekend. Archeological work continued the next week, but no further vandalism occurred at the site. All excavations were backfilled on 18 August 1999.

Site Extent and Depth

Although the valley wall abuts the terrace surface to the south, the site area now is defined to include only the portion of terrace situated between the Leon River and the chute channel. A gravel road borders the western site margin, but the terrace extends an unknown distance to the east beyond the most productive excavations. Based on previous investigations and the testing results, the site measures at least 150 m northwest-southeast by 40 m northeast-southwest. Intact cultural deposits are buried between 150 and 230 cm, and deeper components may be present.

Sediments and Stratigraphy

The profiles of two backhoe trenches and one test unit were described in detail and soil geomorphology was assessed (see Appendix B). Major floods have periodically topped the steep bank and deposited sediment along the proximal edge of the terrace, creating a natural levee. Many of the levee deposits along the terrace edge are very recent.

Test Unit 5 (adjoining Backhoe Trench 7) revealed a 115-cm-thick Ford alluvial drape (A-CA-BC) underlain by the Leon River paleosol (Ab-Btb-Btkb) described by Mehalchick et al. (1999:213–220). The upper sequence consists of dark gray and grayish brown clays and a dark grayish brown sandy loam. The paleosol (115–318+ cm) consists of a partly anthropogenic, black silty clay (Ab horizon) to very dark gray clays (Btb and Btkb horizons).

Test Unit 2 reveals a 122-cm-thick Ford deposit (C horizon) underlain by the Leon River paleosol-West Range alluvium from 122 to 214 cm (Ab horizon). Much of the Ford deposit is recent, beer cans buried more than 1 m deep indicate. This C horizon consists of a stacked, upward fining sequence from gray clay to loamy sand. A layer of organic matter caps one sequence, and sands at the base of each sequence preserve cross laminae. Each deposit shows evidence of severe bioturbation before burial. The Ab horizon is a dark gray clay with common, fine, distinct mottles and faint cross laminae.

The 115-cm-thick exposure Backhoe Trench 3 provided consists of Ford and West Range deposits. The Ford alluvium is imprinted

with an AC1-AC2 profile. The AC1 horizon (0–11 cm) is a very dark to dark gray silty clay with faint relict laminations. The very dark gray AC2 horizon at 11–69 cm contains four very faint, but discrete, upward-fining flood sequences from clay to silty clay. The BA horizon (69–115+ cm) consists of a developed black to very dark gray clay correlating to the West Range fill.

Although the general stratigraphy of the alluvial deposits along the Leon River is similar from west to east across the site (i.e., Ford over West Range), there are subtle differences not fully explored because groundwater saturates sediments. The Ford deposits in the western portion of the site (as expressed in Test Unit 2) are recent, with no pedogenic development (i.e., lacking an A horizon), largely because the channel bend is situated so that the river dumps its sediment load in the vicinity of Backhoe Trenches 1, 4, and 5. In contrast, Ford deposits in the eastern portion of the site (as expressed in Backhoe Trench 7) do not appear to be as recent and show limited pedogenic development. And although the Leon River paleosol in the West Range alluvium appears similar on the east and west sides of the site, the Leon River paleosol in Test Unit 3 and Backhoe Trench 6 (not described) shows gleyed deposits from long-term saturation. This suggests that the east-west slough extends northward into this area, and that there was ponded water in this area before the river meander cut its way southward to allow the slough to drain back into the channel. The surface topography (see Figure 5.6) also indicates that this scenario is likely. Notably, the Leon River paleosol appears to follow the modern surface topography to some extent, but its topography is poorly defined. The paleosol dips southeastward (i.e., toward the modern topographic low) in all of the subsurface exposures across the western portion of the site, it dips northward in Backhoe Trench 7 in the eastern end of the site. The paleosol presumably dips westward in this area also, but the lack of excavations in the modern topographic low between Backhoe Trenches 6 and 7 means that this interpretation cannot be confirmed.

Definition of Analysis Units

The upper Ford deposits are very recent, and, although minimally sampled, the lower Ford deposits appear to contain few or no cultural materials. Consequently, the Ford alluvial unit is not assigned to any analysis unit. Analysis Unit 1 consists of cultural materials in the West Range alluvium-Leon River paleosol in the western portion of the site, and Analysis Units 2 and 3 consist of cultural materials in the upper and lower portions (respectively) of the West Range alluvium-Leon River paleosol in the easternmost portion of the site. The stratigraphic break between Analysis Units 2 and 3 occurs at approximately 200 cm. Analysis Units 1 and 2 presumably correspond in time and probably represent contemporaneous (i.e., the same) occupations, but this conclusion is tentative.

Analysis Unit 1

Six backhoe trenches and four test units produced sparse archeological remains associated with the Ford and Leon River paleosol-West Range deposits, which are up to 320 cm thick. Although Backhoe Trench 1 exposed burned rocks at 210 cm in a buried soil horizon, the excavation results were inconclusive because of trench flooding. Sparse cultural materials were recovered from 110 to 210 cm deep in Test Units 1 and 2, but none were recovered in the same deposits sampled in Test Units 3 and 4.

Cultural Materials

Nineteen (76 percent) of 25 levels excavated from Test Units 1 and 2 produced 58 burned rocks (5.1 kg), 1 edge-modified flake, 1 core, 78 flakes, and 11 unmodified mussel shells (Table 5.7). Five mussel shells were too small or eroded to be identifiable, and the rest consist of *Amblema* and *Quadrula* sp. and probable *Amblema* sp. Most of the cultural materials occurred at 120–170 cm in Test Unit 1 (n = 75, 52.1 percent) and 140–170 cm in Test Unit 2 (n = 28, 19.4 percent). All eleven levels excavated from 90 to 140 cm in Test Unit 3 and from 148 to 190 cm in Test Unit 4 were culturally sterile.

Discussion

Analysis Unit 1 is a cultural occupation within the Leon River paleosol (West Range alluvium) in the western portion of the site. Burned rocks, lithic artifacts, or unmodified

Table 5.7. Summary of cultural materials from 41CV579, Analysis Unit 1, Test Units 1 and 2

Provenience	Edge-modified flakes	Cores	Unmodified debitage	Unmodified mussel shells	Total
TEST UNIT 1					
55–60 cm*	–	–	–	–	0
Levels 7–11 (60–110 cm)	–	–	–	–	0
Level 12 (110–120 cm)	–	–	1	–	1
Level 13 (120–130 cm)	–	–	–	2	2
Level 14 (130–140 cm)	–	–	5	2	7
Level 15 (140–150 cm)	–	–	7	3	10
Level 16 (150–160 cm)	1	1	10	1	13
Level 17 (160–170 cm)	–	–	5	2	7
Level 18 (170–180 cm)	–	–	5	–	5
Level 19 (180–190 cm)	–	–	5	–	5
Level 20 (190–200 cm)	–	–	1	–	1
Subtotal	1	1	39	10	51
TEST UNIT 2					
117–120 cm**	–	–	–	–	0
Level 13 (120–130 cm)	–	–	–	–	0
Level 14 (130–140 cm)	–	–	2	–	2
Level 15 (140–150 cm)	–	–	6	–	6
Level 16 (150–160 cm)	–	–	6	–	6
Level 17 (160–170 cm)	–	–	8	–	8
Level 18 (170–180 cm)	–	–	6	–	6
Level 19 (180–190 cm)	–	–	4	–	4
Level 20 (190–200 cm)	–	–	7	–	7
Level 21 (200–210 cm)	–	–	–	1	1
Subtotal	–	–	39	1	40
Total	1	1	78	11	91

*Partial level. Sediments from 0 to 55 cm were removed without screening.

**Partial level. Sediments from 0 to 177 cm were removed without screening.

mussel shells were found in most levels excavated from two of four test units, but no stratigraphically discrete archeological zones could be clearly identified, although there appears to be a slight increase in artifact frequency between 150 and 170 cm.

Analysis Unit 2

Analysis Unit 2 subsumes a burned rock midden and internal hearth buried in the upper portion of the Leon River paleosol. These cultural deposits are present between 150 and 205 cm in Test Units 5 and 6 and begin ca. 30–40 cm below the top of the paleosol (at ca. 115 cm below surface). Excavations in this area ended arbitrarily at 200 to 210 cm, and significant cultural deposits could exist below this depth.

Cultural Materials

Four levels of nonfeature deposits excavated from Test Units 5 and 6 produced 1 edge-modified flake, 2 pieces of debitage, 2 unmodified Mammalia bone fragments, and 15 unmodified mussel shells (Table 5.8). Eight mussel shells were identified as *Amblema plicata*, and the rest were 1 probable *Amblema plicata*, 1 *Quadrula apiculata*, 1 *Lampsilis* sp., and 4 unidentifiable specimens. At 150–205 cm, Features 1 and 2 contained dense cultural materials described below (see Cultural Features).

Cultural Features

Encountered from 150–200 cm in Test Unit 5, Feature 1 is a burned rock midden that produced a total of 28 stone tools, 1 polyhedral

Table 5.8. Summary of cultural materials from 41CV579, Analysis Unit 2, Test Units 5 and 6

Provenience	Dart points	Perforator	Early- to middle-stage bifaces	Late-stage to finished biface	Miscellaneous bifaces	Miscellaneous uniface	Spokeshave	Core tool	Multifunctional tool	Edge-modified flakes	Core	Unmodified debitage	Modified bone	Unmodified bone	Unmodified mussel shells	Total
TEST UNIT 5																
Level 15 (140–150 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	4
Feature 1 (150–160 cm)	–	–	–	–	–	–	–	1	–	–	1	16	–	46	90	154
Feature 1 (160–170 cm)	–	–	1	3	1	–	–	–	–	2	–	56	1	35	27	126
Feature 1 (170–180 cm)	–	–	–	–	1	1	1	–	1	4	–	53	–	22	16	99
Feature 1 (180–190 cm)	1	1	1	1	1	–	–	–	–	4	–	71	–	44	50	174
Feature 1 (190–200 cm)	1	–	–	–	–	–	–	–	–	2	–	32	–	16	10	61
Feature 2 (169–188 cm)	–	–	–	–	–	–	–	–	–	–	–	21	–	94	15	130
Subtotal	2	1	2	4	3	1	1	1	1	12	1	249	1	257	212	748
TEST UNIT 6																
Level 17 (160–170 cm)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Level 18 (170–180 cm)	–	–	–	–	–	–	–	–	–	–	–	1	–	–	7	8
Level 19 (180–190 cm)	–	–	–	–	–	–	–	–	–	1	–	1	–	2	3	7
Feature 1, west half (177–200 cm)	–	–	–	–	–	–	–	–	–	1	–	17	–	6	14	38
Feature 1, east half, upper level (172–198 cm)	–	–	–	–	–	–	–	–	–	–	–	6	–	45	6	57
Feature 1, east half, middle layer (184–203 cm)	–	–	–	–	–	–	–	–	–	–	–	10	–	16	1	27
Feature 1, east half, lower layer (188–205 cm)	–	–	–	–	–	–	–	–	–	–	–	2	–	13	8	23
Subtotal	0	0	0	0	0	0	0	0	0	2	0	37	0	82	40	161
Total	2	1	2	4	3	1	1	1	1	14	1	286	1	339	252	909

core fragment, 228 flakes, an unmodified piece of hematite, 792 burned rocks (52.8 kg), 1 modified Mammalia bone fragment (an awl-like tool), 163 unmodified bones, and unmodified mussel shells (see Table 5.8). The lithic tools include 1 Darl dart point with an alternately beveled blade and stem, 1 alternately beveled and serrated Zephyr dart point, 1 perforator with a smooth base, and 1 multifunctional tool consisting of a miscellaneous uniface and graver. One flotation sample produced charcoal flecks (See Appendix D).

The burned rock midden also covered most of Test Unit 6 from 172–190 cm and extended across the entire unit from 190 to 205 cm. Feature 1 was cross sectioned, and the west half was removed initially. This portion of the midden was present at 177–200 cm and contained 1 edge-modified flake, 17 flakes, 6 unmodified bones, 14 unmodified mussel shells, and 308 burned rocks (58 kg). One flotation sample contained indeterminate hardwood (see Appendix D). In profile, there appeared to be two burned rock layers separated by 4 to 6 cm of clean fill. The base of each layer was uneven in elevation across the length of the cross section, and all layers dipped slightly from south to north. Based on these findings, the east half of the midden was removed as three different stratified layers. At 172–198 cm, Layer 1 produced 6 flakes, 45 unmodified bones, 6 unmodified mussel shells, and 404 burned rocks (53 kg), most of which were 5–15 cm in size. Charcoal yielded a conventional radiocarbon age of 1200 ± 50 B.P. (Beta-136836, see Appendix A). There were no charred macrobotanical remains in one flotation sample (see Appendix D). Layer 2, at 184–203 cm, contained 10 flakes, 16 unmodified bones, and 1 unmodified mussel shell, and a flotation sample produced indeterminate hardwood (see Appendix D). This layer averaged 5 cm thick, but the elevations indicate the slope, not the actual thickness of the sediment. At 188–205 cm, Layer 3 yielded 157 burned rocks (19 kg, dominated by rocks 5–15 cm in size), 2 flakes, 13 unmodified bones, and 8 mussel shells. Charcoal yielded a conventional radiocarbon age of 1,080 ± 50 B.P. (Beta-136837, see Appendix A). One flotation sample did not produce carbonized plant remains (see Appendix D).

Overall, 16 taxa were represented in the vertebrate faunal assemblage (n = 243) (see Appendix C, Table C.3). Although Vertebrata and Mammalia (n = 197, 81.1 percent) dominate the assemblage, there also were Osteichthyes (small fish), Testudinata (turtle), Artiodactyla (hooved mammal), Carnivora (carnivore), Colubridae (snake), cf. *Felis rufus* (bobcat), cf. *Meleagris gallopavo* (turkey), *Sylvilagus* (rabbit), *Sigmodon* (cotton rat), and *Odocoileus* (deer) spp. present. Most of the invertebrate remains (n = 221) were unidentifiable (n = 101, 45.7 percent), with *Amblema plicata* (n = 57, 25.8 percent) being the most commonly identified species.

Within the midden matrix at 169–188 cm, a basin-shaped hearth encountered in the southern portion of Test Unit 5 was designated as Feature 2. The hearth consisted of 1–2 layers of burned rocks (n = 134, 53.5 kg). Large slabs, up to 35x23x5 cm, delimited the outer edge of the feature. Most of the interior rocks were slabs and tabular pieces ranging from 25x15x10 cm to 9x5x3 cm. There were several fist-sized and smaller angular fragments present toward the hearth's center. The feature fill contained 21 flakes, 94 unmodified bone fragments, and 15 unmodified mussel shells. Although not as diverse, the faunal assemblage recovered from Feature 2 resembled that recovered from Feature 1. Deer, rabbit, and turtle are the only animals identified (see Appendix C, Table C.3). One flotation sample contained charcoal flecks, and a second produced carbonized remains of *Quercus* sp. (oak) wood and *Carya* sp. (hickory) shell fragments (see Appendix D). Maximum excavated dimensions were 100 cm east-west by 66 cm north-south. The hearth was still visible in the south and west walls of the unit, indicating that it extended an unknown distance in these two directions. Its basin shape was apparent in both profiles, and no evidence of disturbance was noted.

Discussion

Calibrated charcoal radiocarbon dates (1 sigma) of A.D. 770–890 and A.D. 900–1,005 and the recovery of Darl and Zephyr dart points from Feature 1 reveal that the midden is buried within the Leon River paleosol and accreted primarily during the transition from the Late Archaic into the Late Prehistoric period. No chronometric data are available for Feature 2, an internal hearth encountered within Feature 1, but this discrete feature is probably

contemporaneous with the dated portion of the midden deposit. Although a portion of the midden showed distinct layers and was excavated stratigraphically, it is unlikely that separating the midden into layers is viable throughout the feature.

The cultural assemblage includes various stages of lithic reduction and one example of a cultural modification to an animal bone. The high frequency of spiral fractured and burned bones suggests marrow extraction and bone-grease processing (Table 5.9; see Appendix C). The remains of small fish, turtles, deer, cottontail rabbit, primarily rabbit- to deer-sized mammals, cf. bobcat and turkey, and several varieties of mussel shells (Table 5.10) reveal exploitation of terrestrial and aquatic resources. Sparse charred macrobotanical remains were recovered from the midden, but the paucity of remains may be the result of inadequate sampling. Oak wood and hickory shell fragments recovered from the internal hearth indicate a fuel resource and probable processing of nuts. Although the areal extent of the midden is unknown, the mechanical and manual excavations reveal that the feature measures at least 11 m north-south by 2 m east-west and is up to 50 cm thick. Aside from the looting incident, root activity has disturbed the midden minimally.

Analysis Unit 3

Analysis Unit 3 subsumes the Leon River paleosol from 200 cm to a maximum depth of 320 cm in Test Units 5 and 6. Based on a radiocarbon assay associated with concurrent peak in cultural materials, at least one stratigraphically discrete component is buried at 220–230 cm.

Cultural Materials

At 200–230 cm, Test Unit 5 contained 2 edge-modified flakes, 21 flakes, 39 burned rocks (7 kg), 28 unmodified bones, and 6 unmodified mussel shells (Table 5.11). The faunal remains consisted of Vertebrata, Mammalia, Artiodactyla, and cf. *Sylvilagus* sp. bones (see Appendix C), as well as *Quadrula petrina*, *Amblema plicata*, and unidentified mussel shells.

Below Feature 1 at 205–210 cm, Test Unit 6 produced 8 flakes, 2 unmodified Vertebrata bones, 17 unmodified mussel shells, and 18 burned rocks (1.5 kg). Eleven levels from 210 to 320 cm yielded 1 untyped dart point (at 240–250 cm), 3 bifaces, 5 edge-modified flakes, 34 flakes, 11 unmodified Mammalia and Artiodactyla bones, 29 unmodified mussel shells, and 72 burned rocks (7.5 kg). Here, mussel shell species were comparable to those recovered from Features 1 and 2 but also included 2 *Cyrtonaia tampicoensis* specimens. Almost 22 percent of cultural materials (33 of 153 items) occurred between 220 and 230 cm. At this level, a 25x15-cm area in the northwest corner of the unit produced charcoal and several chunks of burned clay. Identified as *Quercus* sp. (oak) wood (see Appendix D), charcoal collected at 227 cm yielded a conventional radiocarbon age of 1720 ± 50 B.P. (Beta-136834, see Appendix A). One flotation sample contained charcoal flecks (see Appendix D).

Discussion

Cultural materials were recovered from each level excavated in the Leon River paleosol from 205 to 320 cm. Although there may be multiple occupations in this 115-cm-thick deposit, one discrete cultural component was identified at 220–230 cm based on a slight increase in cultural materials and the presence of burned and oxidized sediment. A calibrated radiocarbon date of A.D. 250 (340) 400 reveals use of the area during the Late Archaic period. Although not as frequent, these cultural deposits contained materials similar to those present in the burned rock midden above it.

Summary and Conclusions

As at other sites (e.g., 41CV1478 and 41CV1482) situated within the Leon River drainage system, 41CV579 contains a culturally significant buried soil horizon previously identified as the Leon River paleosol. Here, and at other sites, chronometric data reveals that the area was repeatedly occupied during the end of the Late Archaic period and into the Late Prehistoric period. Faunal and floral remains indicate hunting, gathering, and processing activities, with a reliance on aquatic resources provided by the river. Approximately 24 percent of the vertebrate remains exhibit spiral fractures, suggesting breakage for grease rendering and marrow extraction. The faunal remains also

Table 5.9. Comparison of faunal remains from 41CV579, Features 1 and 2

Provenience*	Total No. of Bones Recovered	Specimens with Angular Fractures		Specimens with Spiral Fractures		Specimens with Evidence of Burning	
		#	%	#	%	#	%
Feature 1	243	175	72	67	28	59	24
Feature 2	94	86	91	5	5	28	30
Nonfeature	43	27	56	19	44	8	17
Total	380	288	76	91	24	95	25

* Features 1 and 2 are assigned to Analysis Unit 2; nonfeature includes specimens assigned to Analysis Units 1 and 3.

Table 5.10. Summary of mussel shells from 41CV579, Features 1 and 2, Test Units 5 and 6

Species	Feature 1	Feature 2	Total
Amblema plicata	57	2	59
Lampsilis teres	–	2	2
Leptodea fragilis	23	–	23
Quadrula apiculata	3	–	3
Quadrula petrina	17	2	19
Tritogonia verrucosa	16	–	16
probable *Amblema plicata*	1	–	1
probable *Quadrula apiculata*	2	1	3
probable *Lampsilis* sp.	1	–	1
probable *Quadrula* sp.	–	1	1
Unidentifiable	101	7	108
Total	221	15	236

indicate a diverse vertebrate assemblage and a variety of mollusks collected from the channel. Various stages of lithic reduction are present, as well as expedient and formal tools. Eight named chert types were identified at this site, with Fort Hood Yellow (88.5 percent) the most common. Based on the testing results, 41CV579 is recommended as eligible for listing in the National Register.

41CV668

Site Setting

Site 41CV668 is an open campsite by an unnamed tributary of Owl Creek (Figure 5.7). Most of the site area has been cleared and is covered with grasses, but there is a secondary growth juniper woodland along the drainage. One dirt road parallels the channel, and there is a tank trail crossing near the southern site margin. Site elevation is 235 m above mean sea level.

Previous Work

Day, Fabac, and Turpin (Texas A&M University) recorded the site on 24 February 1983. It consisted of a lithic artifact scatter and sparse burned rocks extending 115x85 m across an intermediate upland terrace. Erosion and clearing disturbed an estimated 60 percent of the site.

On 7 November 1992, Turpin and Abbott (Mariah Associates) visited and reevaluated the site. Based on differing archeological potentials and geomorphic contexts, the site was divided into Subareas A and B. Based on the extent of cultural materials and Holocene deposits, site dimensions were modified to 125x60 m.

Subarea A consisted of a level intermediate upland (Killeen) surface on which debitage, lithic tools, burned rocks, and a dense concentration of nodular chert lag gravels were exposed. Consisting of a former agricultural field now covered by grasses, the surface was mantled with 40-cm-thick deposits consisting of a granular, dark reddish brown stony clay loam A horizon underlain by a fine, blocky structured, reddish brown stony clay loam Bt horizon. The substrate was a nodular, decomposed limestone of the Walnut Formation. Extensive disturbances from tank maneuvers, vegetation clearing, plowing, and erosion were apparent, severely compromising the contextual integrity of the cultural materials. Because the potential for intact cultural deposits is negligible, no further work was recommended for Subarea A.

Table 5.11. Summary of cultural materials from 41CV579, Analysis Unit 3, Test Units 5 and 6

Provenience	Dart Point	Early- to middle-stage bifaces	Late-stage to finished biface	Edge-modified flakes	Unmodified debitage	Unmodified bones	Unmodified mussel shells	Total
TEST UNIT 5								
Level 21 (200–210 cm)	–	–	–	1	15	11	3	16
Level 22 (210–220 cm)	–	–	–	–	3	13	3	19
Level 23 (220–230 cm)	–	–	–	1	3	4	–	8
Subtotal	–	–	–	2	21	28	6	43
TEST UNIT 6								
Level 21 (205–210 cm)	–	–	–	–	8	2	17	27
Level 22 (210–220 cm)	–	–	–	–	2	–	4	6
Level 23 (220–230 cm)	–	2	–	1	7	2	–	12
Level 24 (230–240 cm)	–	–	–	–	5	–	6	11
Level 25 (240–250 cm)	1	–	–	2	6	4	–	13
Level 26 (250–260 cm)	–	–	–	–	4	1	1	6
Level 27 (260–270 cm)	–	–	–	–	1	1	–	2
Level 28 (270–280 cm)	–	–	–	–	3	2	16	21
Level 29 (280–290 cm)	–	–	–	–	1	–	1	2
Level 30 (290–300 cm)	–	–	–	1	1	1	–	3
Level 31 (300–310 cm)	–	–	–	1	4	–	–	5
Level 32 (310–320 cm)	–	–	1	–	–	–	1	2
Subtotal	1	2	1	5	42	13	46	108
Total	1	2	1	7	63	41	52	151

Subarea B subsumed a narrow alluvial terrace (T_1) supporting an oak-juniper woodland and rising 2–4 m above the modern channel. This surface was underlain by ca. 1 m of distinctly stratified alluvial deposits, including a considerable quantity of mixed coarse- and fine-grained colluvium that overlay and interfingered with the alluvium. It was difficult to correlate these deposits with the stratigraphic framework developed by Nordt (1992), but the lack of diagenetic alteration, rubification, and very weak soil development suggested that the terrace deposits represented late Holocene fluvial activity and were probably equivalent to the West Range alluvium. Debitage, residual chert, and burned rocks were noted on the surface. Because there is potential for buried cultural deposits, shovel testing was warranted.

On 27 October 1992, a crew excavated three shovel tests in Subarea B (see Figure 5.7). Excavated between 30 and 40 cm, all three tests were culturally sterile. Based on the testing results and depth of the Holocene sediments, intact cultural deposits of unknown significance were possible below 40 cm in Subarea B. Recommended testing to determine National Register eligibility consisted of one backhoe trench. If buried cultural materials were present, then manually excavated test units were warranted (Trierweiler, ed. 1994:A985–987).

Work Performed

Before trenching, reinspection of Subarea B revealed that the T_1 terrace was not continuous for the length of the site and was best defined near and beyond the southern site margin where the terrace is widest. On 19 July 1999, formal testing of 41CV668 was completed, and the subarea boundaries were redefined and mapped (Figure 5.8). Although three backhoe trenches (Backhoe Trenches 1–3) were excavated, only the west end of Backhoe Trench 1 encountered the alluvial and colluvial deposits making up

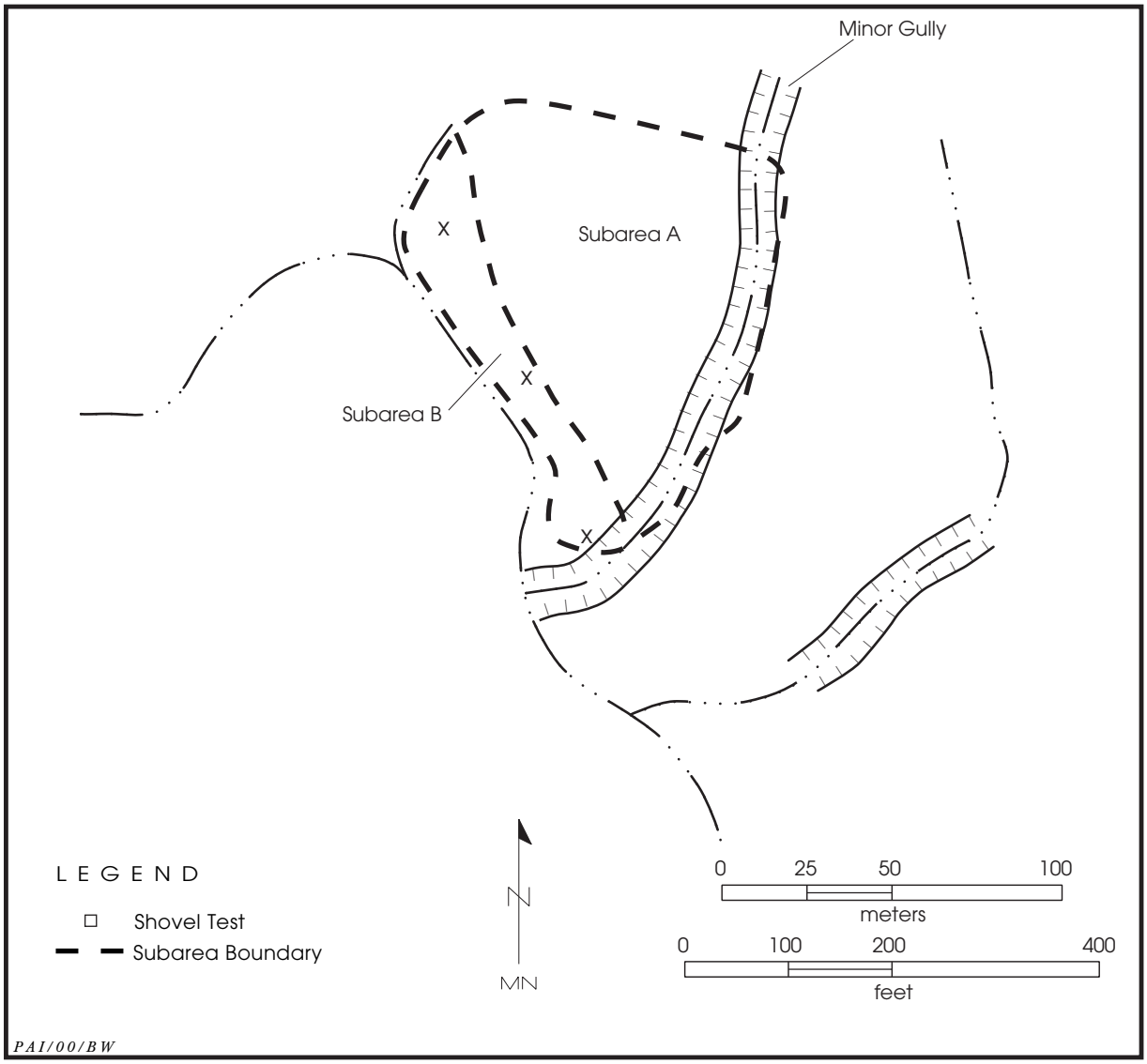

Figure 5.7. Site map of 41CV668 (modified from Trierweiler, ed. 1994:A986).

Subarea B. Backhoe Trenches 2 and 3 did not encounter alluvial deposits and are technically in Subarea A. Two 1x1-m test units (Test Units 1 and 2) were excavated on Subarea B, and 1.7 m^3 was manually excavated.

The three backhoe trenches were excavated perpendicular to the tributary and generally oriented along an east-west axis. All were 6 m long, 0.6 m wide, and no more than 1 m deep; no cultural materials were encountered. Test Unit 1 was placed perpendicular to (south of) the tank trail crossing near the southern site boundary. Oriented to 330˚, the unit encountered bedrock at 80 cm. Test Unit 2 was located ca. 70 m southeast of Test Unit 1. Aligned to magnetic north, the excavation was terminated at dense gravels at 90 cm.

Site Extent and Depth

The discontinuous segments of the T_1 terrace are well defined by the upland slope to the east and the unnamed tributary to the west. The terrace is very low lying and practically nonexistent at the northern half of the site, but a section does continue an unknown distance to the south. Based on the testing results, the dimensions of Subarea B were reduced to 90 m

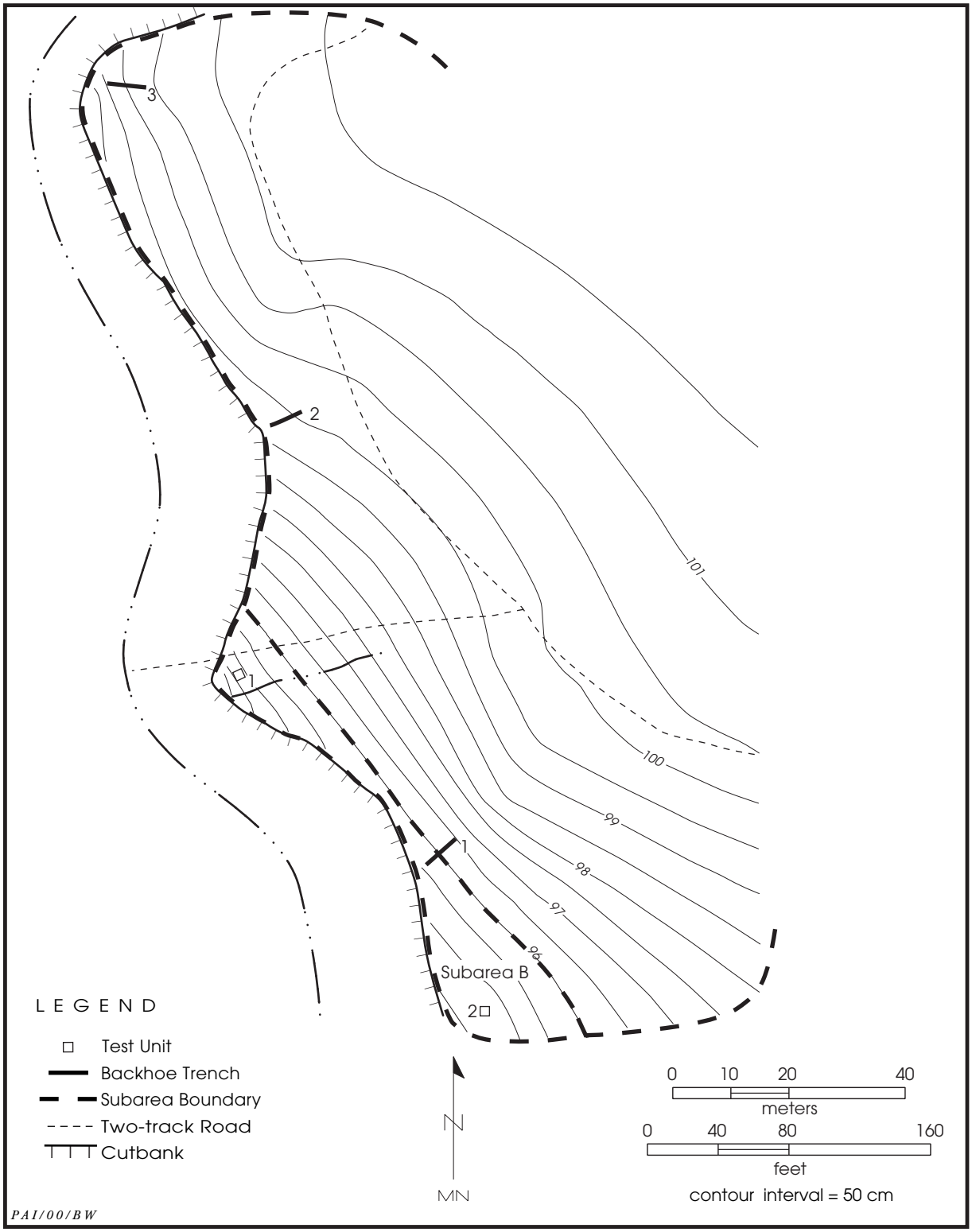

Figure 5.8. Map of 41CV668-B.

northwest-southeast by 20 m northeast-southwest.

Sediments and Stratigraphy

The two test unit profiles were described and soil geomorphology was assessed (see Appendix B). Test Unit 1 reveals a thin sequence of stacked, upward fining, overbank deposits (CB-AC-CB-ABb-Bcb profile) overlying weathered bedrock. The upper 47 cm of fill consists of dark gray clay loam and dark brown gravelly clay loam deposits analogous to the Ford alluvium. The underlying West Range alluvium is imprinted with very dark brown gravelly clay ABb (47–60 cm) and BCb (60–77 cm) horizons.

Test Unit 2 contained dark gray and dark brown clay and clay loam deposits (C-AB-Bw-BC profile) that fine upward. This entire sequence correlates to the Ford alluvium.

Cultural Materials

Twenty-nine flakes and one early- to middle-stage biface were recovered from 40 to 70 cm in Test Unit 1; the other five levels were culturally sterile. Four of nine levels excavated in Test Unit 2 produced a total of 4 flakes and 1 miscellaneous biface.

Discussion

Sparse lithic artifacts in the test excavations failed to reveal any isolable cultural deposits. Although cultural materials were contained within a 20-cm-thick deposit in one test unit, they are intermixed with a very gravelly fill, indicating that the contextual integrity of the artifacts is dubious. Based on the testing results, Subarea B at 41CV668 has extremely limited archeological research potential and is recommended as not eligible for listing in the National Register.

41CV956

Site Setting

Site 41CV956 is a large lithic procurement-lithic scatter site situated on an upland and terrace south of Shoal Creek (Figure 5.9). A dirt road parallels Shoal Creek and several roads bisect the upland surface. Vegetation includes dense thickets of juniper, but there are pecan, cedar elm, yaupon, and redbud along the drainage. Site elevation is 270–280 m above mean sea level.

Previous Work

On 1 May 1985, Thomas (Texas A&M University) first recorded the site as a tool scatter situated on an intermediate upland. One end scraper was collected, and vehicle trails disturbed an estimated 10 percent of the site. No site dimensions were given, and the site map did not include a scale.

On 3 November 1986, Masson and Rotunno (Texas A&M University) re-recorded the site. Based on the extent of cultural materials on a series of benches, maximum site dimensions were defined as 600x475 m. Burned rocks, bifaces, cores, hammerstones, utilized flakes, scrapers, and flakes were observed; six dart points, a hammerstone, and one drill were collected. The depth of deposits appeared to be less than 1 m, and erosion and vehicles disturbed an estimated 40 percent of the site.

On 19 January 1988, Pry and Petersen (Texas A&M University) monitored the site. The 600x475-m site dimensions were confirmed, and one corner-notched dart point was collected. Juniper cutting and a new tank trail were noted as disturbances. The area was considered a high use training area based on the military activities observed that day. Vegetation clearing, erosion, and vehicles disturbed an estimated 50 percent of the site. Although site protection would be difficult, certain measures such installing concertina wire and grass seeding were recommended.

On 8 September 1997, Schuy (Baylor University) and Kleinbach (Prewitt and Associates) visited and reevaluated the site. Based on differing archeological potentials and geomorphic contexts, the site was divided into Subareas A and B. The site dimensions established in 1986 were not changed.

Making up 70 percent of the site area, Subarea A subsumed the erosional upland slope. The surface was mantled with a gravelly loam underlain by a calcareous loam and white fossiliferous marl interbedded with shaley clay. A 75-cm-deep gully that extended through the colluvium displayed an A-Bk-Cr profile. The area supported patches of thick oak-juniper woodland, but almost half of the surface was bare

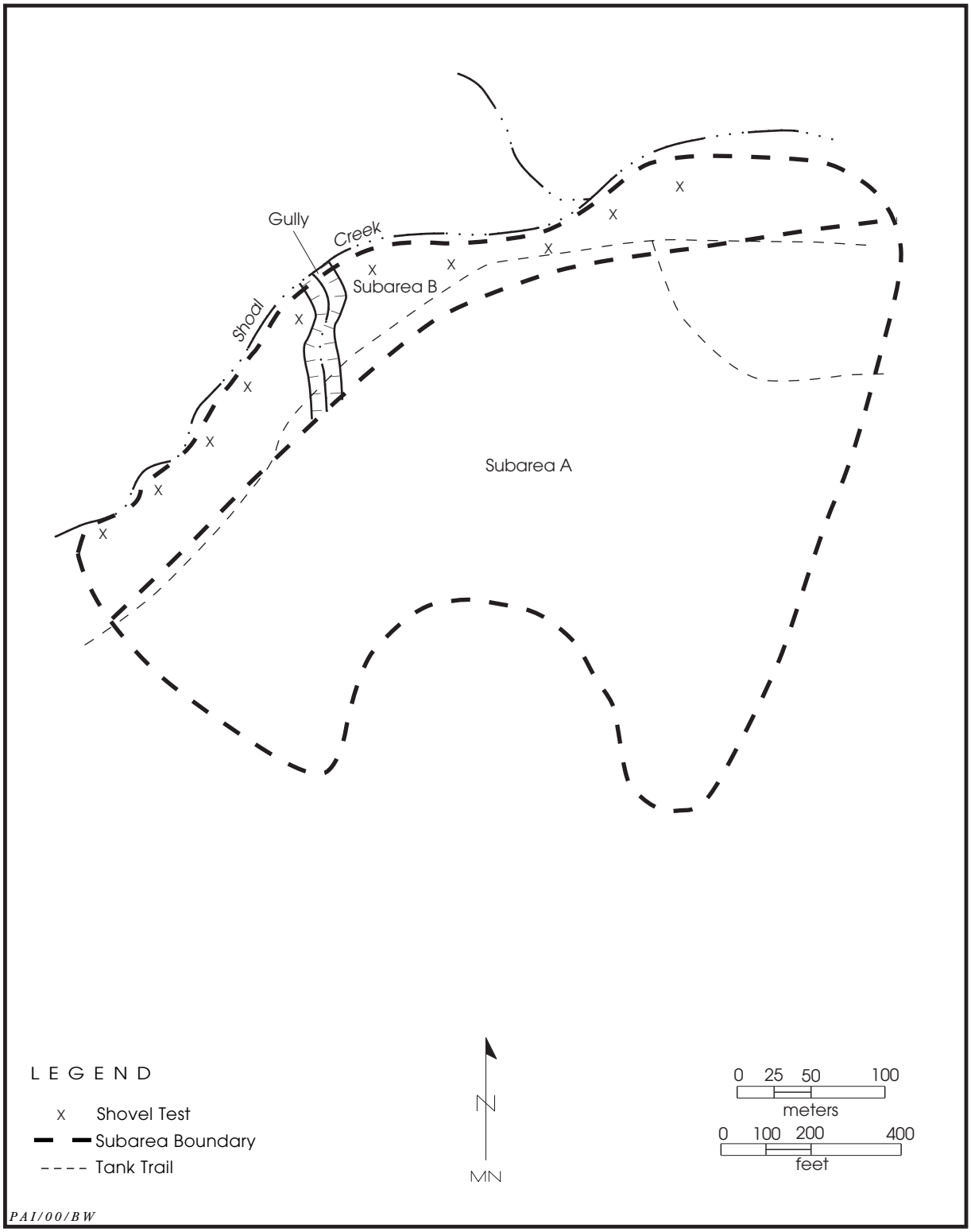

Figure 5.9. Site map of 41CV956 (modified from Kleinbach 1999:Figure 79).

ground. Occasional debitage, a few lithic tools, and sparse unmodified chert nodules were scattered across the surface. The chert consisted of small, microcrystalline, fine-grained nodules that were gray in color. This resource was probably deposited from the upland surface. Ubiquitous sheet erosion and vehicular traffic disturbed the entire area. Because the potential for intact cultural deposits is negligible, no further work was recommended for Subarea A.

Subarea B consisted of the terrace adjoining Shoal Creek. It was covered in dense vegetation, but cutbank exposures revealed alluvial deposits up to 1.5 m thick. Perpendicular to the creek and bisecting the terrace, a 1-m-deep gully exposed an A-AC profile consisting of a dark gray calcareous silty clay that graded into a gray brown cobbly silty clay. Given the degree of soil development, the deposits were thought to correlate to Ford or West Range alluvium (Nordt 1992). Periodic flooding, gullying, and sheet erosion had disturbed the terrace. No cultural materials were observed on the surface or in the cutbank of Shoal Creek. Fine-grained yellow to yellowish brown chert nodules present in the creek channel were identified as Fort Hood Yellow. Because there is potential for buried cultural deposits, shovel testing was warranted.

On 11 September 1997, a crew excavated 10 shovel tests in Subarea B. Excavated between 25 and 80 cm, 4 of the 10 tests contained cultural materials. Five flakes were recovered from 0 to 20 cm in three shovel tests; the fourth positive test produced four flakes at 40–60 cm. Although dense gravels were encountered at the base of most of the tests, the full vertical extent of the Holocene sediments was not sampled. Based on the testing results and depth of the Holocene fill, intact cultural deposits of unknown significance were possibly present in Subarea B. The recommended testing effort to determine National Register eligibility consisted of five backhoe trenches and 4–6 m^2 of manually excavated test units (Kleinbach 1999:261–264).

Work Performed

On 3 August 1999, formal testing of Subarea B at 41CV956 was completed (Figure 5.10). Test excavations consisted of nine backhoe trenches (Backhoe Trenches 1–9), one 1x0.5-m test unit (Test Unit 1), and two 1x1-m test units (Test Units 2 and 3). A total of 3.15 m^3 was manually excavated.

Backhoe Trenches 1–4 were spread from west to east across the terrace (T_1), but Trenches 5–9 were concentrated in a 75x45-m area in the eastern end of Subarea B. Backhoe Trenches 1–8 were generally aligned north-south, but Trench 9 was oriented east-west. All trenches were 10–32 m long, 0.6 m wide, and 1–2 m deep. Only Backhoe Trench 5 exposed cultural materials, and these were limited to a few burned rocks among gravels at 120–130 cm.

The three test units were situated adjacent to backhoe trenches and excavated until dense gravels were encountered. Excavated to 150 cm, Test Unit 1 was located along the east wall of Backhoe Trench 1. Spaced about 7 m apart, Test Units 2 and 3 were located adjacent to the east wall of Backhoe Trench 5. Test Unit 2 was terminated at 110, and Test Unit 3, at 130 cm.

Site Extent and Depth

The terrace making up Subarea B is bounded by Shoal Creek to the north and the upland slope to the south. The eastern boundary of prehistoric site 41CV957–B delineates the western limit, and the two sites abut one another. Although the terrace extends an unknown distance to the east, the maximum dimensions of Subarea B are estimated to be 470 m northeast-southwest by 60 m northwest-southeast based on the areal extent of surficial cultural materials and the testing results. The hand excavations yielded either sparse stone artifacts or lithic materials in questionable context, suggesting that there are no intact cultural deposits present.

Sediments and Stratigraphy

The sediments and stratigraphy in Backhoe Trenches 2 and 6 consist of a sequence of stacked, fine-grained, overbank deposits underlain by coarse-grained chute or channel deposits correlating to the Ford alluvium (see Appendix B). The upper 123 cm of Backhoe Trench 2 consists of black to very dark gray silty clays (Ap-A-BA profile). The dark gray 2CB horizon (123–180+ cm) consists of a very gravelly sandy clay loam grading upward to a slightly gravelly clay loam.

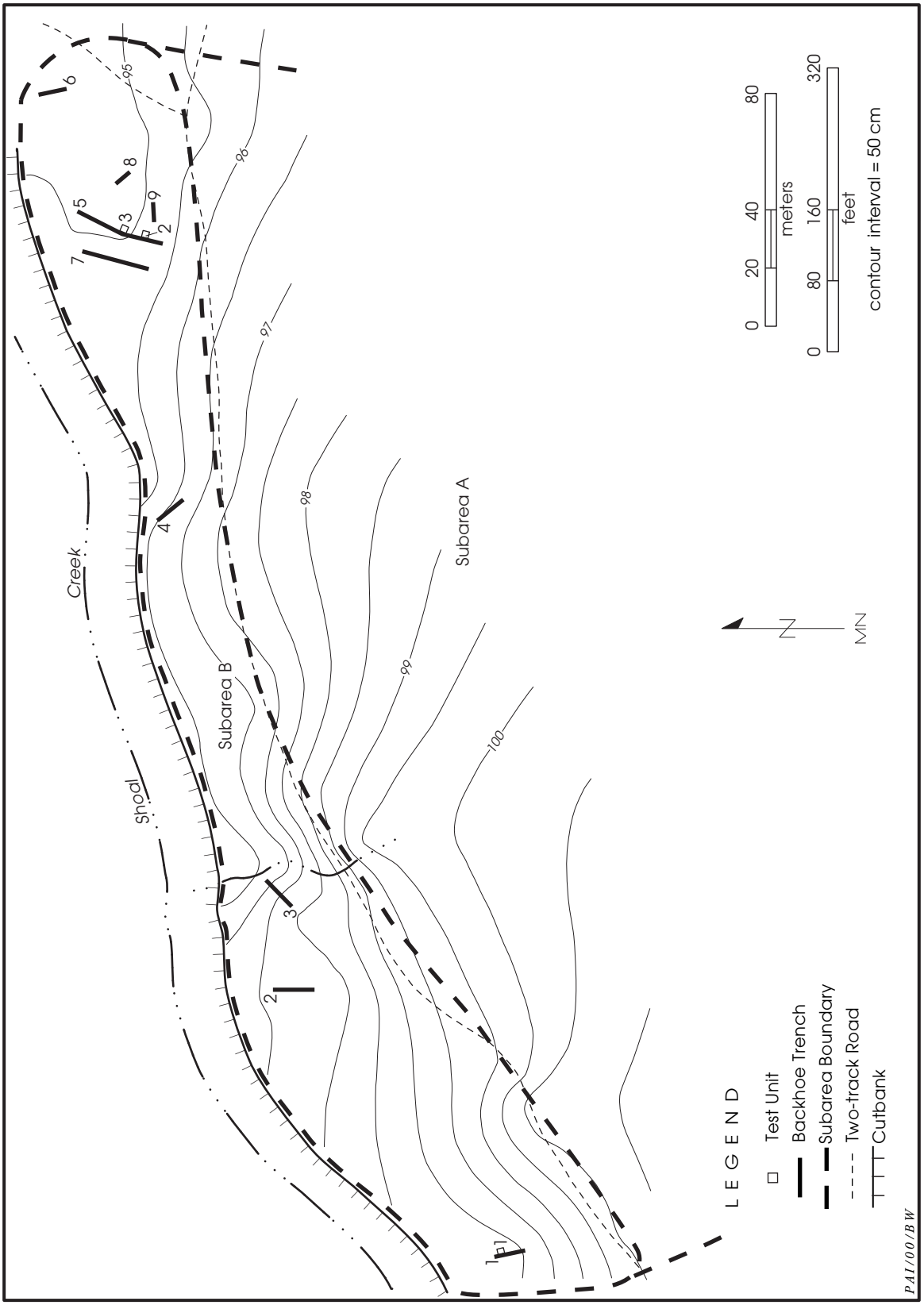

Figure 5.10. Map of 41CV956-B.

The profile of Backhoe Trench 6 is similar to Backhoe Trench 2. The Ap-A-AB sequence (0–57 cm), consisting of black to dark gray silty clays, is underlain by an extremely gravelly 2CB horizon (57–100+ cm).

Cultural Materials

Seventeen (43.6 percent) of 39 levels excavated from three test units produced 9 edge-modified flakes, 81 pieces of debitage, and 1 small burned rock (Table 5.12). Almost half (n = 44) of the stone artifacts were found in Test Unit 2, Level 9 and Test Unit 3, Level 11. In both cases, the highest frequency of lithic artifacts occurred at the contact between the buried A horizon and the underlying gravelly sediment.

Discussion

Although Subarea B covers a long expanse of Holocene terrace along Shoal Creek, most of the trench exposures were culturally sterile. The peaks in debitage counts coinciding with the top of, and partially into, the gravelly substrate in two nearby test units indicate that the artifacts are probably redeposited. Based on the testing results, 41CV956-B has limited archeological research potential and is recommended as not eligible for listing in the National Register.

41CV1441

Site Setting

Situated south of an east-west railroad, 41CV1441 is an open campsite on a series of terraces adjoining Clear Creek and its tributaries. Dirt roads, an earthen berm, and railroad construction have damaged the site area. Juniper and grasses are the dominant vegetation. Site elevation is 260 m above mean sea level.

Previous Work

Mesrobian and Pry (Texas A&M University) recorded the site on 15 October 1987. Situated southeast of the railroad crossing over Clear Creek, the site measured 155x75 m. It consisted of a buried midden visible in both cutbanks of a west-flowing tributary of Clear Creek and a burned rock scatter on the surface north of the same drainage. The midden location and depth were not noted on the site form or map. Flakes, bifaces, and utilized flakes were observed, and three dart points—a Darl, a Godley, and a

Table 5.12. Summary of cultural materials from 41CV956-B, Test Units 1–3

Provenience	Edge-modified flakes	Unmodified debitage	Total
TEST UNIT 1			
Levels 1–8 (0–80 cm)	–	–	0
Level 9 (80–90 cm)	–	2	2
Level 10 (90–100 cm)	–	5	5
Level 11 (100–110 cm)	–	2	2
Level 12 (110–120 cm)	–	–	0
Level 13 (120–130 cm)	1	2	3
Level 14 (130–140 cm)	1	–	1
Level 15 (140–150 cm)	–	–	0
Subtotal	2	11	13
TEST UNIT 2			
Levels 1–4 (0–40 cm)	–	–	0
Level 5 (40–50 cm)	–	3	3
Levels 6–7 (50–70 cm)	–	–	0
Level 8 (70–80 cm)	1	4	5
Level 9 (80–90 cm)	2	26	28
Level 10 (90–100 cm)	–	4	4
Level 11 (100–110 cm)	–	2	2
Subtotal	3	39	42
TEST UNIT 3			
Levels 1–4 (0–40 cm)	–	–	0
Level 5 (40–50 cm)	1	1	2
Level 6 (50–60 cm)	–	2	2
Level 7 (60–70 cm)	1	1	2
Level 8 (70–80 cm)	–	3	3
Level 9 (80–90 cm)	–	4	4
Level 10 (90–100 cm)	–	5	5
Level 11 (100–110 cm)	2	14	16
Level 12 (110–120 cm)	–	1	1
Level 13 (120–130 cm)	–	–	0
Subtotal	4	31	35
Total	9	81	90

Pedernales—were collected. The latter two points were recovered from the south bank of the tributary. They were plotted on the site map, but their depths below surface were not noted. On the north bank of the tributary, a small levee or overbank buildup was observed. The depth of alluvial deposits was 1.5 m, and the site was considered a good candidate for excavation based on the presence of buried cultural materials. Vehicles, erosion, and railroad construction disturbed an estimated 55 percent of the site.

On 9 November 1992, Frederick and Mehalchick (Mariah Associates) visited and reevaluated the site based on geomorphic contexts and the potential for intact cultural deposits. Based on the areal extent of cultural materials and Holocene deposits, the site dimensions were expanded to 215x110 m, but no subareas were defined.

Extensive landscape modifications associated with construction of the railroad and its right of way complicated interpretation of site stratigraphy. Alluvial deposits attributable to both Clear Creek and its tributary were observed. A low constructional surface interpreted as the modern floodplain of Clear Creek paralleled the western site boundary. This thin and narrow wedge of alluvium showed a cumulic A horizon in Ford or West Range alluvium inset into a higher terrace that probably correlated to the Georgetown or Jackson alluvium (Nordt 1992). The terrace deposit consisted of a thin veneer of upward-fining gravelly alluvium that exhibited an A-Bk-Bkm-C profile. A younger fill, perhaps the Fort Hood alluvium, appeared to drape this surface from the east (possibly a tributary deposit). Where thickest, this deposit exhibited an A-Bt-Bk-C profile. A narrow remnant of the tributary valley, presently cut off from its original confluence with Clear Creek by construction of the railroad trestle, was inset into both of these fills along the eastern edge of the site. This tributary was diverted into Clear Creek south of its original confluence, and an earthen berm was constructed on its north bank. North of this berm, described in 1987 as a levee or overbank buildup, was a narrow terrace remnant of the former channel. Although lack of exposure precluded describing these deposits, this terrace was thought to be underlain by Ford or West Range alluvial fills. Bifaces, burned rocks, and flakes were scattered across the surface and were most apparent in and along roads. In the south bank of the channelized tributary, three clustered burned rocks were buried at 50 cm, single pieces of burned rock were scattered between 50 and 200 cm, and other burned rocks were observed in slump. No evidence of the previously recorded buried burned rock midden was found. Based on the depth of deposits and archeological potential, shovel testing was recommended.

On 23 November 1992, a crew excavated 11 shovel tests between 40 and 50 cm. Four tests were positive to a maximum depth of 40 cm. One biface, 3 flakes, and 23 burned rocks were found. One shovel test contained 19 of the burned rocks from 0 to 30 cm. This concentration was designated Feature 1. The shovel testing results and depth of the Holocene deposits indicated that there might be intact cultural deposits of unknown significance present. Recommended testing to determine National Register eligibility consisted of four backhoe trenches and 6–8 m^2 of manually excavated test units (Trierweiler, ed. 1994:A1553–A1555).

Work Performed

Before trenching, all of the cutbanks were inspected for cultural materials. A probable burned rock feature (later designated Feature 3) was exposed at ca. 50 cm in the south cutbank of the channelized tributary. On 25 August 1999, formal testing of 41CV1441 was completed (Figure 5.11). The test excavations included five backhoe trenches (Backhoe Trenches 1–5) and six test units (Test Units 1–6). A total of 6.95 m^3 was manually excavated.

Backhoe Trenches 1–4 were located north of the channelized tributary, and Backhoe Trench 5 was excavated south of this drainage. Near the southwest site margin, Backhoe Trench 1 was excavated on a higher terrace (T_2) from the edge of the channelized tributary north to an east-west road. Oriented to 345˚, this trench bisected the artificial berm that parallels the drainage. The trench had maximum dimensions of 10x0.6x2.5 m but exposed no cultural materials.

Just west of the abandoned channel delimiting the eastern site boundary, Backhoe Trench 2 crossed the lower terrace (T_1) and its interface with the higher terrace. Aligned to 85˚, the trench measured 19x0.6x1.6 m. No cultural materials were encountered.

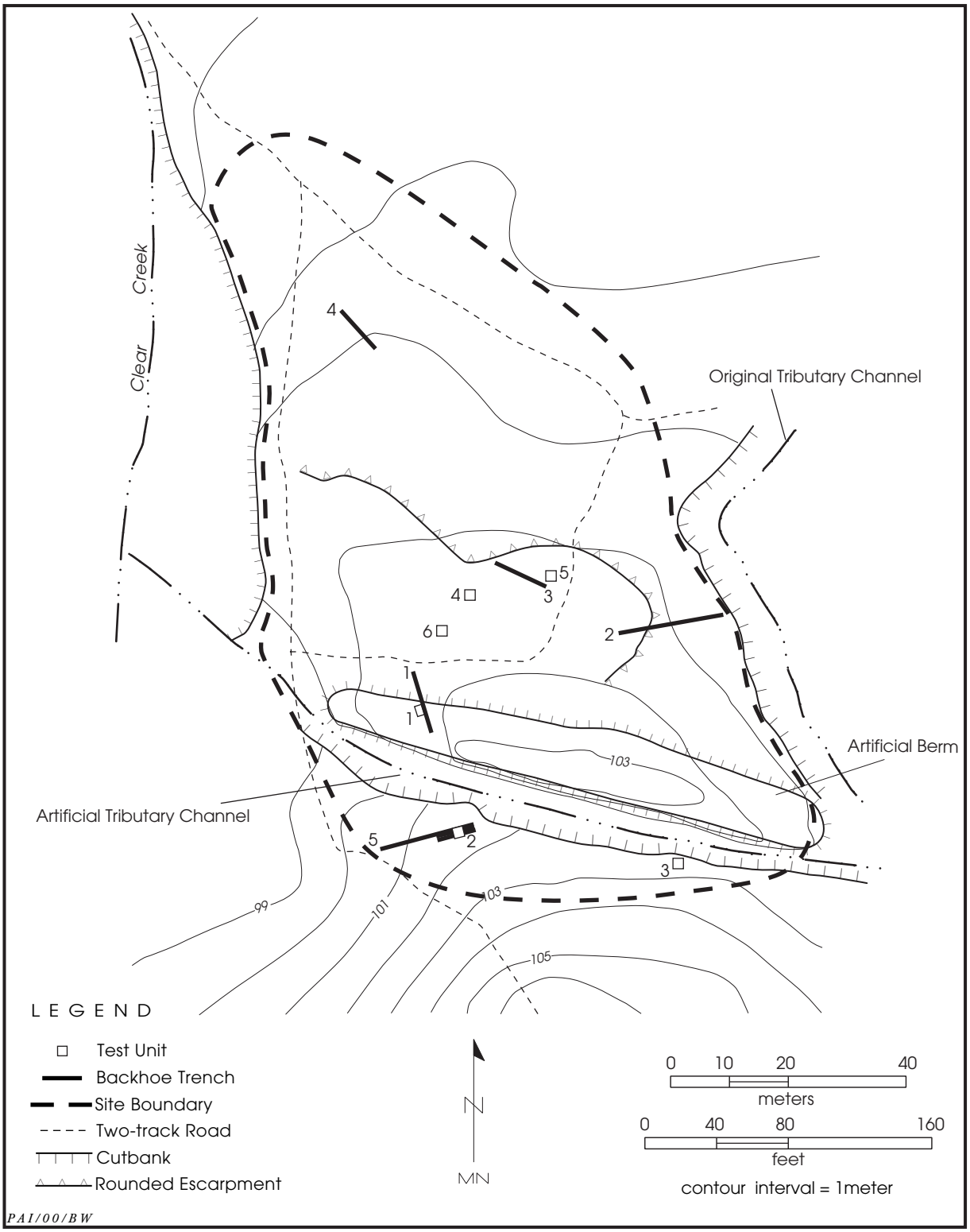

Figure 5.11. Site map of 41CV1441.

About 15 m northwest of Trench 2, Backhoe Trench 3 was placed just west of a north-south road where many burned rocks were exposed on the higher terrace. The trench was oriented to 290˚, measured 9x0.6x1.9 m, and exposed a few burned rocks at 30 cm.

Backhoe Trench 4 was excavated near the north-central site margin on a portion of the higher terrace severely modified by railroad construction and subsequent erosion. The trench was oriented to 300˚, measured 9x0.6x1 m, and contained no cultural materials.

Backhoe Trench 5 was south of the channelized tributary and due south of Backhoe Trench 1. Oriented to 76˚, the trench had maximum dimensions of 16x0.6x2.9 m. Occasional burned rocks and flakes were exposed at 50 cm, and a probable burned rock feature (later designated Feature 2) was encountered at 125 cm near the east end of the trench. A safety bench was excavated in this area, expanding the trench to 1.35 m wide on its east end.

Two test units were located by backhoe trenches, three units were free-standing and oriented to magnetic north, and one unit was placed along the cutbank south of the channelized tributary. Each excavation was terminated at an arbitrary depth. Excavated to 180 cm, Test Unit 1 (1x0.5 m) was placed along the west wall of Backhoe Trench 1 to sample the thicker deposits. Because the upper 25 cm consisted of artificial berm fill from the channelized tributary, these deposits were removed and not screened. Test Unit 2 (1x1 m) was located above the probable burned rock feature exposed in the east end of Backhoe Trench 5. A safety bench had been excavated there, and the unit subsumed the entire width of the bench and a small portion of the original trench cut. Excavation of the safety bench removed the upper 85 cm of deposits, so excavation of Test Unit 2 began with Level 9 (85–90 cm) and was terminated at 250 cm. On the south bank of the channelized tributary, Test Unit 3 was placed perpendicular to the cutbank, where a probable burned rock feature was exposed. The unit initially measured 1x1 m, but at 60 cm, its north-south dimension was expanded to 130 cm because of the slope of the cutbank. The excavation was halted at 160 cm. Approximately 7 m southwest of Backhoe Trench 3, Test Unit 4 (1x1 m) was placed in the vicinity of the previously excavated shovel test where Feature 1 (a burned rock concentration) was encountered. Because there were no cultural materials present in the lower 70 cm of deposit, the excavation was terminated at 150 cm. Test Unit 5 (1x1 m) was located just northeast of the east end of Backhoe Trench 3 and near the edge of a gentle scarp where burned rocks and debitage were exposed. The excavation was discontinued at the base of the A horizon at 40 cm. Test Unit 6 (1x1 m) was situated approximately 6 m southwest of Test Unit 4 and in the general vicinity of the shovel test that contained Feature 1. The unit was terminated at the base of the A horizon at 60 cm.

Site Extent and Depth

The site boundaries are defined by the railroad on the north, the abandoned channel on the east, a steep upland slope on the south, and Clear Creek on the west. Based on previous investigations and the testing results, the site's maximum dimensions are estimated to be 122 m east-west by 85 m north-south. Two burned rock features (Features 2 and 3) were encountered at 62–88 cm and 126–143 cm in test units south of the channelized tributary, and sparse cultural materials were found to 160 cm below the surface. North of the channelized tributary, artifacts were found to a maximum depth of 80 cm.

Sediments and Stratigraphy

The profiles of Backhoe Trenches 4 and 5 were described in detail and soil geomorphology was assessed (see Appendix B). Exposed in Backhoe Trench 4, basal fluvial-channel gravels are overlain by overbank deposits interfingering, in part, with locally derived slopewash. The 102-cm-thick exposure consists of West Range alluvium imprinted with one soil, an Ap-Bk-2Bt profile. Here, the upper 40 cm of deposits is locally disturbed, probably from construction of the railroad.

The upper 30 cm of fill in Backhoe Trench 5 consists of spoil from excavation of the artificial channel. At 30–342 cm, the exposure shows an A-Bt-2Btk-3Btk-4BC profile correlating to the West Range alluvium. The A and Bt horizons are very dark brown to dark grayish brown clays. The 2Btk horizon (102–114 cm) is a dark grayish brown, extremely gravelly sandy clay loam. At 114–256 cm, the 3Btk horizon consists of a blocky, extremely hard and dense, very dark

gray clay with pebble-sized carbonate nodules. The 4BC horizon (256–342+) is a pale brown gravelly clay grading to an extremely gravelly sandy loam in the lower 20 cm.

Cultural Materials

From nonfeature contexts, 29 (41.7 percent) of 69.5 levels excavated from the six test units yielded 9 lithic tools, 1 core, 102 flakes, and 181 burned rocks (13.95 kg) (Table 5.13). The stone tools included a reworked Frio dart point (Test Unit 3, Level 5), a unifacially worked Alba arrow point (Test Unit 4, Level 2) and an untyped dart point with a ground base and double burin (Test Unit 4, Level 6). Test Unit 6 contained more than half (n = 58) of the debitage, with 43 (74.1 percent) of the flakes recovered at 0–30 cm. The greatest number of burned rocks (n = 34, 5 kg) in a single level came from Level 8 (70–80 cm) in Test Unit 3. This concentration is associated with Feature 3 (see Cultural Features). Aside from burned rocks, Features 2 and 3 did not yield any cultural materials.

Cultural Features

Feature 2 is a burned rock concentration found at 126–143 cm in Test Unit 2. It was confined to the north-central half of the unit and had maximum excavated dimensions of 50x50 cm. The concentration consisted of a single layer of 31 burned rocks (10.75 kg), mostly angular pieces less than 15 cm in size. Four slabs averaged 20x10x3 cm and were fractured in place. The feature fill was not discolored, and no artifacts were recovered from it. All of the sediment was collected for flotation, but no charred macrobotanical remains were recovered. A few burned rocks still visible in the north wall of the unit indicate that the feature may have extended a maximum of 2 m in this direction to the edge of the cutbank. No evidence of disturbance was apparent.

At 62–88 cm, Feature 3, a basin-shaped hearth, was confined to the northern half of the Test Unit 3 and consisted of two layers of burned rocks (n = 62, 41 kg). Most of the perimeter rocks sloped toward the center of the hearth. Almost half of all the rocks were angular fragments less than 10 cm in size, and the rest consisted of tabular pieces and slabs that measured up to 30x25x5 cm. The hearth was well defined in the test unit and had maximum excavated dimensions of 96 cm east-west by 70 cm north-south, but the northern portion of the feature was destroyed by creation of the artificial channel and later cutbank erosion. Based on the excavation, the complete hearth is estimated to have measured 1x1 m. No artifacts were found in the feature fill. All of the matrix was collected for flotation, but only miniscule amounts of charred wood were recovered. Roots from a medium-sized juniper directly above the hearth had grown through the feature, causing a moderate amount of disturbance to the excavated portion of Feature 3.

Discussion

Approximately 90 percent of the site area is situated north of a rechannelized tributary of Clear Creek. On this portion of the site, four backhoe trenches and four test units did not yield isolable cultural deposits, particularly in the vicinity of the previously identified burned rock concentration (Feature 1) shallowly buried in the higher terrace. South of the modified tributary, a narrow terrace (3–10 m wide) is wedged between a steep upland slope and the channel. Here, burned rock features exposed in a backhoe trench and in the cutbank were excavated. The excavations of Features 2 (a burned rock concentration) and 3 (a basin-shaped hearth) in separate test units reveal that buried occupational debris occurs at different levels in the alluvial sediments. Mechanical rechannelization and later erosion seriously damaged these cultural deposits, however. Poor preservation of organic remains, along with the extremely limited areal extent of the terrace remnant in which these features occur, severely limits the interpretability of these archeological remains. Based on the testing results, 41CV1441 has limited archeological research potential and is recommended as not eligible for listing in the National Register.

41CV1443

Site Setting

Situated west of Clear Creek, 41CV1443 is a lithic resource procurement site on a higher Pleistocene terrace (T_2) and an open campsite on a series of alluvial terraces (T_0-T_1) (Figure 5.12).

Table 5.13. Summary of cultural materials from 41CV1441, Test Units 1–6

Provenience	Arrow points	Dart points	Late-stage to finished bifaces	End scrapers	Edge-modified flakes	Core	Unmodified debitage	Total
TEST UNIT 1								
Level 2b (25–30 cm)*	–	–	–	–	–	–	–	0
Level 4 (30–40 cm)	–	–	–	–	–	–	1	1
Level 5 (40–50 cm)	–	–	–	–	–	–	–	0
Level 6 (50–60 cm)	–	–	1	–	–	–	1	2
Level 7 (60–70 cm)	–	–	–	–	–	–	–	0
Level 8 (70–80 cm)	–	–	–	–	–	–	1	1
Levels 9–18 (80–180 cm)	–	–	–	–	–	–	–	0
Subtotal	–	–	1	–	–	–	3	4
TEST UNIT 2								
Level 9b (85–90 cm)**	–	–	–	–	–	–	1	1
Level 10 (90–100 cm)	–	–	–	1	–	–	1	2
Level 11 (100–110 cm)	–	–	–	–	–	–	2	2
Level 12 (110–120 cm)	–	–	–	–	–	–	–	0
Level 13 (120–130 cm)	–	–	–	–	–	–	2	2
Feature 2 (126–143 cm)	–	–	–	–	–	–	–	0
Levels 14–25 (130–250 cm)	–	–	–	–	–	–	–	0
Subtotal	–	–	–	1	–	–	6	7
TEST UNIT 3								
Levels 1–4 (0–40 cm)	–	–	–	–	–	–	–	0
Level 5 (40–50 cm)	–	1	–	–	–	–	1	2
Level 6 (50–60 cm)	–	–	–	–	–	–	3	3
Level 7 (60–70 cm)	–	–	–	–	–	–	7	7
Level 8 (70–80 cm)	–	–	–	–	–	–	2	2
Feature 3 (62–88 cm)	–	–	–	–	–	–	–	0
Level 9 (80–90 cm)	–	–	–	–	–	–	2	2
Levels 10–13 (90–130 cm)	–	–	–	–	–	–	–	0
Level 14 (130–140 cm)	–	–	–	–	–	–	1	1
Level 15 (140–150 cm)	–	–	–	–	–	–	–	0
Level 16 (150–160 cm)	–	–	–	–	–	–	1	1
Subtotal	–	1	–	–	–	–	17	18
TEST UNIT 4								
Level 1 (0–10 cm)	–	–	–	–	–	–	–	0
Level 2 (10–20 cm)	1	–	–	–	3	–	2	6
Level 3 (20–30 cm)	–	–	–	–	–	–	3	3
Level 4 (30–40 cm)	–	–	–	–	–	–	3	3
Level 5 (40–50 cm)	–	–	–	–	–	–	2	2
Level 6 (50–60 cm)	–	1	–	–	–	–	4	5
Level 7 (60–70 cm)	–	–	–	–	–	–	–	0
Level 8 (70–80 cm)	–	–	–	–	–	–	1	1
Levels 9–15 (80–150 cm)	–	–	–	–	–	–	–	0
Subtotal	1	1	–	–	3	–	15	20

Table 5.13, continued

Provenience	Arrow points	Dart points	Late-stage to finished bifaces	End scrapers	Edge-modified flakes	Core	Unmodified debitage	Total
TEST UNIT 5								
Level 1 (0–10 cm)	–	–	–	–	–	–	2	2
Level 2 (10–20 cm)	–	–	–	–	–	–	1	1
Levels 3–4 (20–40 cm)	–	–	–	–	–	–	–	0
Subtotal	–	–	–	–	–	–	3	3
TEST UNIT 6								
Level 1 (0–10 cm)	–	–	–	–	–	–	16	16
Level 2 (10–20 cm)	–	–	–	–	–	1	11	12
Level 3 (20–30 cm)	–	–	–	–	1	–	16	17
Level 4 (30–40 cm)	–	–	–	–	–	–	5	5
Level 5 (40–50 cm)	–	–	–	–	–	–	6	6
Level 6 (50–60 cm)	–	–	–	–	–	–	4	4
Subtotal	–	–	–	–	1	1	58	60
Total	1	2	1	1	4	1	102	112

*Levels 1–2a (0–25 cm) were artificial fill, removed and not screened.
**Levels 1–9a (0–85 cm) were removed during trenching.

The confluence of an unnamed tributary and Clear Creek occurs at the northeast site margin, and a paved road marks the southern boundary. A few dirt roads bisect the site, and historic rock walls are present along the scarp edge of the Pleistocene terrace. The higher terrace has been cleared and primarily supports grasses and scattered junipers. The riparian woodland along the creek consists of pecan, live oak, Carolina buckthorn, rusty blackhaw viburnum, wild plum, red oak, and juniper. Site elevation is 280 m above mean sea level.

Previous Work

On 26 October 1987, Pry and Mesrobian (Texas A&M University) recorded the site as a lithic and burned rock scatter situated on a terrace west of Clear Creek. Bifaces, scrapers, burned rocks, flakes, cores, a metate fragment, and chert nodules were noted across a 625x300-m area. A "modern burned rock mound" was also plotted on the site map. An estimated 16 percent of the site was impacted by roads and erosion.

On 9 November 1993, Mehalchick and Frederick (Mariah Associates) visited and reevaluated the site. Based on differing archeological potentials and geomorphic contexts, the site was divided into Subareas A and B. Based on the extent of cultural materials and Holocene deposits, site dimensions were reduced slightly to 600x290 m.

Subarea A consisted of the T_1 and T_0 surfaces of Clear Creek. Cutbank exposures of the deposits beneath the T_1 revealed an A-Bw or Bk-C profile that correlated to the West Range alluvium (Nordt 1992). Showing an A-C profile, the Ford alluvium lapped onto the T_1 surface and most of the deposits beneath the T_0 surface. Two features exposed in the cutbank were encapsulated within the West Range alluvium. Buried at 130 cm, Feature 1, a burned rock midden, was 400 cm long and ca. 15 cm thick. Feature 2, a basin-shaped hearth, was present 4–5 m upstream from (south of) Feature 1. The hearth was buried at 100 cm and measured 150–200 cm long and 25–30 cm thick. Burned rocks were scattered on the surface of Subarea A, but leaf litter and vegetation rendered overall surface visibility poor. Erosion, flooding, hunting, and military activity disturbed the area minimally. Based on the depth of deposits and archeological potential, shovel testing was recommended for Subarea A.

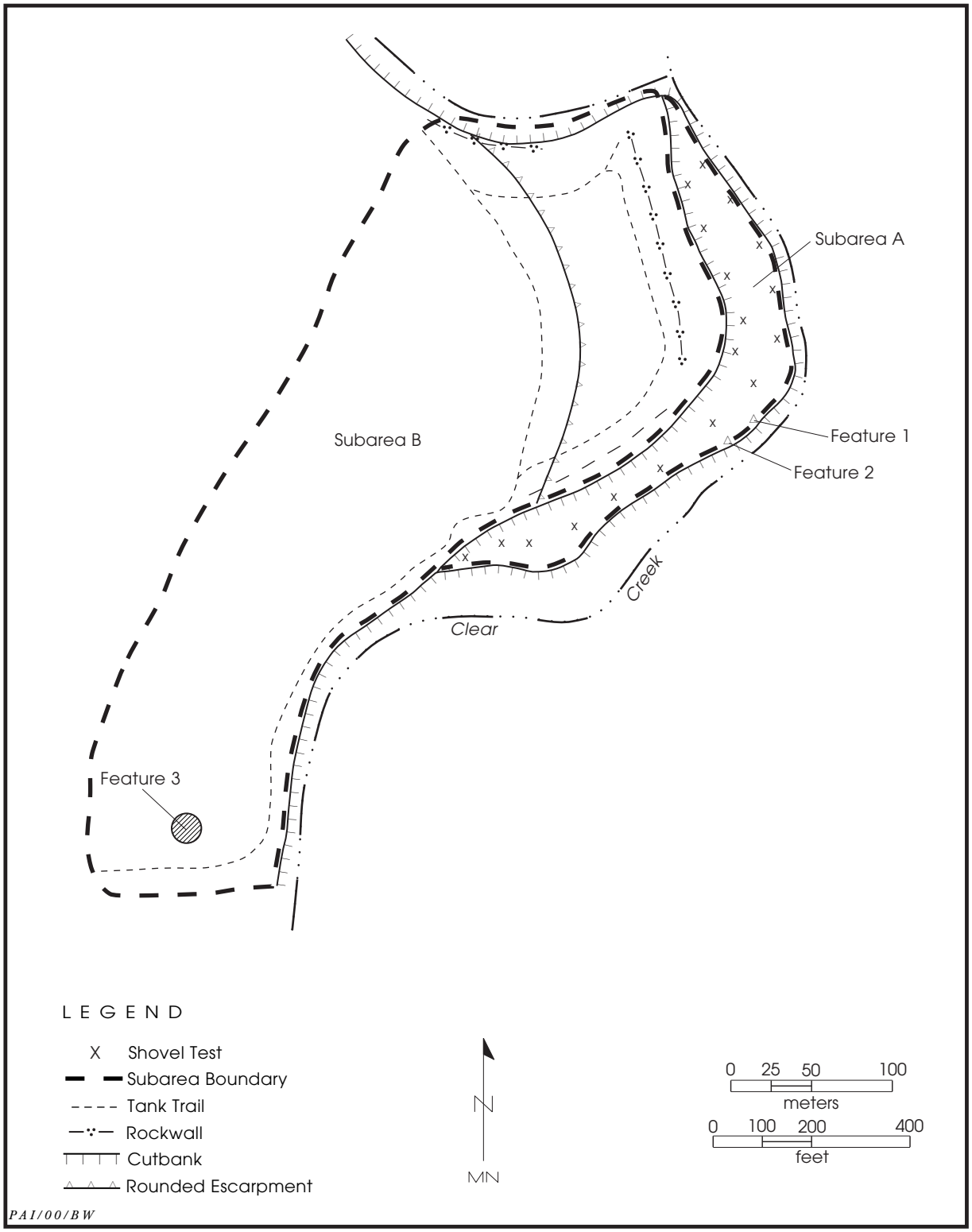

Figure 5.12. Site map of 41CV1443 (modified from Trierweiler, ed. 1994 A:1557).

Subarea B subsumed a Pleistocene terrace (T_2) and a moderately inclined erosional slope. The Pleistocene terrace consisted of a gravelly fill (Jackson alluvium) that ranged from a thin scatter of cobbles on a limestone strath at the south end of the subarea to a significant deposit more than 1 m thick at the northern margin. In the thicker northern margin, an A-K-R or truncated K-R profile with a petrocalcic horizon formed within the gravelly alluvium was exposed. The erosional slope exhibited an A-R profile where the A horizon was less than 30 cm thick, and bedrock was exposed in many places. Nodules of light blue to grayish white novaculite were scattered across this slope and on the strath terrace. Burned rocks, cores, debitage, and unmodified chert nodules indicated that Subarea B was a lithic procurement site. The "modern burned rock mound" noted in 1987 was re-located in this subarea. Erosion, roads, military activity, hunting, and bulldozing disturbances were noted, and historic rock walls also were observed. Because the potential for intact archeological deposits is limited, no further work was recommended for Subarea B.

On 30 November 1993, a crew excavated 18 shovel tests to a maximum depth of 40 cm in Subarea A. One test produced one flake at 0–10 cm. The testing results indicated that the upper 40 cm of deposits had limited archeological potential, but the presence of Features 1 and 2 indicated that intact cultural components of unknown significance were buried below 50 cm. Recommended testing to determine National Register eligibility consisted of six to eight backhoe trenches and 6–10 m^2 of manually excavated test units (Trierweiler, ed. 1994:A1556–A1558).

Work Performed

Before trenching, the cutbank along Clear Creek was inspected. Features 1 (originally called a burned rock midden) and 2 (the basin-shaped hearth) were still visible, but no additional features or cultural materials were exposed. One small looter's hole, ca. 20 cm deep, was observed near the center of the subarea. On 27 August 1999, formal testing of Subarea A at 41CV1443 was completed (Figure 5.13). The testing effort consisted of six backhoe trenches (Backhoe Trenches 1–6), one 1x0.5-m test unit (Test Unit 1), and three 1x1-m units (Test Units 2–4). A total of 7.35 m^3 was manually excavated.

Backhoe Trenches 1–6 were spread from southwest to northeast across Subarea A. Most of the trenches were aligned perpendicular to Clear Creek and ranged from 5 to 15 m long, 0.6 m wide, and 1 to 3.2 m deep. Backhoe Trench 2 exposed burned rocks among gravels at 45–50 cm; the other five trenches contained no cultural materials. The water table was initially encountered at 320 cm in Backhoe Trench 3, but it later rose to 282 cm.

One test unit was placed by a backhoe trench and the other three were excavated along the edge of the cutbank above the features. Each test unit was terminated at an arbitrary depth. Excavated to 170 cm, Test Unit 1 was placed along the south wall of Backhoe Trench 3 to sample the deposits there. Contiguous units placed along the cutbank above Feature 2, Test Unit 2 was excavated to 240 cm, and Test Unit 3, to 230 cm. Test Unit 3 was north of Test Unit 2. Terminated at 180 cm, Test Unit 4 was situated farther north along the cutbank above a portion of Feature 1.

Site Extent and Depth

The Pleistocene terrace (Subarea B) delimits the western extent of Subarea A, and an unnamed tributary and Clear Creek form the site boundary on the north and east. The Holocene terrace making up Subarea A ends at the unnamed tributary on the north and pinches out between Clear Creek and the Pleistocene terrace on the south. The maximum horizontal extent of the arc-shaped subarea is estimated to be 390 m long 45 m wide. Intact burned rock features were encountered between 130 and 170 cm, and there were cultural materials present from 100 cm to a maximum depth of 240 cm.

Sediments and Stratigraphy

Excavated on the T_1, the profile of Backhoe Trench 3 was described in detail, and soil geomorphology was assessed (see Appendix B). The 282-cm-thick exposure consists of fine-grained overbank deposits encompassing coarse-grained chute channel deposits. A 16–26-cm-thick drape of Ford alluvium (A horizon) was underlain by West Range deposits (AB-CB1-CB2

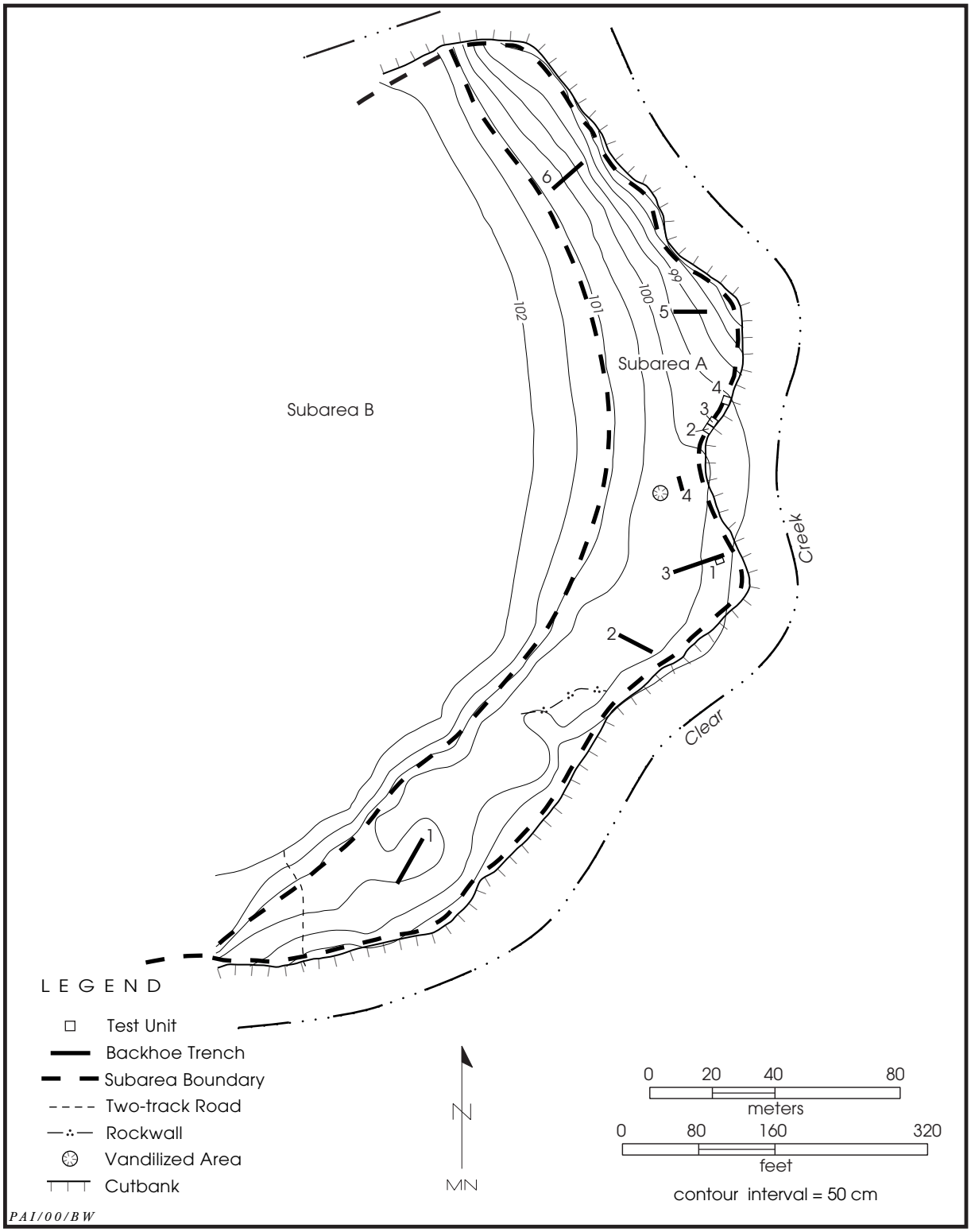

Figure 5.13. Map of 41CV1443-A.

profile). The A horizon is a very dark gray silty clay. The AB horizon (26–111 cm) consists of a heavily bioturbated gravelly loam that grades into an extremely gravelly fill. The CB1 horizon (111–252 cm) is a dark grayish brown loam to clay interbedded with extremely gravelly sandy clay, and the CB2 horizon (252–282+ cm) is comprised of a grayish brown sandy clay loam.

Definition of Analysis Units

Two analysis units are defined primarily based on natural stratigraphy. Analysis Unit 1 corresponds to the Ford alluvium from the surface to ca. 30 cm, and includes the upper 90–100 cm of gravelly fill (Ford and possibly West Range alluvium) in three test units along the cutbank of Clear Creek. The bulk of the fine-grained West Range alluvium, which begins between 30 and 100 cm and extends to a maximum depth of 320 cm, makes up Analysis Unit 2.

Analysis Unit 1

Analysis Unit 1 subsumes Ford (and possibly some West Range) deposits present across Subarea A. These fills are up to 100 cm thick and gravel rich along the creek edge (as in Test Units 2–4), but thin laterally (as in Test Unit 1 from surface to ca. 30 cm) toward the Pleistocene terrace. No cultural materials or features were observed in either the mechanical or manual excavations.

Analysis Unit 2

Although Analysis Unit 2 encompasses the West Range sediments at 30–100 to 320 cm, including two discrete features (at 130–141 cm and 127–166 cm). The excavations reveal that this component occurs within a narrow, 15-m-long section of the terrace, but the areal extent of the cultural occupation is unknown.

Cultural Materials

At 30–170 cm in Test Unit 1, only charcoal was observed in three levels. From 100 to 240 cm, Test Unit 2 produced 1 edge-modified flake and 4 flakes at 140–150 cm and 1 piece of debitage at 150–160 cm. In addition, a total of 20 small burned rocks (0.65 kg) were found from 130 to 160 cm. Of 13 levels (100–230 cm) excavated from Test Unit 3, Levels 13 (120–130 cm) and 22 (210–220 cm) produced one flake each. Sixty burned rocks (9.8 kg) were also present from 120 to 180 cm. Feature 2, encountered from 127 to 166 cm, produced only burned rocks (see Cultural Features).

From 90 to 180 cm in Test Unit 4, 49 burned rocks (10.5 kg) were found between 110 and 150 cm; however, 45 rocks were present at 120–130 cm and are probably associated with Feature 1 at 130–141 cm (see Cultural Features). One alternately beveled, untypeable dart point and one flake were recovered at 150–160 cm.

Cultural Features

Features 1 and 2 were situated about 7 m apart along the cutbank of Clear Creek. At 130–141 cm, Feature 1 consisted of a lens of burned rocks that occurred primarily along the eastern half of Test Unit 4 (i.e., along the cutbank edge). Although originally identified as a burned rock midden, Feature 1 is more appropriately classified as an occupation zone. As used here, an occupation zone refers to a stratigraphically discrete accumulation of cultural material and organic enrichment (Trierweiler 1996:593). Occupation zones probably represent distinct activity areas within a site.

Consisting of one to two layers of burned rocks (n = 124, 30.5 kg), Feature 1 dipped slightly from west to east toward Clear Creek. Most of the rocks were fist-sized and smaller blocky, angular fragments, and the rest were thinner, tabular pieces (up to 15x15x5 cm). Approximately 20 percent consisted of fossiliferous limestone. Maximum excavated dimensions are 100 cm north-south by 60 cm east-west. The burned rock lens extended 80 cm north and 120 cm south beyond the limits of the test unit, and several burned rocks were visible in the west wall, indicating that the occupation zone continues in these three directions. It is unclear how much of the feature was destroyed by cutbank erosion. No artifacts were recovered from the feature fill. Charcoal from 133 cm yielded a conventional radiocarbon age of 1290 ± 50 B.P. (Beta-136838, see Appendix A). A flotation sample collected at 130–138 cm contained charred *Carya* sp. (hickory) shell fragments and *Quercus* sp. (oak) wood (see Appendix D).

Encountered from 127 to 166 cm, approximately 90 percent of Feature 2 was contained in Test Unit 3, and the remainder was restricted to Test Unit 2 (Figure 5.14). This basin-shaped hearth comprised four layers of burned rocks (n = 191, 98 kg) and had maximum excavated dimensions of 130 cm north-south by 70 cm east-west. Large tabular pieces and slabs that were almost vertical or sloped toward the center of the hearth delineated its perimeter. Overall, 80 percent of the rocks were tabular pieces and slabs up to 28x16x5 cm in size, and the rest were fist-sized and smaller angular fragments. A small number consisted of fossiliferous limestone. Gravels were deposited on top of, and slightly into, the hearth. The hearth did not extend beyond the limits of the two test units. Based on the feature's morphology, its original size was estimated to be 140 cm east-west by 130 cm north-south, but about half of the hearth was destroyed by cutbank erosion. One flake was recovered from the feature fill, and charcoal identified as Salicaceae (willow) wood (see Appendix D) came from 154 cm and yielded a conventional radiocarbon age of 1460 ± 50 B.P. (Beta-136839, see Appendix A). Collected at 127–166 cm, a flotation sample produced *Juniperus* sp. (juniper) wood (see Appendix D).

Discussion

Buried in West Range alluvium, Analysis Unit 2 contains two discrete burned rock features. Calibrated radiocarbon dates of A.D. 670 (700) 775 for an occupation zone (Feature 1) and A.D. 560 (615) 645 for a hearth (Feature 2) denote occupation toward the end of the Late Archaic period. Although the features produced hickory shell fragments and juniper, willow family, and oak wood, the associated artifact assemblage is limited.

Summary and Conclusions

Site 41CV1443-A contains the Ford and West Range alluvial units, of which significant cultural deposits were encountered in the West Range. Radiocarbon assays indicate that two burned rock features, approximately 15 m apart horizontally but vertically overlapping, are probably contemporaneous and denote Late Archaic activities. The occupation zone extends in three directions beyond the limits of the excavation, indicating that this cultural component may be laterally extensive. Oak and juniper were the principal wood fuels identified in feature fill, and hickory shells suggest gathering of this foodstuff. Based on the foregoing, 41CV1443-A is recommended as eligible for listing in the National Register.

41CV1553

Site Setting

Site 41CV1553 is situated primarily on redeposited sands derived from the Paluxy Formation but also encompasses a colluvial toeslope incorporating non-Paluxy sediments and an alluvial terrace (Figure 5.15). Most of the site is north of an unnamed tributary of Stampede Creek, but the southwest portion of the site extends south of the drainage. Two dirt roads bisect the site, and most areas have been cleared and bladed. Most of the site area is open, and vegetation consists of grasses and sparse, secondary growth junipers.

Previous Work

In February 1992, Frederick and Quigg (Mariah Associates) found the site while conducting a reconnaissance survey. Although not formally recorded at the time, the site was assigned a temporary number (MA92-6) and the UTM coordinates were reported to the Fort Hood Archeology Office. In February–March 1992, Kimball Smith (Fort Hood staff archeologist) visited the site and collected an untyped dart point.

On 5 March 1993, Frederick and Mehalchick (Mariah Associates) formally recorded the 260x50-m site, which was on a colluvial toeslope and alluvial terrace of a low order tributary of Stampede Creek. Most of the observed cultural materials (burned rocks, flakes, cores, and bifaces) occurred on the slope that graded to the tributary floodplain. In places the slope was underlain by more than 1 m of sandy to loamy sediments, within which a substantial soil had developed. The soil exhibited an A-AB-Bt-R to an A-Bt-R profile, with cultural materials restricted to the A and AB horizons. The age of this sediment was unknown but based on the degree of soil development was inferred to be from the Pleistocene. The parent material, which

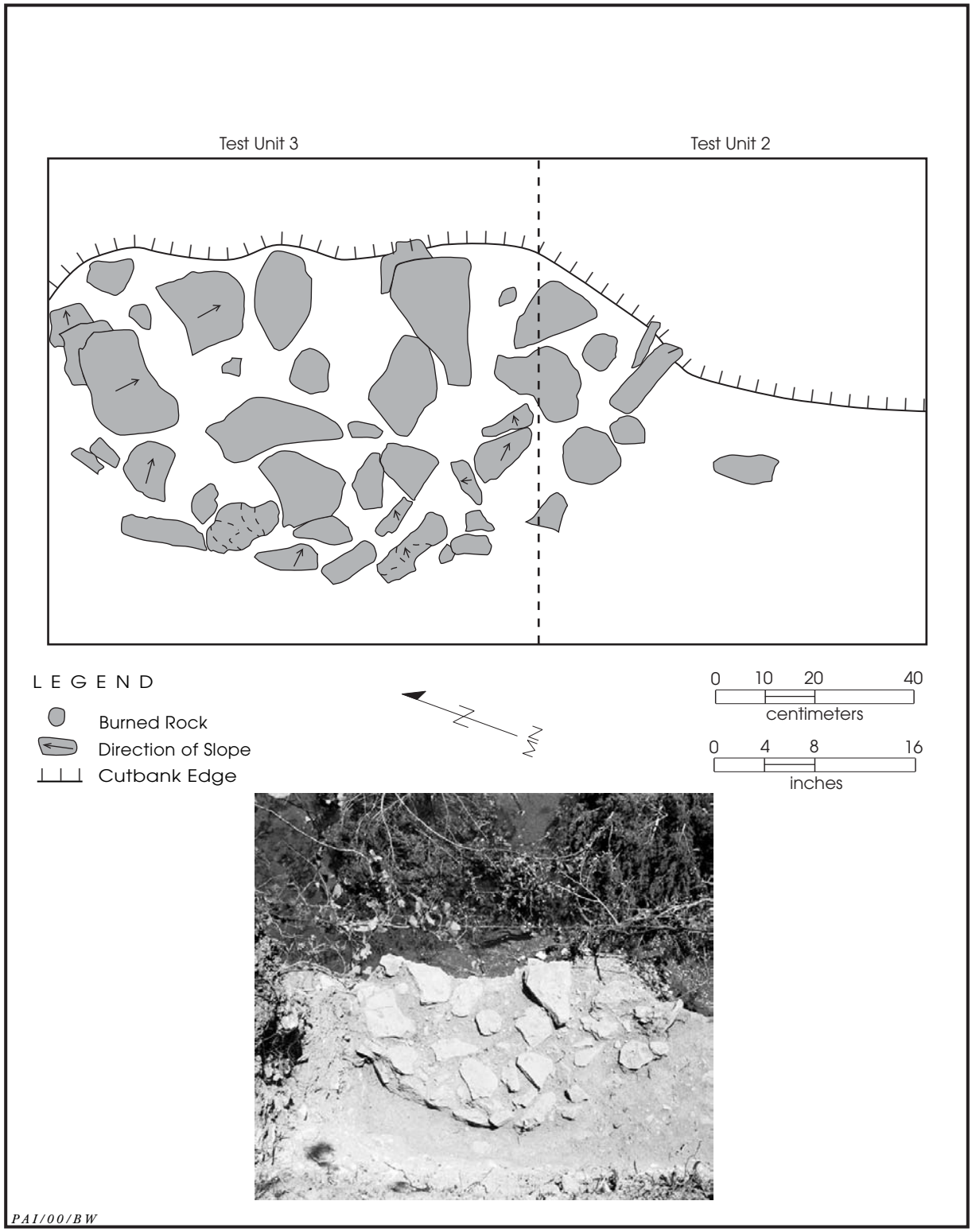

Figure 5.14. Plan and photograph of Feature 2, 41CV1443. Both show the top layer of rocks exposed to 138 cm.

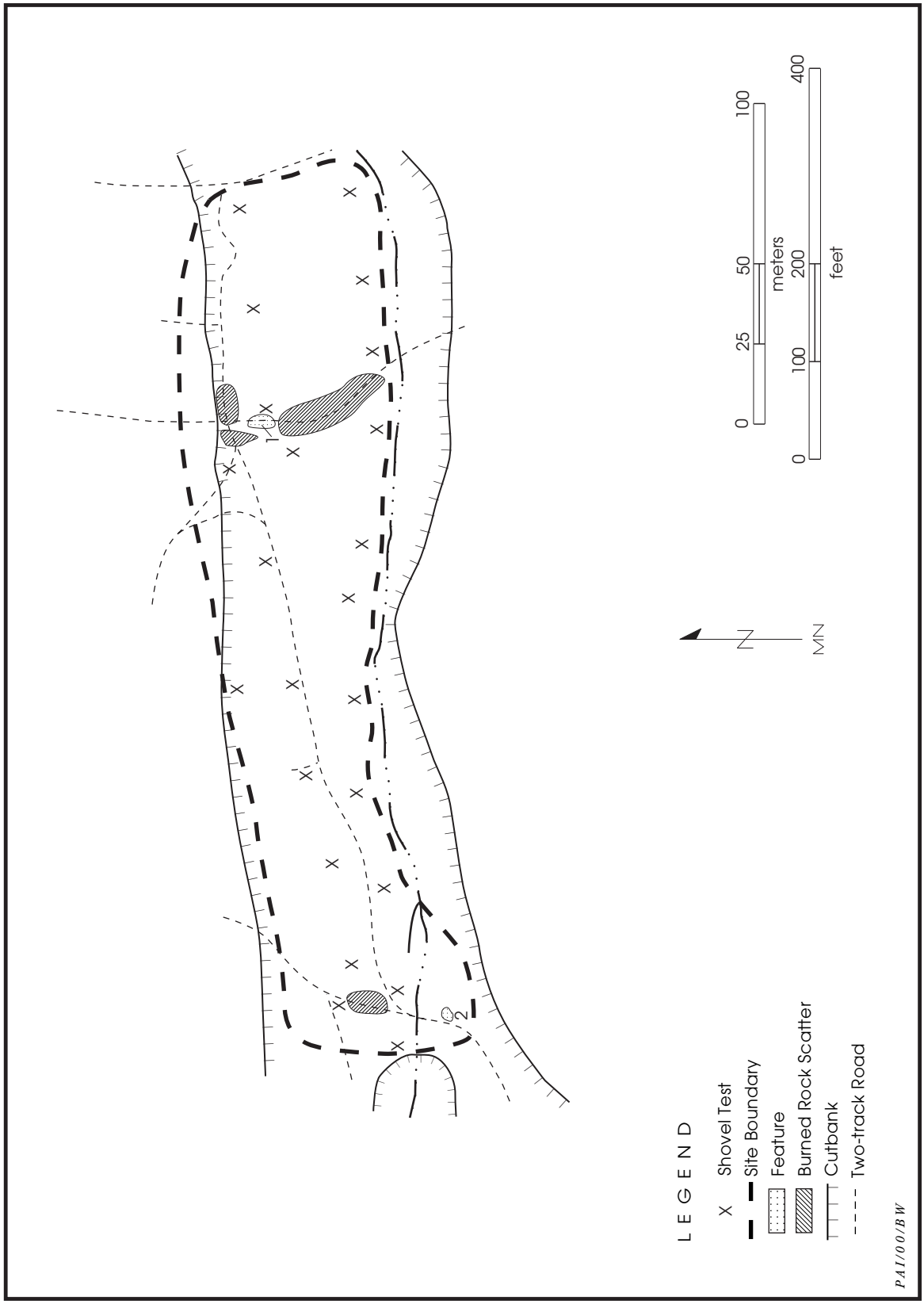

Figure 5.15. Original site map of 41CV1553 (modified from original 1993 site sketch map).

dominated the character of the deposit, was the Paluxy Formation sands that occurred upslope. The tributary floodplain was poorly exposed but appeared to be composed of a light brown loamy alluvium of unknown age. Several burned rock scatters and one burned rock midden (Feature 1) were exposed in two prominent north-south roads across the site. Observed in the road near the eastern site margin, Feature 1 measured roughly 6 m north-south by 3 m east-west. Most of the rocks were less than 5 cm in size, and black stained soil was visible in the middle of the road along the southern edge of the feature. One Frio and one Martindale dart point were collected from the surface. Roads, vehicular traffic, erosion, and vegetation clearing had disturbed about 30 percent of the site area. Based on the depth of deposits and archeological potential, shovel testing was recommended.

On 9 March 1993, a crew excavated 23 shovel tests between 30 and 60 cm, with most halted at 40 cm. At this time, Feature 2 was recorded just south of the tributary, and the southwestern site boundary was modified to encompass this feature, which consisted of flakes and burned rocks concentrated in a 2–3-m area. Only one shovel test, placed next to Feature 1 (midden), was positive; a total of 19 burned rocks were found at 0–40 cm. These results indicated that cultural deposits near Feature 1 were shallowly buried, but researchers noted that there might be intact cultural components of unknown significance beneath the level of shovel testing. The recommended testing effort to determine National Register eligibility consisted of 3–4 m^2 of manually excavated test units (Trierweiler, ed. 1994:A1571–A1572).

Work Performed

The site surface was inspected before trenching, and Features 1 (recorded as a burned rock midden) and 2 (recorded as an artifact concentration) were re-located. The surface exposure of Feature 1 appeared unchanged since its initial recording. About 3–5 m downslope from where Feature 1 was previously recorded, a lens of cultural materials was exposed at 20–30 cm in both profiles along the roadcut. Burned rocks and debitage were visible at 10–20 cm in the same road exposures 90–95 m upslope from Feature 1. Buried in the Paluxy sediments, this lens of cultural materials was present beyond the northern site boundary established in 1993. Feature 2 was observed as a severely deflated burned rock concentration resting on the downslope margin of an eroded toeslope. The feature measured 5 m in diameter and was comprised of fist-sized and smaller angular burned rocks. Based on the areal extent of cultural materials and the Paluxy sand deposits, the site dimensions were expanded to the north, with the revised site boundaries measuring 300 m northeast-southwest by 200 m northwest-southeast.

On 8 September 1999, formal testing of 41CV1553 was completed (Figure 5.16). The excavations consisted of eight backhoe trenches (Backhoe Trenches 1–8), three 1x1-m test units (Test Units 1–3), two 1.5x1-m test units (Test Units 4 and 5) and one 1x0.5-m test unit (Test Unit 6). A total of 3.37 m^3 was manually excavated.

Backhoe Trenches 1–6 were excavated north of the tributary drainage in the eastern half of the site, and Backhoe Trenches 7 and 8 were located south of the drainage near the southwestern site margin. Backhoe Trench 1 was placed near the northernmost extent of Paluxy sands and 11 m west of a roadcut, where cultural materials were exposed at 10–20 cm along its western edge. Oriented to 344˚, the trench had maximum dimensions of 12x0.6x1.8 m. In the northern end of the trench, the top of a probable hearth (later designated Feature 3) was encountered at 10 cm and left in situ. Scattered burned rocks were noted at 0–15 cm in the trench profile.

Almost 60 m southeast (downslope from) Trench 1, Backhoe Trench 2 was excavated 10 m east of the road. Aligned to 70˚, the trench measured 5x0.6x0.5 m and exposed no cultural materials.

Backhoe Trench 3 was located ca. 60 m south of Backhoe Trench 2 and a few meters east of the road where Feature 1 was exposed. The surface here was hummocky, and clearing and pushing of the vegetation had disturbed the area. The trench was oriented to 105˚ and had maximum dimensions of 19x0.6x0.8 m. In the western half of the trench, a probable hearth (later designated Feature 4) was exposed at 20 cm and left in place. There were also burned rocks present at 0–30 cm in both trench walls.

At the interface of the colluvial toeslope and floodplain, Backhoe Trench 4 was placed 25 m

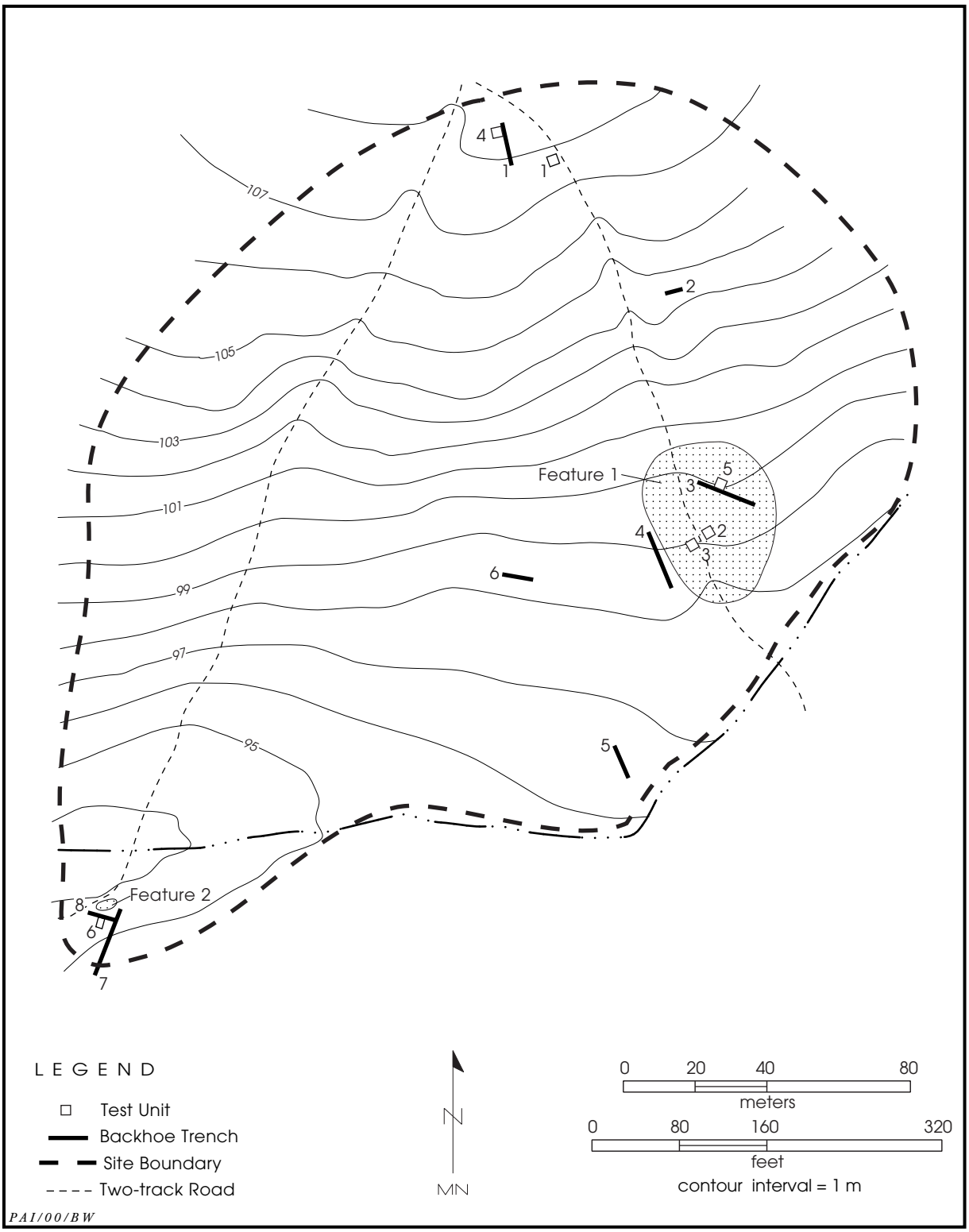

Figure 5.16. Site map of 41CV1553.

southwest of Backhoe Trench 3 and about 12 m west of the roadcut where cultural materials were visible at 20–30 cm. Oriented to 336˚, the trench (18x0.6x1.9 m) encountered occasional burned rocks at 10–25 cm and one small burned rock at 80 cm.

Placed on the proximal portion of the floodplain about 50 m southwest of Backhoe Trench 4 and 10 m north of the tributary, Backhoe Trench 5 (10x0.6x1.4 m) was aligned to 340˚. There were burned and unburned rocks at 20 cm in the south end (closest to the drainage) of the trench.

Backhoe Trench 6 was excavated ca. 40 m west of Backhoe Trench 4 and 50 m northwest of Backhoe Trench 5. The trench was aligned to 275˚, measured 9x0.6x1.1 m, and contained a few burned rocks at 10 cm.

At the interface of the colluvial toeslope and the alluvial terrace south of the drainage, Backhoe Trenches 7 and 8 were placed at the southwest site margin in the vicinity of Feature 2. Aligned to 25˚, Backhoe Trench 7 (20x0.6x1.3 m) exposed a few burned rocks at 10–20 cm.

Backhoe Trench 8 was excavated perpendicular to the northern end of Backhoe Trench 7, measured 8x0.6x0.8 m, and was oriented to 100˚. A line of burned rocks (later designated Feature 5) was present at 40–50 cm in the south wall near the west end of the trench.

Three test units were placed by backhoe trenches, but the other three were free standing units that paralleled a roadcut. Excluding Test Unit 6, all manual excavations were placed near the north-south road in the eastern portion of the site. The test units were terminated at the contact with the underlying B horizon, weathered bedrock, or dense gravels. Because Features 1 and 2 were previously assigned, new feature designations began with Feature 3.

Excavated to 40 cm, Test Unit 1 was placed next to the road where a lens of cultural materials was exposed at 10–20 cm in a roadcut, about 10 m east of Backhoe Trench 1. About 10 m southwest of Backhoe Trench 3, Test Unit 2 adjoined the east edge of the roadcut, where burned rocks and debitage were visible at 20–30 cm. Across the road from Test Unit 2, Test Unit 3 also was placed above cultural materials exposed at 20–30 cm. Both excavations were terminated at 50 cm. Test Unit 4, excavated to 40 cm, was located over the probable hearth (Feature 3) encountered at 10 cm near the north end of Backhoe Trench 1. The eastern portion of the unit subsumed the width (0.6 m) of the trench cut, and the rest of the excavation adjoined the trench's west wall. Test Unit 5 was situated over the probable hearth (Feature 4) exposed at 20 cm in Backhoe Trench 3. The southern portion of the unit encompassed the width (0.6 m) of the trench cut, and the remainder was by the north wall of the trench. The excavation was terminated on weathered bedrock occurring between 48 and 68 cm. Test Unit 6 was placed along the south wall of Backhoe Trench 8, where burned rocks were exposed at 40–50 cm. The excavation was discontinued at 70 cm.

Site Extent and Depth

To the north and south, eroded bedrock uplands delimited the site area. The east and west limits of the site are defined by the extent of the Paluxy-derived sediments. Based on the surface exposures and testing results, the maximum site dimensions are estimated to be 300 m northeast-southwest by 200 m northwest-southeast. Cultural materials and features are present in the upper 70 cm of deposits.

Sediments and Stratigraphy

Four backhoe trench profiles were described in detail and soil geomorphology was assessed (see Appendix B). The 170-cm-thick profile of Backhoe Trench 1 consists of sandy sediments derived from the Paluxy sand that crops out upslope. These colluvial sediments rest on Cretaceous limestone and are imprinted with an A-Bw-Bk-CBk-R soil profile. The upper portion of this soil (0–76 cm) consists of dark brown (A horizon) and reddish brown to yellowish red (Bw horizon) sandy loams and is probably late Holocene. The lower portion (76–166 cm) is probably late Pleistocene, based on the degree of soil pedogenesis (i.e., rubification). It consists of red (Bk horizon) and yellowish red to reddish yellow (CBk horizon) sandy loams with soft carbonate masses and filaments.

The 193-cm-thick profile of Backhoe Trench 4 consists of sandy colluvial sediments derived from the upper slopes. These deposits exhibit an A-Bw-Bk-Btk-Btk2-2Btk3 soil profile. The upper Holocene and Pleistocene soils (A-Bw-Bk-Btk-Btk2) are composed of very dark gray,

dark red, dark reddish brown, and dark reddish gray to reddish gray sandy loams, sandy clay loams, and sandy clays. The soil appears to have formed on sandy sediments derived from the Paluxy Formation. The underlying truncated soil (2Btk3 horizon) formed on a pinkish gray slightly gravelly sandy clay of late Pleistocene age. These sediments were probably derived from the Paluxy and overlying Walnut formations.

Backhoe Trench 5 contains gravelly and clayey alluvium, probably late Holocene, correlating to the Ford and West Range alluvium. These deposits are imprinted with an A-2CB-3Bkb soil profile. The A horizon (0–50 cm) is a black gravelly to very gravelly clay. The 2CB horizon (50–66 cm) is a very dark gray extremely gravelly sandy clay, and the 3Bkb horizon (66–136+ cm) is a brown gravelly to very gravelly sandy clay with many carbonate filaments.

The 130-cm-thick profile of Backhoe Trench 7 comprises probable late Holocene deposits of gravelly and loamy colluvium and alluvium. The deposits exhibit an AC-BC-Btk-BCk soil profile. The AC horizon (0–56 cm) is a very dark grayish brown slightly gravelly sandy clay loam. The BC horizon (56–77 cm) is a dark grayish brown slightly gravelly sandy clay loam. The Btk (77–112 cm) horizon is very dark grayish brown gravelly sandy clay loams, and the BCk (112–130+ cm), gravelly sandy loams. Gravel clasts in both horizons exhibit common carbonate films.

Definition of Analysis Units

Analysis Unit 1 subsumes the Paluxy sediments at the northern site margin that contain one shallowly buried, intact feature. The deposits and excavations in the area encompassing Feature 1 correlate to Analysis Unit 2. Here, three burned rock features are encapsulated in the upper 70 cm of deposits. Analysis Unit 3 subsumes the non-Paluxy sediments south of the tributary, including one subsurface burned rock feature.

Analysis Unit 1

Analysis Unit 1 encompasses the Paluxy sediments from the surface to a maximum depth of 180 cm, as exposed in Backhoe Trench 1 and Test Unit 4, including one spatially discrete feature at 10–25 cm in Test Units 1 and 4.

Cultural Materials

One small burned rock was found at 0–10 cm in Test Unit 1. At 10–30 cm, the excavation produced two edge-modified flakes, eight pieces of debitage, and eight small burned rocks (0.6 kg). This slight increase in cultural materials may be associated with Feature 3 (see Cultural Features). The unit was culturally sterile at 30–40 cm.

Test Unit 4 contained 11 burned rocks (2.25 kg) from the surface to 20 cm, and Feature 3 was present at 10–25 cm. Excluding the feature, the test unit was devoid of cultural materials at 20–40 cm.

Cultural Features

Encountered from 10 to 25 cm, Feature 3, a basin-shaped hearth, was fully contained in Test Unit 4 (Figure 5.17). The almost circular feature had maximum dimensions of 80 cm east-west by 78 cm north-south. The perimeter of the hearth was well defined by charcoal-stained sediment, and the feature consisted of one burned rock layer (n = 53, 17 kg). There were slabs and tabular burned rocks in the western half of the hearth, but the eastern portion contained fewer, and typically smaller, angular pieces because larger rocks from the east area were removed during trenching. Most of the rocks consisted of fossiliferous limestone, and approximately a third measured 10–20 cm long, 8–12 cm wide, and 4–5 cm thick. In cross section, the hearth was basin shaped and intruded into the underlying Bw horizon. Charcoal was found under and among the burned rocks, and a large piece (34x10 cm) of charred wood was present in the north central portion of the hearth. A chunk of the charred wood from 14 cm was identified as *Quercus* sp. (oak) (see Appendix D) and yielded a conventional radiocarbon age of 240 ± 50 B.P. (Beta-136840, see Appendix A). Three flotation samples collected from different portions of the hearth produced carbonized wood of *Carya illinoensis* (pecan), *Juglans nigra* (walnut), and *Fraxinus* (ash), *Ilex* (holly family), *Juniperus* (juniper), *Quercus* (oak), *Rhus* (sumac), and *Ulmus* spp. (elm), as well as unidentified bulb fragments, *Quercus* sp. acorns, and *Carya illinoensis*, *Juglans nigra*, and *Carya* sp. shell fragments (see Appendix D). One burned rock found on the northwest

edge of the hearth was a nutting stone, but it was intensively burned and heat fractured. It may have been recycled as a hearth stone. A large root and several smaller ones were noted in the feature fill.

Discussion

Analysis Unit 1 contains cultural materials buried in Paluxy-derived sediments and one spatially discrete burned rock feature that yielded a calibrated radiocarbon date of A.D. 1640 (1655) 1670, 1780–1795, indicating that the area was used in the Protohistoric period. Although the associated artifact assemblage is sparse, pecan, walnut, ash, holly, juniper, oak, sumac, and elm wood; pecan walnut, and hickory shell fragments; oak acorns; and indeterminate bulb fragments indicate excellent preservation of charred plant remains. One nearby test unit also yielded some cultural materials at approximately the same depth as the feature, but the association of these cultural deposits is unclear.

Analysis Unit 2

Downslope from Analysis Unit 1, Analysis Unit 2 primarily subsumes the area identified as Feature 1. Two backhoe trenches and three test units were excavated in the vicinity of Feature 1, and two internal features were encountered to a maximum depth of 70 cm.

Cultural Materials

Comprising nonfeature matrix, 9 (72 percent) of 12.5 levels excavated from Test Units 2, 3, and 5 produced 1 serrated Scallorn arrow point, 1 core tool, 1 hematite-stained burned rock, 19 flakes, and 106 burned rocks (6.4 kg) (Table 5.14). One test unit also contained a military cartridge case and shrapnel at 0–10 cm. Three features yielded dense burned rocks and sparse artifacts (see Cultural Features).

Cultural Features

Originally defined as a burned rock midden encompassing a 3x6-m area, test excavations and surface exposures indicate that Feature 1 extends over an area of at least 45 m north-south by 30 m east-west. Based on the excavation results in Tests Units 2, 3, and 5 (see below), Feature 1 was designated an occupation zone rather than a midden, although it could be an incipient midden.

In Test Unit 2, Feature 1 was encountered at 20–30 cm and primarily consisted of a single layer of burned rocks (n = 296, 37.5 kg). Although the maximum excavated dimensions of the feature are 100x100 cm, an arcuate section (ca. 85 cm north-south by 5–18 cm east-west) along the east wall of the unit contained very little rock. The overwhelming majority of the burned rocks were fist-sized and smaller angular pieces of fossiliferous limestone. Some larger, thin tabular pieces were also present. Bioturbation from roots, fire ants, and other insects was apparent. No artifacts were found in the feature fill, and one flotation sample yielded charcoal flecks (see Appendix D).

Feature 1 extended across Test Unit 3 at 20–30 cm but was confined to the southwest portion of the excavation at 30–37 cm. The feature in this unit consisted of one to two layers of burned rocks (n = 180, 22.5 kg), with most being angular fragments less than 5 cm in size. Approximately half of the rocks were fossiliferous limestone. There were roots throughout the matrix, and no artifacts were recovered from the feature matrix. One flotation sample contained *Quercus* sp. wood (see Appendix D).

Feature 1 was present across Test Unit 5 at 10–20 cm. The matrix yielded 2 flakes, 1 indeterminate ground stone fragment, 1 burned rock stained with hematite, and 135 burned rocks (21 kg). Approximately half of the rocks were small (<5 cm) angular pieces, and the rest were fist-sized angular fragments and tabular pieces ranging from 10x5x3 cm to 20x15x5 cm. The feature continued into the next level but made up only about one-quarter of the unit because two discrete hearths (Features 4 and 6) were present. At 20–30 cm, Feature 1 yielded 3 flakes and 44 burned rocks (8 kg) from Test Unit 5.

Constructed of extremely large pieces of limestone (up to 60x45x15 cm) that were either unburned or exhibited burning on their exposed (upper) surfaces, Feature 4 was encountered from 21 to 68 cm in the southern two-thirds of Test Unit 5 (Figure 5.18). Originally exposed in Backhoe Trench 3, this basin-shaped hearth consisted of two burned rock layers (n = 87, 67.5 kg). Vertical and north to south sloping slabs demarcated its perimeter, and the feature

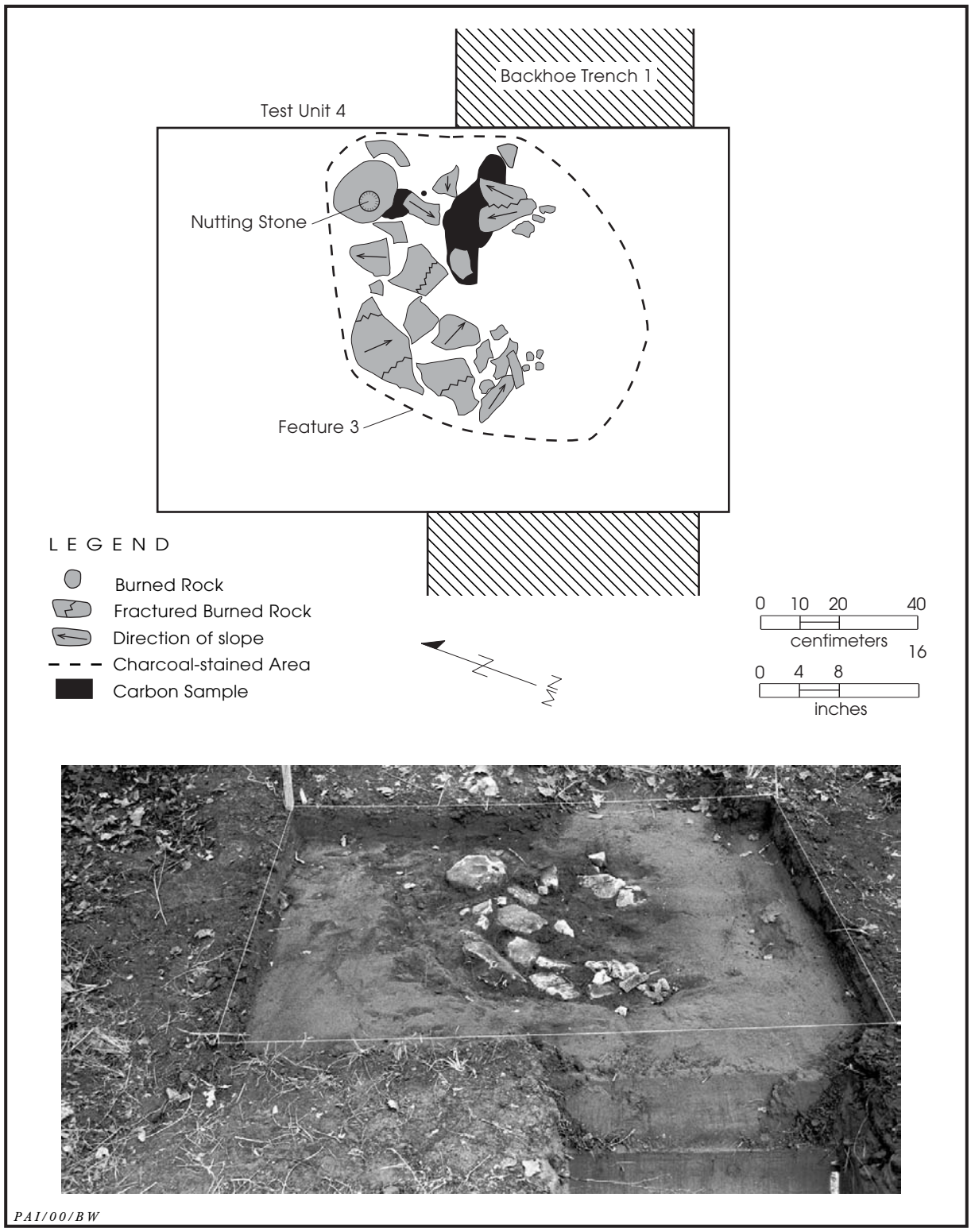

Figure 5.17. Plan and photograph of Feature 3, 41CV1553.

Table 5.14. Summary of cultural materials from 41CV1553, Analysis Unit 2, Test Units 2, 3, and 5

Provenience	Arrow point	Core tool	Unmodified debitage	Indeterminate ground stone	Other*	Total
TEST UNIT 2						
Level 1 (0–10 cm)	–	–	–	–	–	0
Level 2 (10–20 cm)	–	–	2	–	–	2
Feature 1 (20–30 cm)	–	–	–	–	–	0
Level 3 (20–30 cm)	–	–	–	–	–	0
Level 4 (30–40 cm)	–	–	1	–	–	1
Level 5 (40–50 cm)	–	1	–	–	–	1
Subtotal	0	1	3	0	0	4
TEST UNIT 3						
Level 1 (0–10 cm)**	–	–	1	–	–	1
Level 2 (10–20 cm)	1	–	15	–	–	16
Feature 1 (20–30 cm)	–	–	–	–	–	0
Level 4 (30–40 cm)	–	–	–	–	–	0
Level 5 (40–50 cm)	–	–	–	–	–	0
Subtotal	1	0	16	0	0	17
TEST UNIT 5						
Level 1 (0–10 cm)	–	–	–	–	–	0
Feature 1 (10–20 cm)	–	–	2	1	1	4
Feature 1 (20–30 cm)	–	–	3	–	–	3
Level 4 (30–40 cm)	–	–	–	–	–	0
Level 5 (40–50 cm)	–	–	–	–	–	0
Level 6 (50–55 cm)	–	–	–	–	–	0
Feature 4 (21–68 cm)	–	–	–	–	–	0
Feature 6 (28–47 cm)	–	–	2	–	–	2
Subtotal	0	0	7	1	1	9
Total	1	1	26	1	1	30

*This specimen is a hematite-stained burned rock.
**Contains miscellaneous military items.

matrix consisted of a dark stained sediment. Most of the slabs were fossiliferous limestone and averaged 15 to 20 cm long by 10–15 cm wide and 5 cm thick. Two larger slabs measured 40x30x5 cm and 45x21x6 cm. The interior rocks were either tabular pieces (ranging from 15x15x4 cm to 10x5x2 cm) or smaller angular pieces that accounted for 20 percent of the burned rocks. Overall, about 40 percent of the rocks consisted of fossiliferous limestone. Charred wood identified as *Quercus* sp. (see Appendix D) yielded a conventional radiocarbon age of 1900 ± 50 B.P. (Beta-136841, see Appendix A). A flotation sample produced carbonized seed and wood of *Robinia pseudo-acacia*, as well as *Celtis*, *Juniperus*, *Quercus*, and *Rhus* spp. wood (see Appendix D). The hearth was shallowly buried, the surrounding surface was disturbed, and Backhoe Trench 3 displaced an estimated 30–40 percent of the feature. Otherwise, minimal disturbance from root activities was noted. No artifacts were recovered from the feature fill. Maximum excavated dimensions were 100 cm east-west by 94 cm north-south, but Feature 4 is estimated to be 2 m in diameter based on the exposures Test Unit 5 and Backhoe Trench 3 provided.

There was a second basin-shaped hearth, Feature 6, at 28–47 cm in Test Unit 5. By Feature 4, a portion of this hearth occurred in the northeast third of the unit. Maximum excavated dimensions are 63 cm north-south by 62 cm east-west, but the hearth extends north and east beyond the limits of the excavation. As with Feature 4, the perimeter of Feature 6 was defined by angled slabs, and the interior fill

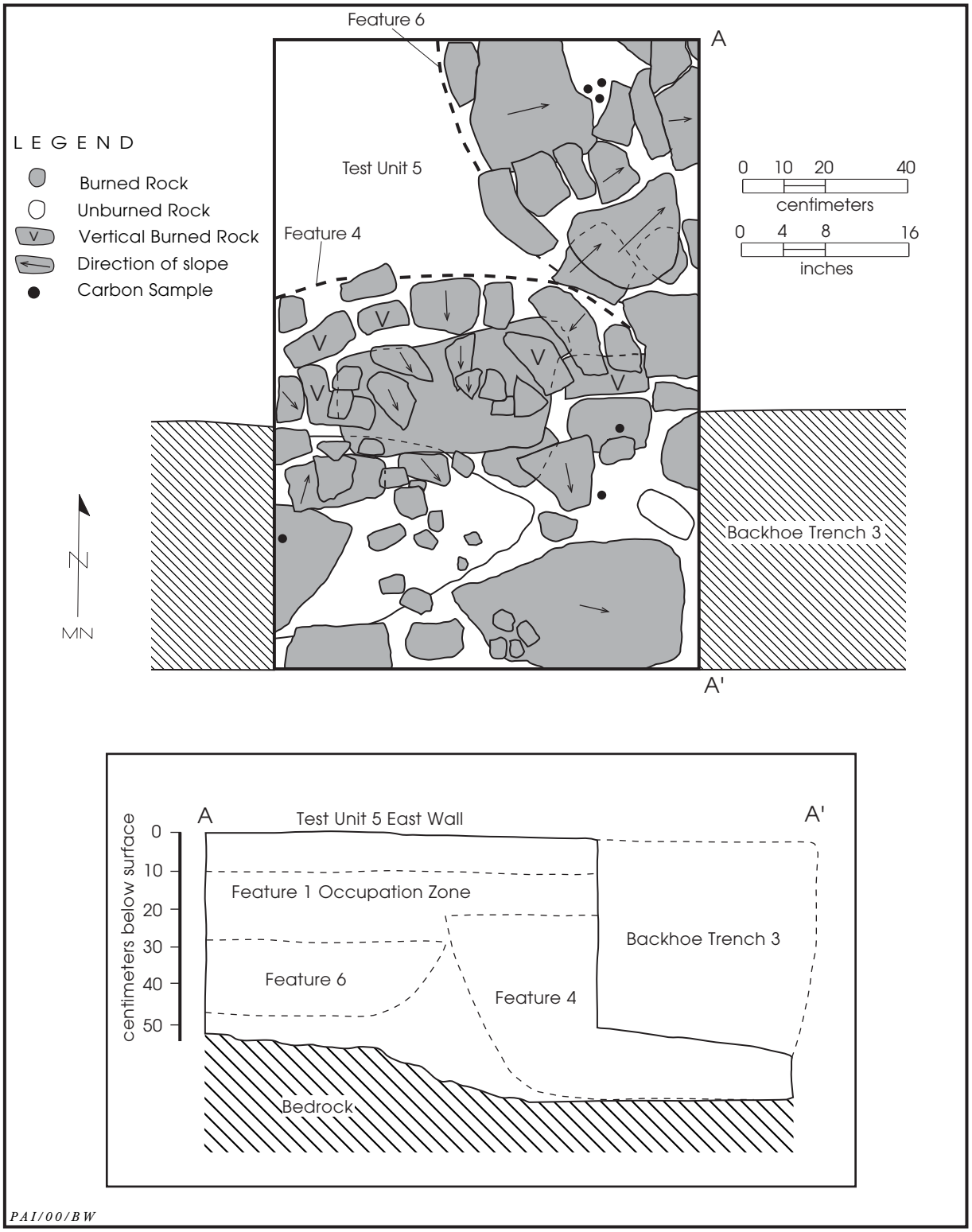

Figure 5.18. Plan view of Features 4 and 6 and profile view of Features 1, 4, and 6, 41CV1553.

consisted of a dark stained sediment. The slabs sloped from west-southwest to east-northeast toward the center of the feature. A basin was apparent in the test unit profiles, and the feature was deepest in the northeast corner of the excavation. The hearth consisted of two burned rock layers (n = 12, 25 kg) made up of slabs and tabular pieces. Most of the rocks were 10–15 cm long, 5–10 cm wide, and 2–4 cm thick, with approximately half consisting of fossiliferous limestone. Small roots were noted in the feature fill, and two flakes were recovered. Charcoal from 41 cm yielded a conventional radiocarbon age of 2,090 ± 50 B.P. (Beta-136842, see Appendix A). The charcoal sample was identified as *Quercus* sp., and two flotation samples produced unidentifiable bulb fragments, as well as to *Quercus* and *Ulmus* spp. wood (see Appendix D). It is unclear what percentage of the feature was excavated (probably 25–30 percent), but considering its similarity to Feature 4, this hearth may also be up to 2 m in diameter.

Discussion

Analysis Unit 2 consists of an occupation zone (Feature 1) buried in Paluxy-derived sediments and encompassing an area of at least 30x45 m. Two distinct features, Features 4 and 6, exist within this zone. The two large, basin-shaped hearths yielded calibrated charcoal radiocarbon dates (1 sigma) of A.D. 60–140 and 180–45 B.C., indicating that the area was occupied during the Late Archaic period. The hearths contained a variety of woods: black locust, elm, hackberry, juniper, oak, and sumac. Recovery of indeterminate bulb fragments suggests that Feature 6 represents a cooking oven. The presence of a Scallorn arrow point just above Feature 1 suggests that occupations in this area continued into Late Prehistoric times.

Analysis Unit 3

Analysis Unit 3 is restricted to a small wedge (ca. 40x70 m) of colluvial toeslope south of the tributary and in the southwestern corner of the site. This area encompasses two backhoe trenches and one test unit excavated by Feature 2 (a surface scatter of burned rocks and debitage). The deposits here are up to 130 cm thick, and one burned rock feature was found at 30–40 cm.

Cultural Materials

In Test Unit 6, Level 1 (0–10 cm) was culturally sterile. At 10–30 cm, the unit contained 1 untypeable dart point with beveled blade edges, 3 late-stage to finished bifaces, 3 flakes, and 11 burned rocks (0.2 kg). Feature 5 was present at 30–40 cm (see Cultural Features). Below the feature, 1 edge-modified flake and 19 burned rocks (5.6 kg) were found. The excavation was devoid of cultural materials at 60–70 cm.

Cultural Features

Feature 2 was originally recorded in 1993 as a surface burned rock and lithic scatter. It was re-located, and Backhoe Trenches 7 and 8 were excavated nearby. Scattered burned rocks were observed at 10–20 cm in Backhoe Trench 7, but these did not appear to be related to Feature 2. There were some scattered burned rocks in the west end of Backhoe Trench 8 at 40 to 50 cm, but these were not related to Feature 2. This feature was determined to be a very sparse, surface scatter composed mainly of burned rocks.

Feature 5 is a burned rock concentration encountered at 30–40 cm across most of Test Unit 6. Comprised of one burned rock layer (n = 63, 20.5 kg), the feature's maximum excavated dimensions are 84 cm east-west by 50 cm north-south. Although there were a few tabular burned rocks present, most consisted of fist-sized and smaller angular fragments. The feature fill contained four flakes, and one flotation sample produced only charcoal flecks (see Appendix D). Roots and active ant and insect burrowing severely bioturbated the feature. A few burned rocks in the west and south walls of the test unit indicated that the feature continues an unknown distance in these directions.

Discussion

There were buried cultural deposits in the non-Paluxy sediments south of the tributary. The cultural remains making up Analysis Unit 3 are contained in colluvial and alluvial deposits that tree roots disturbed to some degree in the vicinity of Test Unit 6, but there are intact cultural remains in this area. Features 2 and 5 do not appear to be related and most likely represent activities that occurred at different

times. No radiocarbon dates or temporally diagnostic artifacts are available to assess the age of these cultural remains, but the sediments probably represent a late Holocene deposit.

Summary and Conclusions

At 41CV1553, the Paluxy sediments north of the tributary are laterally extensive and deep. Although portions of the area have been disturbed (possibly the upper 20–30 cm), shallowly buried components remain intact. Dated features and a diagnostic arrow point indicate the presence of multiple occupations that span the Late Archaic through Late Prehistoric and into the Protohistoric periods. Analysis Unit 1 contains buried remains dating to the Protohistoric period in the north-central portion of the site. Based on the occurrence of two intact discrete hearths (Features 4 and 6) within a larger (at least 1,350 m^2) occupation zone (Feature 1) in the Analysis Unit 2 area, the potential for more features and interpretable assemblages is considered high. Charred remains of nut shells, acorns, and bulbs indicate multiple plant gathering and processing activities, and suggest occupation at least during the fall (see Appendix D). Although ground stone is not a common artifact, the recovery of a few fragments and a nutting stone also provide evidence of food processing. To date, only one other Paluxy site at Fort Hood—41CV988—has yielded charred storage root fragments. Although oak is the dominant carbonized wood, nine other identifiable wood types indicate a diverse woodland.

A narrow strip of alluvium occurs at the base of the slope and north of the drainage (as exposed in Backhoe Trench 5). Here, the absence of defined terrace scarps precludes a clear separation of the Paluxy sediments and terrace deposits without additional subsurface exposure.

Having maximum dimensions of 40x70 m, a colluvial toeslope (non-Paluxy sediments) is situated south of the tributary at the southwest site margin. Here, one deflated burned rock concentration (Feature 2) rests on the surface, and excavations encountered one buried feature (Feature 5). Because the feature was undated, its relationship, if any, to the occupations north of the tributary is unknown.

All three of the areas where subsurface testing was done produced evidence of intact buried cultural deposits and features. Analysis Units 1 and 2 make up only a small portion of the area north of the tributary, but there could be buried archeological remains present anywhere in the Paluxy-derived sediments in this area. Based on the testing results, 41CV1553 is recommended as eligible for listing in the National Register.

41CV1555

Site Setting

Wedged between an unnamed tributary of House Creek and a steep upland slope, 41CV1555 is an open campsite situated on a densely vegetated T_1 terrace. The area supports a secondary growth woodland dominated by red oak and juniper and a thick understory of poison ivy. A lightly used dirt road parallels the tributary.

Previous Work

In December 1992, Frederick and Mehalchick (Mariah Associates) found the site while conducting reconnaissance surveys of nearby sites. Although not formally recorded at the time, the site was assigned a temporary number (MA92-8) and its UTM coordinates were reported to the Fort Hood Cultural Resources Management Office.

On 5 March 1993, Frederick and Mehalchick (Mariah Associates) formally recorded the site. It was situated on a Holocene terrace (T_1) within a narrow incised valley of an unnamed tributary of House Creek. Steep to moderately sloping limestone erosional slopes bordered the valley floor. Cutbank exposures at the western edge of the T_1 surface indicated that there might be 2–3 m of lower West Range alluvium present. Cultural materials appeared to be shallowly buried near the top of this unit, which consisted of light brown, stratified gravelly to sandy alluvium, within which an A-Bk-C soil had formed. The Bk horizon was a Stage 1 calcic horizon that contained many calcium carbonate filaments. The upper West Range alluvium was dark, fine-grained sediment that was inset into the Lower West Range and possibly partially draped the T_1 surface. It was, in turn, overlain by Ford alluvium consisting of highly stratified light brown sand and loamy sands that experienced minimal pedogenic alteration, both of

which were present beneath the modern floodplain (T_0) that rose about 1 m above the creek channel. Overall, vegetative cover rendered surface visibility poor, but scattered burned rocks and flakes were observed in and along a road that paralleled the drainage and where vegetation had been cleared. Feature 1, a small burned rock midden, also was exposed along the western edge of the road near the southern site margin. The feature consisted of small (3–6 cm) pieces of burned rocks within a 3x1-m area. Bioturbation, erosion, the road, and vegetation clearing had minimally disturbed the area. Based on the depth of deposits and archeological potential, shovel testing was recommended.

On 16 March 1993, a crew excavated 18 shovel tests to a maximum depth of 40 cm. Only one test, placed near Feature 1, was positive, and five burned rocks were found at 10–30 cm. The testing results indicated that the upper 40 cm of deposits had limited archeological potential, but researchers noted that there might be intact cultural components of unknown significance beneath the level of shovel testing. Recommended testing to determine National Register eligibility consisted of at least 6 backhoe trenches and 2–4 m^2 of manually excavated test units (Trierweiler, ed. 1994:A1578–A1580).

Work Performed

Before trenching, the terrace surface and cutbank were inspected, and Feature 1, the previously recorded burned rock midden, was re-located. The surface manifestation of Feature 1 was unchanged from its original recording. Aside from a general scatter of burned rocks and debitage in sections of the road, no subsurface cultural materials were observed.

On 6 August 1999, formal testing at 41CV1555 was completed (Figure 5.19). Excavations consisted of six backhoe trenches (Backhoe Trenches 1–6), one 1.5x1-m test unit (Test Unit 1) ,and five 1x1-m test units (Test Units 2–6). A total of 3.05 m^3 was manually excavated.

Backhoe Trench 1 was excavated just beyond the southern end of the site and was used to help define the southern site margin. Oriented to 320∞, the trench had maximum dimensions of 10x0.6x1.1 m and exposed no cultural materials. Backhoe Trench 2 was situated about 42 m north of Backhoe Trench 1 and just west of the road in the general area of Feature 1. The trench measured 15x0.6x1.75 m and was aligned to 110∞. Two probable hearths (later designated Features 2 and 3) were exposed at 5–30 cm in opposite walls of the trench. Burned rocks were also scattered throughout the exposure from 0–25 cm. A historic or modern trash pit containing metal fragments, glass, and charred wood also was visible in the north wall at 0–40 cm, about 3–4 m west of Feature 3. Backhoe Trench 3 (19.5x0.6x1.1 m) was located 40 m northeast of the Backhoe Trench 2. Aligned to 125∞, the trench was placed east of the road and extended to the base of the limestone slope; no cultural materials were encountered. Spaced across the northern half of the site, Backhoe Trenches 4–6 were placed west of the road. Backhoe Trenches 4 and 5 were primarily aligned on a north-south axis and measured 10–13 m long, 0.6 m wide, and 1–1.5 m deep. No cultural materials were observed in Backhoe Trench 4, but one burned rock was exposed at 40 cm in Backhoe Trench 5. Near the northern end of the site, Backhoe Trench 6 was oriented to 110° and had maximum dimensions of 18x0.6x1.53 m. A few burned rocks were observed at 20 cm.

Test Units 1 and 2 were placed by Backhoe Trench 2, and the other four (Test Units 3–6) were free standing units oriented to magnetic north. Each test unit was terminated at an arbitrary depth. Test Unit 1 was placed along the south wall of Backhoe Trench 2, above Feature 2 near the east end of the trench. About 4 m northwest of Test Unit 1, Test Unit 2 was placed along the north wall of Backhoe Trench 2 and above Feature 3. Both of these units were terminated at 50 cm. Excavated to 60 cm, Test Unit 3 was placed about 12 m north of Backhoe Trench 2 and a few meters west of the road in the vicinity of Feature 1. Across the road from Test Unit 3, Test Unit 4 was excavated to 50 cm. Discontinued at 50 cm, Test Unit 5 was situated approximately 10 m northwest of Test Unit 3 and just west of the road. About 140 m northeast of Test Unit 5 and 10 m east of Backhoe Trench 5, Test Unit 6 was placed along the west edge of the road, where flakes and burned rocks were exposed. The excavation was terminated at 30 cm.

Site Extent and Depth

The terrace is delineated by a steep slope to the east and a tributary to the west. The slope

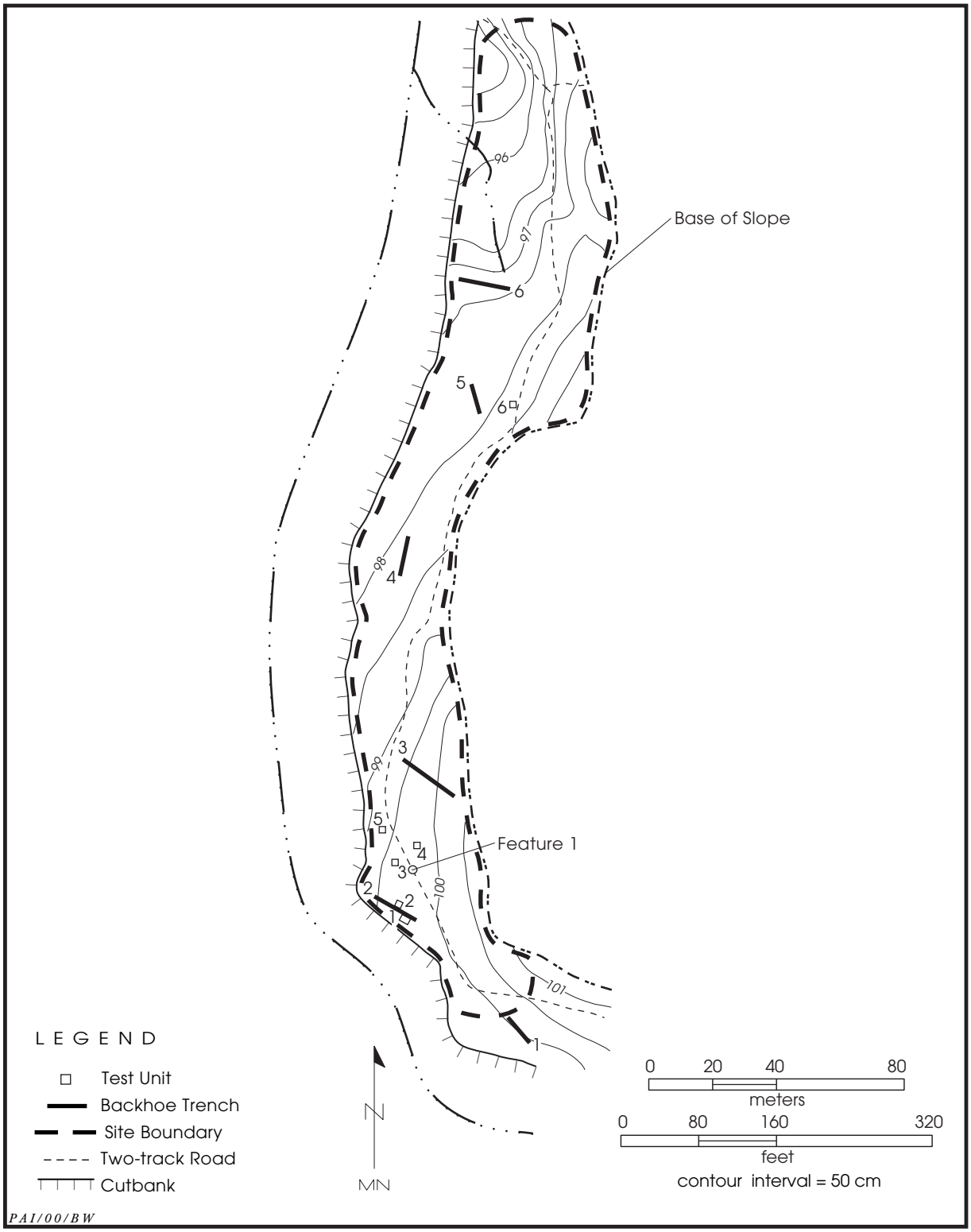

Figure 5.19. Site map of 41CV1555.

and tributary intersect less than 30 m to the south, where the terrace is nonexistent. Although the terrace continues an unknown distance north, the maximum estimated site dimensions are 315 m north-south by 50 m east-west based on the extent of surfacial cultural materials and the testing results. Cultural materials, two intact hearths, and a possible living surface are confined to the upper 50 cm of deposits.

Sediments and Stratigraphy

The profile of Test Unit 2 (adjacent to Backhoe Trench 2) was described in detail and soil geomorphology was assessed (see Appendix B). The 185-cm-thick exposure consists of basal fluvial channel gravels capped by overbank deposits (AC-Ab-BCb-CBkb profile). The AC horizon (0–6 cm) is a black, very firm clay that represents a thin drape of Ford alluvium. In turn, this fill is underlain by West Range deposits. The anthrosolic Ab horizon (6–35 cm) consists of a black slightly gravelly to gravelly clay loam. The BCb (35–66 cm) horizon consists of a very dark grayish brown gravelly clay loam, and the CBkb horizon (66–185+ cm), of a yellowish brown extremely gravelly clay loam.

Definition of Analysis Units

Analysis Unit 1 subsumes Ford and West Range alluvium that did not yield isolable cultural components. The entire deposit in Backhoe Trench 2, and Test Units 1–3, correspond to Analysis Unit 2. This unit contains two stratigraphically discrete burned rock features and a probable associated living surface.

Analysis Unit 1

Analysis Unit 1 subsumes Ford and West Range deposits encountered in most of the mechanical and manual excavations. The deposits are up to 150 cm thick and produced sparse cultural materials. Five (41.7 percent) of 12 levels from 3 test units produced 2 flakes and 18 small burned rocks (1.85 kg). Test Unit 4 contained 2 burned rocks at 10–20 cm, Test Unit 5 yielded 1 flake and 12 burned rocks at 10–30 cm, and Test Unit 6 produced 1 flake and 4 burned rocks at 0–20 cm.

Analysis Unit 2

Although Analysis Unit 2 encompasses the Ford and West Range sediments from the surface to a maximum depth of 185 cm, spatially discrete features occur at 10–26 cm and 22–37 cm in two test units. Nearby, a burned rock scatter at 20–30 cm in a third unit may be associated with the features. Excavations reveal that this component may also be horizontally discrete.

Cultural Materials

Test Unit 1 yielded 1 flake, 266 burned rocks (29 kg), and 1 cartridge case at 0–10 cm. Feature 2 was encountered from 10 to 26 cm (see Cultural Features). At 10–30 cm, the matrix surrounding the feature contained 1 flake and 154 burned rocks (38.5 kg). Below the feature, Level 4 (30–40 cm) yielded 2 small burned rocks, and Level 5 (40–50 cm), 4 small burned rocks.

One serrated Perdiz arrow point, 4 flakes, and 70 burned rocks (3.5 kg) were found at 0–10 cm in Test Unit 2. Level 2 (10–20 cm) contained 185 burned rocks (12.5 kg), and Feature 3 was encountered from 22 to 37 cm (see Cultural Features). One flake and 6 small burned rocks were recovered at 20–40 cm; the excavation was culturally sterile at 40–50 cm.

From the surface to 50 cm, Test Unit 3 produced 2 flakes and 71 burned rocks (5.85 kg). Fifty-five (77.5 percent) burned rocks occurred at 20–30 cm; this peak may be associated with Features 2 and 3. No cultural materials were found at 50–60 cm.

Cultural Features

Feature 1 (recorded in 1993) was exposed along the west edge of the road; it measured 3x1 m and consisted of small, angular burned rocks. Based on this exposure, Feature 1 is determined to be a burned rock concentration.

Encountered from 10 to 26 cm, Feature 2 is a basin-shaped hearth that was well defined in the northwest portion of Test Unit 1 (Figure 5.20). Its maximum excavated dimensions are 112 cm east-west by 61 cm north-south. The single layer of rocks forming the perimeter of the hearth comprised primarily larger tabular pieces or slabs that angled toward the center of the feature. These rocks ranged from 11x10x3 cm to 25x18x5 cm. The hearth's interior

consisted of two layers of burned rocks that were tabular fragments or fist-sized and smaller angular pieces. Many rocks were fractured in place and broke apart upon removal. The feature consisted of 94 burned rocks (34 kg) of which 20 percent were fossiliferous limestone. Two flakes were recovered from the feature fill. Two flotation samples contained carbonized wood of *Celtis* (hackberry), *Juniperus* (juniper), and *Quercus* (oak) spp., as well as *Carya* (hickory) sp. shell fragments (see Appendix D). Charcoal from the flotation sample yielded a conventional radiocarbon age of 700 ± 50 B.P. (Beta-136844, see Appendix A). There were many small roots throughout the fill. Because no evidence of the hearth was visible in the opposite (north) trench wall, the overall feature dimensions are estimated to be 115 cm north-south by 112 cm east-west.

Feature 3 is approximately half of a basin-shaped hearth present from 22 to 37 cm in the western half of Test Unit 2. The feature consisted of 2 layers of 175 burned rocks (31.5 kg) and had maximum excavated dimensions of 100 cm north-south by 56 cm east-west. Most were fist-sized and smaller angular blocky pieces, and there were less than 10 tabular pieces. The largest rock measured 16x10x3 m, and several were fractured in situ. There was a shallow basin apparent toward the center of the hearth (i.e. along the west-southwestern edge of the test unit). At the bottom of the hearth, only the tops of the rocks showed evidence of burning. The feature fill contained two flakes. Charcoal from 36 cm was identified as *Quercus* sp. (see Appendix D) and yielded a conventional radiocarbon age of 1180 ± 50 B.P. (Beta-136843, see Appendix A). Two flotation samples produced charred wood of *Quercus* sp., *Rhus* sp. (sumac), and Salicaceae (willow), as well as *Quercus* sp. acorns (see Appendix D). Excavation of Backhoe Trench 2 displaced about half of the feature, but minimal root activity was the only disturbance noted to the rest. The feature was not apparent in the opposite (south) trench wall, but it did extend west beyond the limits of Test Unit 2. Based on these exposures, the estimated size of the original feature is 115 cm east-west by 100 cm north-south.

Discussion

Shallowly buried in West Range alluvium (Ab horizon), Analysis Unit 2 contains two discrete burned rock features. Calibrated radiocarbon dates of A.D. 780 (875) 900 and A.D. 1275 (1290) 1300 for two hearths indicate use of the area during the Late Prehistoric period, Austin phase. With both features the associated artifact assemblage is limited, but the presence of oak acorns, hickory shell fragments, and oak, juniper, hackberry, sumac, and willow family wood indicates excellent preservation of charred macrobotanical remains.

Summary and Conclusions

The sediments at 41CV1555 consist of thin Ford deposits underlain by West Range alluvium. Although a Perdiz point was recovered from the upper 10 cm of Ford alluvium, no isolable cultural deposits or features were encountered. The West Range fill does, however, contain spatially discrete archeological components encapsulated within a buried soil. Two burned rock features, approximately 4 m apart, span the Austin phase. Oak was the principal wood fuel in the basin-shaped hearths, and oak acorn and hickory nut remains suggest that these items were gathered and processed at the site. A marked increase in burned rocks within a 10-cm level in a unit situated ca. 12 m north of these features is probably contemporaneous. Based on surface and subsurface exposures in this area, the areal extent of this cultural component measures at least 40 m north-south by 30 m east-west. Based on the foregoing, 41CV1555 is recommended as eligible for listing in the National Register.

41CV1556

Site Setting

Site 41CV1556 is an open campsite situated on a slope and terraces along Ripstein Creek (Figure 5.21). Several dirt roads bisect the site area, which supports grasses, live oak, juniper, and cedar elm. Site elevation is 290 m above mean sea level.

Previous Work

Frederick and Trierweiler (Mariah Associates) originally discovered the site in July 1992 while conducting a reconnaissance survey. Although not formally recorded at the time, the site was assigned a temporary number (MA92-9),

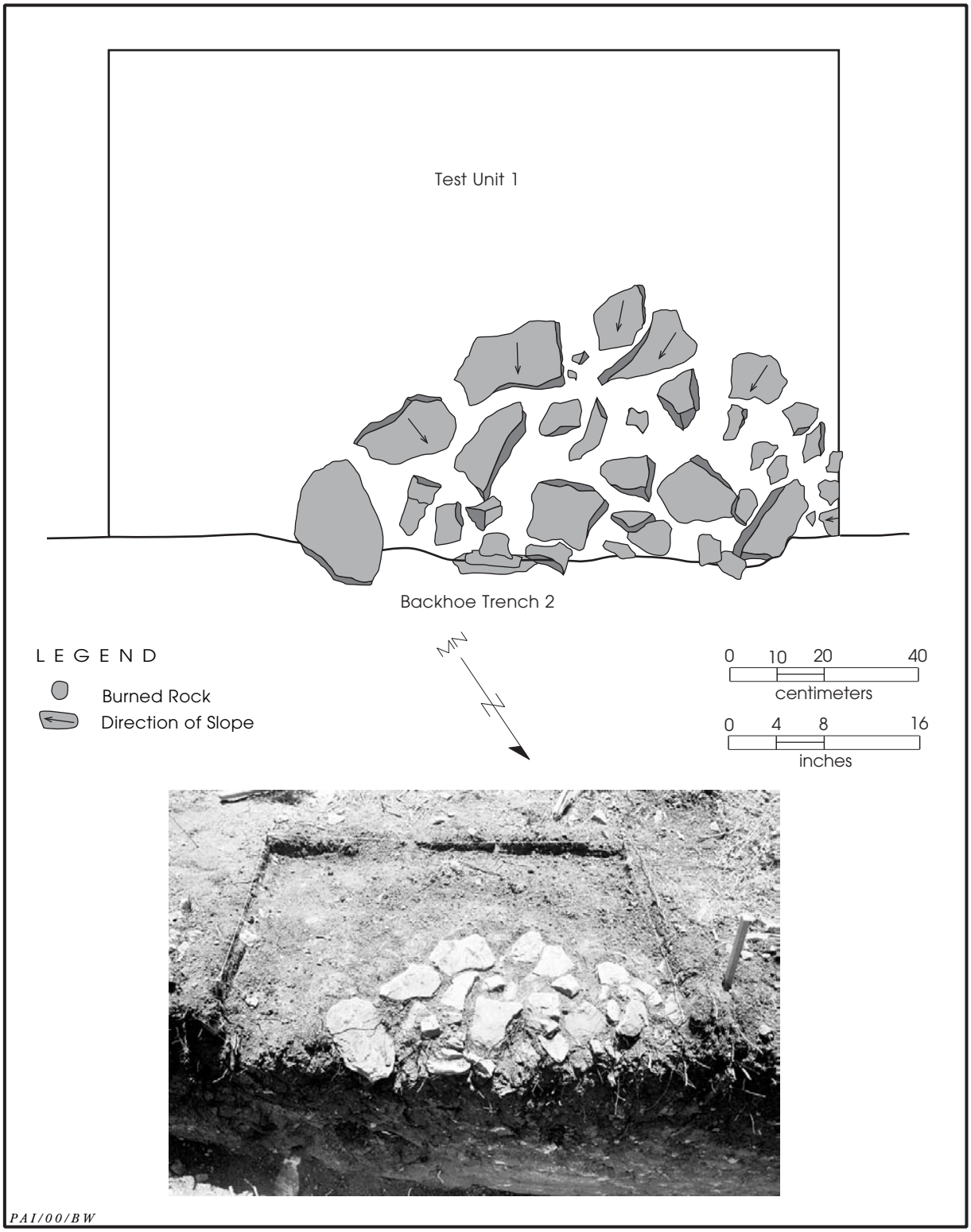

Figure 5.20. Plan and photograph of Feature 2, 41CV1555.

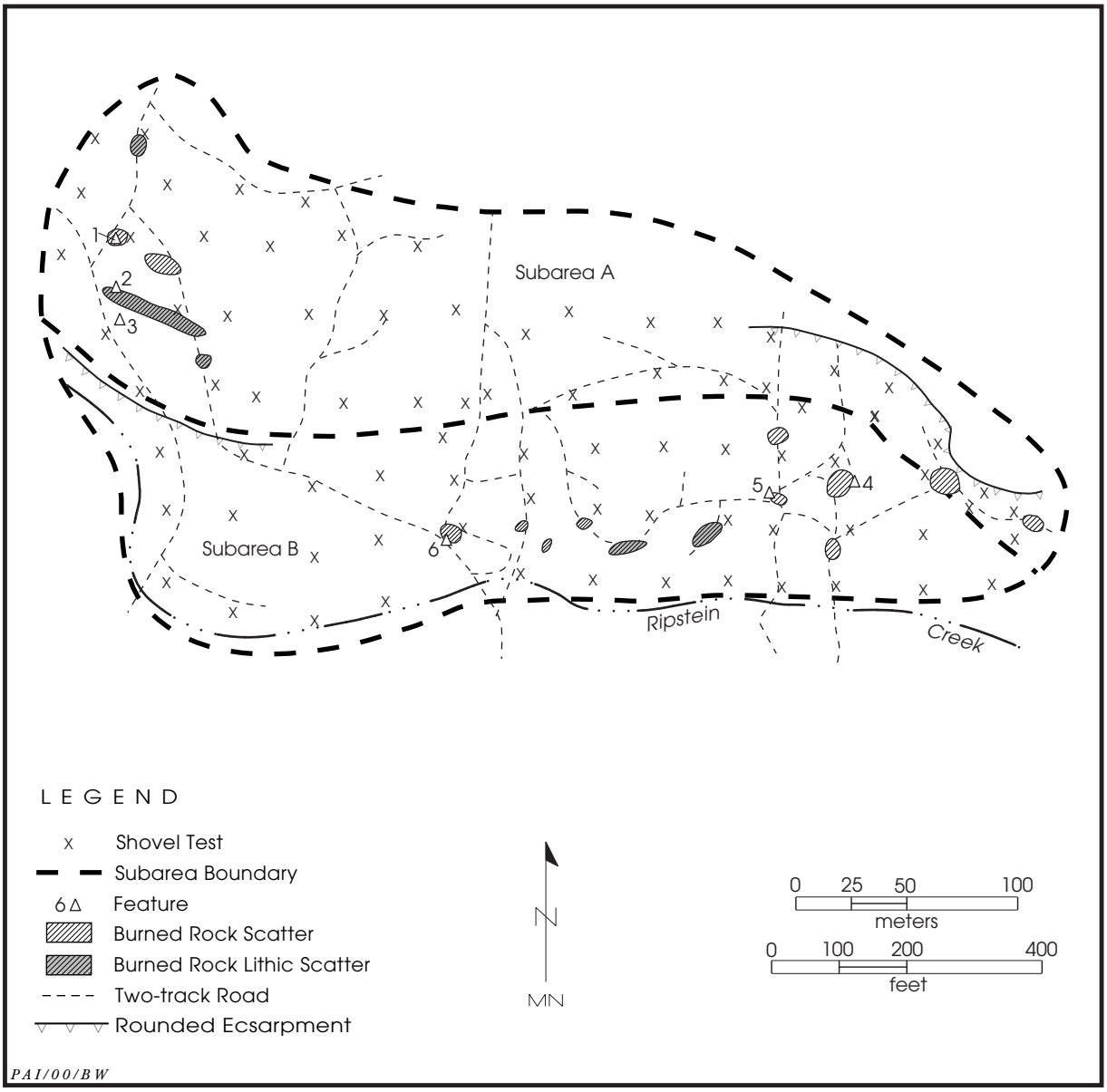

Figure 5.21. Site map of 41CV1556 (modified from Trierweiler, ed. 1994:A1582).

and the UTM coordinates were reported to the Fort Hood Cultural Resources Management Office.

On 14 May 1993, Frederick and Mehalchick (Mariah Associates) formally recorded this large campsite, which measured 450x240 m. Based on differing geomorphic contexts and archeological potentials, the site was divided into Subareas A and B.

The south-facing slope above Ripstein Creek made up Subarea A. The surface had a thin soil mantle, with the matrix derived from marl soils and the Paluxy sand situated upslope. The solum appeared to vary between an A-R profile and an A-Bw-R profile that was less than 30 cm thick. There were discontinuous limestone scarps present across portions of the slope, and the solum thinned toward the scarp shoulders. The sediment appeared to be partially colluvialbecause several burned rock features were shallowly buried. Several trails and roads crossed the subarea and exposed three burned rock concentrations. Heavily disturbed by a tank trail, Feature 1 measured

6x3 m. Based on the density of burned rocks in this area, the feature may have been a midden. Located 10–15 m south of Feature 1, Feature 2 (7x2.5 m) was a severely deflated burned rock scatter with less than 5 cm of deposits. A Pedernales dart point was collected 6 m east of Feature 2. About 12 m southwest of Feature 2, Feature 3 measured 2x1 m and was also a severely deflated burned rock scatter. All three features had debitage in association. Although scattered flakes, bifaces, and burned rocks were exposed in roads and in small denuded areas, dense grass cover rendered the overall surface visibility poor.

Subarea B subsumed the floodplain of Ripstein Creek, rising 0.5–1.5 m above the channel. Although there may be more than one fill present here, the surface gradually sloped to the channel, with no defined terrace scarps. Minimally modified by pedogenesis, a very recent (Ford) alluvium was exposed by the creek (Nordt 1992). The principal fill was a dark, fine-grained alluvium that probably correlated to the West Range. An older sediment with a very rubified A-Btk-R profile occurred upslope. Based on its degree of weathering, this unit was probably the Fort Hood or Jackson alluvium. Although grass cover and vegetation limited surface visibility, burned rocks and debitage were observed. Three burned rock concentrations buried within the West Range alluvium also were identified here. Approximately 15 m below a well-defined limestone scarp, Feature 4 was present near the east end of the subarea. The feature, exposed along a roadcut, consisted of a cluster of burned rocks within a 1x1-m area. Feature 5 was situated about 30 m southwest of Feature 4, and Feature 6 was 100–110 m west of Feature 5. Feature 5 measured 3x3 m, and Feature 6, 5x3 m. Both were burned rock scatters heavily damaged and displaced by roadcuts. Based on the depth of the Holocene deposits and the potential for buried cultural materials, shovel testing was warranted in Subareas A and B.

On 18–19 May 1993, a crew excavated 43 shovel tests in Subareas A and 39 shovel tests in Subarea B. Excavated to a maximum depth of 40 cm, only 4 (9.3 percent) positive tests in Subarea A produced a total of 6 flakes. One Hoxie dart point also was surface collected from one shovel test. The shovel tests in Subarea B were excavated between 30 and 50 cm; only 6 (15.4 percent) tests located on the eastern two-thirds of the subarea contained cultural materials. Seven burned rocks and 8 flakes were found from 0 to 40 cm, but half of these items occurred in the upper 20 cm of deposits.

The shovel testing results indicated that Subarea A had extremely limited potential for intact cultural deposits. On this basis, no further work was recommended for Subarea A. Although the shovel tests in Subarea B indicated that the upper 40–50 cm of deposits had limited archeological potential, researchers noted that there might be intact cultural deposits of unknown significance present below the level of shovel testing. Recommended testing to determine National Register eligibility consisted of eight backhoe trenches and 8 m^2 of manually excavated test units in Subarea B (Trierweiler, ed. 1994:A1581–A1583).

Work Performed

Before trenching, Subarea B was reinspected for cultural materials. The three previously recorded burned rock concentrations (Features 4–6) were re-located and appeared unchanged since their initial recording. Several burned rock scatters also were observed, some of which were depicted on the 1993 site map. Generally, visibility along the cutbank of Ripstein Creek was poor, and no cultural materials were noted. Also, a juniper clearing project undertaken by Fort Hood since 1997 had disturbed the northern and western margins of the subarea.

On 2 September 1999, formal testing of Subarea B at 41CV1556 was completed (Figure 5.22). Excavations consisted of 13 backhoe trenches (Backhoe Trenches 1–13) and 5 test units. Test Units 3 and 4 were 1.5x1 m and Test Units 1, 2, and 5 were 1x1 m. A total of 4.45 m^3 was manually excavated.

Nine backhoe trenches were oriented generally east-west, and 4 were aligned on a general north-south axis. They ranged from 5 to 28 m long, 0.6 m wide, and 0.5 to 2 m deep. Seven of the 13 trenches were placed in the vicinity of the three burned rock features (Features 4–6) and in areas where scattered burned rocks and debitage were visible on the surface. Five trenches (Backhoe Trenches 2, 7, and 10–12) did not encounter any cultural deposits. Although Backhoe Trenches 1, 3, and

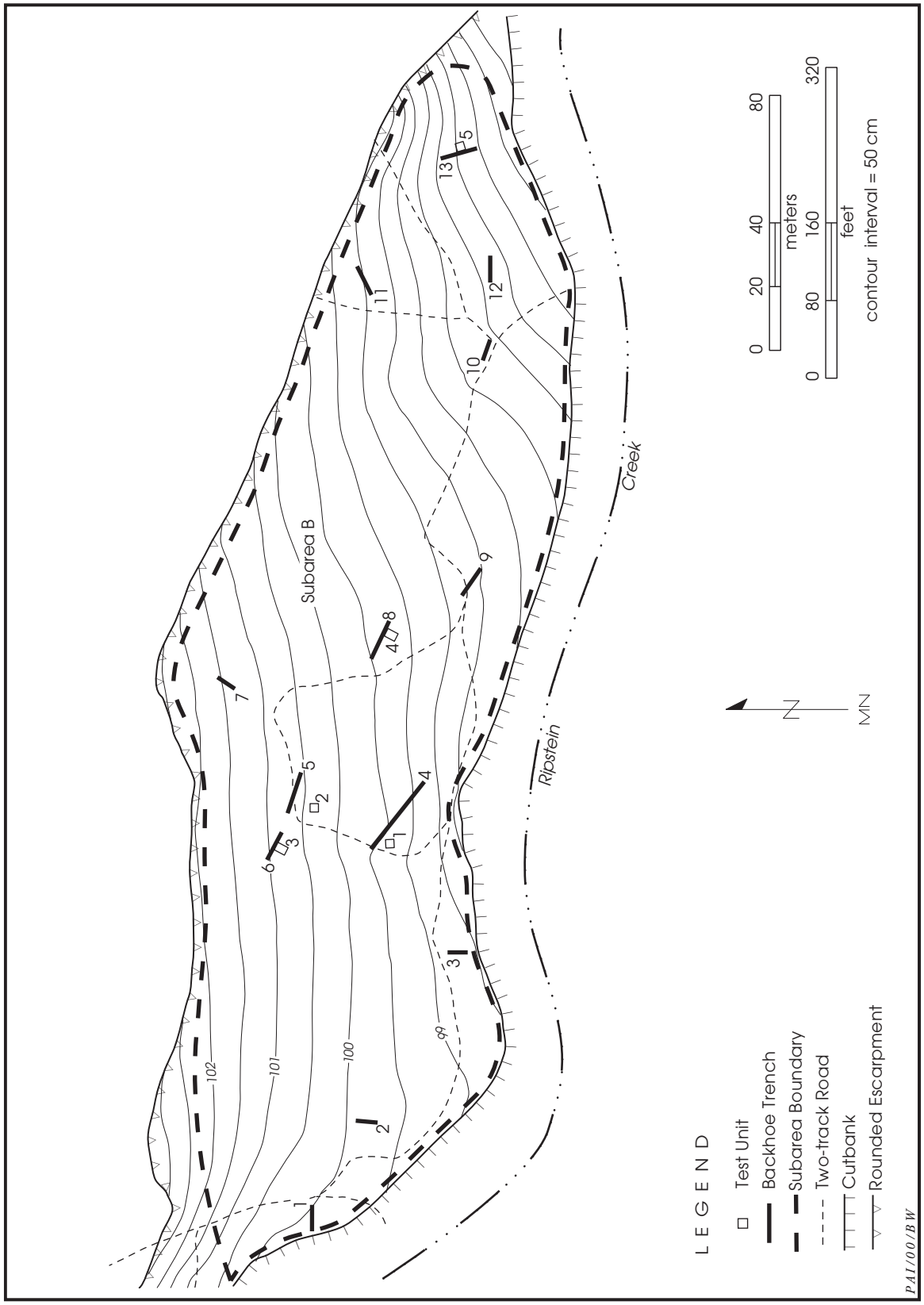

Figure 5.22. Map of 41CV1556-B.

5 contained burned rocks at various depths, they were intermixed with unburned rocks and gravels, suggesting a dubious context (i.e., redeposited). Backhoe Trenches 4 and 9 exposed a few burned rocks at 10 cm. Approximately 60 m apart northwest-southeast, Backhoe Trenches 6 and 8 encountered clusters of burned rocks at 10–20 cm (Feature 8) and 5–15 cm (Feature 7). There was also a small isolated burned rock present at 90 cm in Backhoe Trench 8. At the very eastern margin of the subarea, Backhoe Trench 13 contained a line of burned rocks (Feature 9) at 30 cm, and burned and unburned rocks at 65 cm.

All of the test units were terminated at arbitrary depths. Oriented to magnetic north and excavated to 70 cm, Test Unit 1 was placed just south of Backhoe Trench 4 and near a roadcut where burned rocks were visible. Test Unit 2 was located near the road where a previously recorded burned rock concentration (Feature 6) was visible. The unit was oriented to magnetic north and discontinued at 130 cm. Test Unit 3 was placed in the trench cut of Backhoe Trench 6, where a cluster of burned rocks was exposed at 10 cm. The unit encompassed the width (60 cm) of the trench cut and extended another 90 cm south beyond the southern edge of the trench; the excavation was terminated at 60 cm. Excavated to 70 cm, Test Unit 4 was situated over a concentration of burned rocks exposed at 5 cm in Backhoe Trench 8 in the same manner as Test Unit 3 in Backhoe Trench 6. During excavation, vertical cracks from shrink and swell processes were evident in all levels excavated from Test Units 3 and 4 (see Sediments and Stratigraphy). Test Unit 5, excavated to 50 cm, was situated along the east wall of Backhoe Trench 13 above the line of burned rocks at 30 cm.

Site Extent and Depth

A subtle scarp to the north and Ripstein Creek to the south delimited Subarea B terraces. The scarp edge converges with the drainage just beyond the east and west ends of the subarea. Based on the previous investigations and testing results, the areal extent of Subarea B is 390 m northwest-southeast by 100 m northeast-southwest. Cultural materials were observed and recovered to a maximum depth of 90 cm, and three features are buried in the upper 50 cm of deposits but are severely disturbed.

Sediments and Stratigraphy

Backhoe Trenches 4, 5, and 13 were described in detail and soil geomorphology was assessed (see Appendix B). Placed within the floodplain, the 95-cm-thick profile of Backhoe Trench 4 consists of gravelly clayey alluvium of late Holocene age, probably correlating to the Ford or West Range alluvium. The deposits are imprinted with an A-Bt-2Bk soil profile. Bedrock was exposed in the east end of the trench.

Backhoe Trench 5 also was excavated on the floodplain. Its 215-cm-thick profile consists of a mantle of late Holocene West Range alluvium (0–202 cm) overlying a truncated late Pleistocene Jackson alluvium (202–215+ cm). The alluvial deposits show an A-Bt-Btkb-2Btk2b soil profile. The A horizon (0–70 cm) is a very dark gray silty clay, and the Bt horizon (70–139 cm) consists of a dark reddish brown slightly gravelly to gravelly clay. Deep vertical cracks are evident in both soils. The Btkb (139–202 cm) and 2Btk2b (202–215+ cm) horizons are comprised of dark reddish brown slightly gravelly to extremely gravelly clay and sandy clay loam. Backhoe Trench 6 exhibited a similar profile to that of Backhoe Trench 5.

Backhoe Trench 13 is east of Trenches 4–6 and displayed an 82-cm-thick profile of gravelly clayey alluvium. The deposits consist of a mantle of West Range alluvium (0–73 cm) overlying a Jackson alluvium (73–82+ cm). The West Range sediments are imprinted with an A-Bt-Btk soil profile. The A horizon (0–17 cm) is a very dark gray slightly gravelly clay, and the Bt (17–39 cm) and Btk (39–73 cm) horizons consist of brown slightly gravelly clays. The underlying Jackson alluvium displays a truncated soil profile. The 2Btk2 soil horizon is a brown gravelly sandy clay loam.

Cultural Materials

In Test Units 1–5, cultural materials from nonfeature contexts consisted of 173 burned rocks (17.7 kg), 110 flakes, and 8 lithic tools (Table 5.15). The tools include an untyped dart point with ground stem edges and base (10–20 cm) and a Pedernales dart point (30–40 cm) from Test Unit 4. Although three features were encountered in three units, only Feature 9 in Test Unit 5 yielded artifacts (see Cultural Features).

Table 5.15. Summary of cultural materials from 41CV1556-B, Test Units 1–5

Provenience	Dart points	Early- to middle-stage bifaces	Miscellaneous bifaces	Miscellaneous unifaces	Edge-modified flakes	Unmodified debitage	Total
TEST UNIT 1							
Level 1 (0–10 cm)	–	–	–	–	–	1	1
Level 2 (10–20 cm)	–	–	–	–	–	1	1
Levels 3–5 (20–50 cm)	–	–	–	–	–	–	0
Level 6 (50–60 cm)	–	–	–	–	–	1	1
Level 7 (60–70 cm)	–	–	–	–	–	–	0
Subtotal	–	–	–	–	–	3	3
TEST UNIT 2							
Level 1 (0–10 cm)	–	–	–	–	–	–	–
Level 2 (10–20 cm)	–	–	–	–	–	1	1
Level 3 (20–30 cm)	–	–	–	–	–	–	0
Level 4 (30–40 cm)	–	–	–	–	–	1	1
Level 5 (40–50 cm)	–	–	–	–	–	2	2
Level 6 (50–60 cm)	–	–	–	–	–	1	1
Level 7 (60–70 cm)	–	–	–	–	–	1	1
Level 8 (70–80 cm)	–	–	–	–	–	3	3
Level 9 (80–90 cm)	–	–	–	–	–	2	2
Levels 10–13 (90–130 cm)	–	–	–	–	–	–	0
Subtotal	–	–	–	–	–	11	11
TEST UNIT 3							
Level 1 (0–10 cm)	–	–	–	–	–	2	2
Feature 8 (5–20 cm)	–	–	–	–	–	–	0
Level 2 (10–20 cm)	–	–	–	–	–	3	3
Level 3 (20–30 cm)	–	–	–	–	–	2	2
Level 4 (30–40 cm)	–	–	–	–	–	4	4
Level 5 (40–50 cm)	–	–	–	–	–	1	1
Level 6 (50–60 cm)	–	–	–	–	–	1	1
Subtotal	–	–	–	–	–	13	13
TEST UNIT 4							
Level 1 (0–10 cm)	–	–	–	–	–	1	1
Feature 7 (4–12 cm)	–	–	–	–	–	–	0
Level 2 (10–20 cm)	1	–	–	–	–	3	4
Level 3 (20–30 cm)	–	–	–	–	–	5	5
Level 4 (30–40 cm)	1	–	–	–	–	9	10
Level 5 (40–50 cm)	–	–	–	1	–	7	8
Level 6 (50–60 cm)	–	–	–	–	–	7	7
Level 7 (60–70 cm)	–	–	–	–	–	5	5
Subtotal	2	–	–	1	–	37	40
TEST UNIT 5							
Level 1 (0–10 cm)	–	–	1	–	–	8	9
Level 2 (10–20 cm)	–	1	–	–	3	13	17
Feature 9 (20–30 cm)	1	–	–	–	–	55	56
Feature 9 (30–40 cm)	–	1	–	–	–	47	48

Table 5.15, continued

Provenience	Dart points	Early- to middle-stage bifaces	Miscellaneous bifaces	Miscellaneous unifaces	Edge-modified flakes	Unmodified debitage	Total
TEST UNIT 5, *continued*							
Feature 9 (40–47 cm)	–	1	–	–	–	2	3
Level 5 (40–50 cm)	–	–	–	–	–	25	25
Subtotal	1	3	1	–	3	150	158
Total	3	3	1	1	3	214	225

Cultural Features

Occurring from 4 to 12 cm, Feature 7 was a burned rock concentration confined mainly to the northern one-third of Test Unit 4. Its maximum excavated dimensions were 114 cm north-south by 96 cm east-west, but burned rocks were exposed in the trench cut 1.5 m east of the unit and also in the north wall of Test Unit 4, indicating that the feature extends an unknown distance in these directions. The concentration consisted of a single layer of 44 burned rocks (15.5 kg). Half of the rocks were fist-sized and smaller angular fragments, and the rest consisted of tabular pieces (up to 18x15x4 cm). Approximately a third of the rocks were fossiliferous limestone. No artifacts were recovered from the feature fill, and no charred wood was recovered in flotation samples. Roots and fire ants severely bioturbated the feature.

At 5–20 cm, Feature 8 was a deflated hearth restricted primarily to the central portion of Test Unit 3. Its maximum excavated dimensions were 116 cm north-south by 97 cm east-west, and it appeared that the main portion of the feature was confined to the unit. The hearth consisted of a single layer of 38 burned rocks (14.5 kg), with several sloping in various directions. Most of the rocks were fist-sized and smaller angular and tabular fragments, but 12 tabular pieces and slabs ranged in size from 10x5x3 cm to 22x18x4 cm. The feature matrix did not produce any artifacts, and processed flotation samples produced minimal charred remains. The feature also contained a few unburned rocks and some smaller gravels. A few larger roots and erosion disturbed the hearth.

Feature 9, an occupation zone, extended across Test Unit 5 at 20–40, with burned rocks more concentrated in the west-central portion of the excavation. These two levels produced 1 Pedernales dart point, 1 biface, 102 flakes, and 307 burned rocks (52.5 kg). Confined to the northeast corner of Test Unit 5 from 40 to 47 cm, the lower portion of the feature contained 1 biface, 2 flakes, and 40 burned rocks (6 kg). The entire feature sloped from southwest to northeast, and there was no apparent patterning to the artifacts or rocks. Approximately 85 percent of the rocks were angular pieces less than 5 cm in size, and the rest consisted of angular and tabular fragments that were 5–10 cm. A few larger tabular pieces (up to 18x15x3 cm) also were present. No burned rocks were exposed in the trench walls beyond the limits of the test unit, but burned rocks visible in the north wall of Test Unit 5 suggest that the feature extends an unknown distance in this direction. Fire ants, insect burrows, and an extensive root system intensively bioturbated the feature. Several burned rocks were vertical, and many were obviously up-ended by roots. No charred wood was recovered in processed flotation samples.

Discussion

Although sparse cultural materials and three features were found shallowly buried in West Range alluvium, the deposits are severely bioturbated. Features 7 and 8 also are encapsulated in sediments that have experienced shrinking and swelling, deflating these features and compromising their integrity. The absence of

dateable remains in flotation samples from feature contexts indicates poor preservation of perishable materials. Shrink-swell properties of the upper meter of alluvial clays also appear to have severely compromised the contextual integrity of the cultural materials. Based on the testing results, Subarea B at 41CV1556 has extremely limited archeological research potential and is recommended as not eligible for listing in the National Register.

ANALYSIS OF MATERIALS RECOVERED

Gemma Mehalchick

6

This chapter discusses the materials recovered from the 12 tested sites (Table 6.1). Cultural artifacts consist of 7,096 chipped stone artifacts, 5 ground and battered stone artifacts, 1 modified bone, 8 ceramic sherds, and 1 other artifact consisting of a hematite-stained burned rock. Other cultural materials are categorized as burned rocks (total weight = 1,554.95 kg), unmodified bones (n = 707), and unmodified mussel shells (n = 322). Land snail shells were collected from archeological contexts but are not considered cultural. No attempt was made to quantify the collected snails, and they are not discussed in this chapter. The stone tools are further classified into individual tool groups according to the artifact typology summarized in Chapter 4 (see Table 4.2).

CHIPPED STONE ARTIFACTS

The chipped stone assemblage (n = 7,096) is dominated by 6,729 pieces (94.8 percent) of unmodified debitage and also includes 358 chipped stone tools and 9 cores. These artifacts are all manufactured from local cherts available within the Fort Hood military reservation, and the named chert types that dominate are Fort Hood Yellow (n = 1,478; 20.8 percent) and Owl Creek Black (1,211; 17.1 percent). Elton Prewitt (personal communication 2000) assigned projectile points to type groups using published typological data (Bell 1958; Davis 1991; Prewitt 1976; Suhm and Jelks 1962; Turner and Hester 1993).

Arrow Points

Sites 41CV41, 41CV1441, 41CV1553, and 41CV1555 produced three nearly complete arrow points and two fragments (Table 6.2). Four points were identified as named types, and one consisted of an untyped arrow point. Each is described separately below.

Alba

This unifacial, nearly complete specimen has a slightly expanding stem and straight lateral edges (Figure 6.1).

Granbury

This proximal fragment consists primarily of the stem; the base is fairly straight and the edges are slightly recurved (see Figure 6.1).

Perdiz

This serrated point is nearly complete and has a contracting stem (see Figure 6.1).

Scallorn

The point is a nearly complete specimen that has short barbs and deep notches (see Figure 6.1). The blade edges are serrated, and one lateral edge is partially recurved.

Untyped Arrow Point

This distal fragment is long, thin, and finely chipped (see Figure 6.1). The blade edges are serrated, and the tip and stem are snapped off.

Dart Points

Forty-three dart points were recovered from seven sites. Twenty (46.5 percent) were found

Table 6.1. Summary of artifacts recovered

Site	Subarea	Analysis unit	Arrow points	Dart points	Other chipped stone tools	Cores	Unmodified debitage	Ground and battered stones	Other stone artifact	Modified bone	Ceramic sherds	Total
41BL192	A	1	–	–	–	1	1	–	–	–	–	2
41BL349	–	1	–	20	59	2	1,808	1	–	–	–	1,890
41CV41	A	1	1	2	16	–	409	–	–	–	–	428
		2	–	10	86	1	2,509	1	–	–	–	2,607
		3	1	1	69	2	1,049	1	–	–	8	1,131
Subtotal			2	13	171	3	3,967	2	0	0	8	4,166
41CV94	–	1	–	–	6	–	34	–	–	–	–	40
41CV579	–	1	–	–	1	1	78	–	–	–	–	80
		2	–	2	28	1	286	–	–	1	–	318
		3	–	1	10	–	63	–	–	–	–	74
Subtotal			0	3	39	2	427	0	0	1	0	472
41CV668	B	1	–	–	2	–	33	–	–	–	–	35
41CV956	B	1	–	–	9	–	81	–	–	–	–	90
41CV1441		1	1	2	6	1	102	–	–	–	–	112
41CV1443	A	2	–	1	1	–	8	–	–	–	–	10
41CV1553	–	1	–	–	2	–	8	1	–	–	–	11
		2	1	–	1	–	26	1	1	–	–	30
		3	–	1	4	–	7	–	–	–	–	12
Subtotal			1	1	7	0	41	2	1	0	0	53
41CV1555	–	1	–	–	–	–	2	–	–	–	–	2
		2	1	–	2	–	11	–	–	–	–	14
Subtotal			1	0	2	0	13	0	0	0	0	16
41CV1556	B	1	–	3	8	–	214	–	–	–	–	225
Total			5	43	310	9	6,729	5	1	1	8	7,111

Table 6.2. Classification and metric attributes of arrow points

Type	Site	Subarea	Analysis unit	Chert type	Maximum length	Blade length	Blade width	Haft length	Neck width	Base width	Maximum thickness
Alba	41CV1441	–	1	indeterminate	23.3	–	–	6.1	5.8	4.6	3.1
Granbury	41CV41	A	3	Fort Hood Yellow	16.2	–	–	–	–	16.2	3.0
Perdiz	41CV1555	–	2	indeterminate	29.2	23.0	15.6	6.2	6.1	–	3.7
Scallorn	41CV1553	–	2	Cowhouse White	28.0	20.7	14.7	7.3	6.1	–	3.8
Untyped	41CV41	A	1	Fort Hood	27.4	–	–	–	–	–	2.8

Note: All measurements are in millimeters.

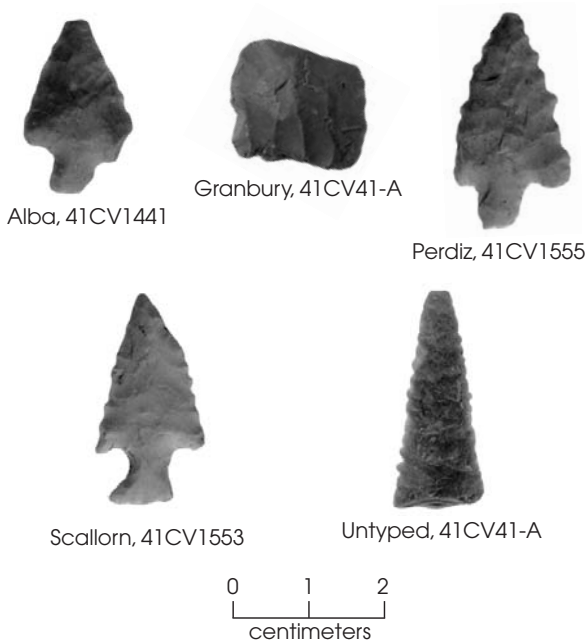

Figure 6.1. Arrow points.

at 41BL349, and 13 (30.2 percent) at 41CV41A (Table 6.3). Twenty-seven diagnostic points are assigned to 10 named types; 8 points each were either untyped or untypeable fragments. In general, dart points are much larger than arrow points, but the primary distinction is that the dart point neck widths, assumed to represent the approximate diameter of the shafts to which they were attached, are all greater than 10 mm. The 25 dart points with measurable neck widths range from 13.2 to 22.7 mm (Table 6.4).

Castroville

One of the two points is a proximal fragment with a broad blade (36.8 mm) and fairly straight lateral edges (Figure 6.2). The slightly expanding stem has a concave base. The second fragment is a barb that measures 17.3 mm long and 3.1 mm thick.

Darl

Two nearly complete specimens are crudely made and somewhat thick (5.9–8.9 mm); the stem edges and base of the thicker point are ground (see Figure 6.2). A third, nearly complete point is thinner (5.2 mm) and has an alternately beveled blade and stem. Two slightly expanding bases are concave, and one point has a straight stem and base.

Ensor

One complete point, three nearly complete specimens, and four proximal fragments were recovered from 41CV41-A (Figure 6.3). Six bases are fairly straight, one is convex, and another has a shallow notch. Most are finely chipped, and one proximal fragment was broken during excavation. Two nearly complete points have serrated blades, and one of these is also alternately beveled. One proximal fragment

Table 6.3. Dart point types by site and analysis unit

Site	Subarea	Analysis Unit	Castroville	Darl	Ensor	Frio	Godley	Lange	Pedernales	Provisional Type 1	Wilson	Zephyr	Untyped	Untypeable	Total
41BL349	–	1	2	2	–	–	1	1	5	–	–	–	4	5	20
41CV41	A	1	–	–	1	–	–	–	–	1	–	–	–	–	2
		2	–	–	7	–	–	–	–	–	1	–	1	1	10
		3	–	–	–	–	–	–	1	–	–	–	–	–	1
41CV579	–	2	–	1	–	–	–	–	–	–	–	1	–	–	2
		3	–	–	–	–	–	–	–	–	–	–	1	–	1
41CV1441	–	1	–	–	–	1	–	–	–	–	–	–	1	–	2
41CV1443	A	2	–	–	–	–	–	–	–	–	–	–	–	1	1
41CV1553	–	3	–	–	–	–	–	–	–	–	–	–	–	1	1
41CV1556	B	1	–	–	–	–	–	–	2	–	–	–	1	–	3
Total			2	3	8	1	1	1	8	1	1	1	8	8	43

Table 6.4. Classification and metric attributes of dart points

Type	Site	Subarea	Analysis unit	Maximum length	Blade length	Blade width	Haft length	Neck width	Base width	Maximum thickness	Chert type
Castroville	41BL349	–	1	39.5	–	36.8	12.8	22.7	22.4	5.4	indeterminate
	41BL349	–	1	17.3	–	–	–	–	–	3.1	Heiner Lake Translucent Brown
Darl	41BL349	–	1	54.9	39.5	22.1	15.4	19.3	17.0	8.9	Heiner Lake Translucent Brown
	41BL349	–	1	46.4	32.7	–	13.7	14.1	–	5.9	Cowhouse Dark Gray
	41CV579	–	2	45.4	36.2	23.4	9.2	15.7	15.5	5.2	indeterminate
Ensor	41CV41	A	1	42.3	33.3	19.4	9.0	13.3	20.2	5.5	Gray-Brown-Green
	41CV41	A	2	46.4	37.4	24.2	9.0	14.9	21.0	5.2	Cowhouse White
	41CV41	A	2	60.7	49.7	25.2	11.0	17.0	22.2	6.3	Fort Hood Yellow
	41CV41	A	2	37.3	–	20.6	8.8	15.4	22.9	5.9	Owl Creek Black
	41CV41	A	2	33.6	–	17.6	9.2	13.2	20.7	6.0	Fort Hood Yellow
	41CV41	A	2	35.2	–	22.7	7.7	15.1	21.2	5.6	indeterminate
	41CV41	A	2	37.3	29.6	–	7.7	13.7	20.5	5.0	Owl Creek Black
	41CV41	A	2	39.3	–	–	–	–	–	5.3	Fort Hood Yellow
Frio	41CV1441	–	1	33.6	23.1	–	10.5	15.5	15.4	7.2	indeterminate
Godley	41BL349	–	1	51.7	–	25.5	17.5	16.5	17.7	8.2	indeterminate
Lange	41BL349	–	1	37.4	–	–	15.3	17.2	19.6	8.3	Fort Hood Gray
Pedernales	41BL349	–	1	44.8	–	36.4	21.8	22.6	17.9	8.0	indeterminate
	41BL349	–	1	54.2	–	–	–	–	–	9.5	Heiner Lake Translucent Brown
	41BL349	–	1	26.9	–	–	–	–	–	6.3	indeterminate
	41BL349	–	1	19.8	–	–	–	–	–	7.0	indeterminate
	41BL349	–	1	11.2	–	–	–	–	–	5.4	indeterminate
	41CV41-A	–	3	41.3		33.1	12.3	14.4	14.9	5.7	indeterminate
	41CV1556	B	1	39.6	–	34.9	12.8	17.9	14.7	7.8	Fort Hood Yellow
	41CV1556	B	1	41.0	–	–	16.8	20.3	–	8.0	Anderson Mountain Gray
Provisional Type 1	41CV41	A	1	38.2	–	29.4	16.0	14.0	13.3	6.3	Fort Hood Yellow
Wilson	41CV41	A	2	33.0	–	–	12.2	18.7	22.5	6.8	Heiner Lake Translucent Brown
Zephyr	41CV579	–	2	54.4	41.4	21.8	13.0	16.5	18.5	5.4	Fort Hood Yellow
Untyped	41BL349	–	1	56.2	38.9	21.9	17.3	13.5	10.2	6.8	Heiner Lake Translucent Brown
	41BL349	–	1	53.6	36.9	19.7	16.7	17.6	15.9	7.2	Heiner Lake Translucent Brown
	41BL349	–	1	28.2	–	–	–	–	–	10.0	Anderson Mountain Gray
	41BL349	–	1	17.0	–	–	–	–	–	4.5	Heiner Lake Translucent Brown
	41CV41	A	2	10.2	–	–	–	–	–	4.4	indeterminate
	41CV579	–	3	39.3	–	19.9	–	14.5	–	4.8	Fort Hood Yellow
	41CV1441	–	1	21.6	–	–	–	–	–	5.9	indeterminate
	41CV1556	B	1	22.9	–	–	19.1	17.2	17.8	8.9	indeterminate
Untypeable	41BL349	–	1	10.7	–	–	–	–	–	4.7	indeterminate
	41BL349	–	1	15.8	–	–	–	–	–	4.5	Anderson Mountain Gray
	41BL349	–	1	14.2	–	–	–	–	–	4.9	indeterminate
	41BL349	–	1	19.7	–	–	–	–	–	1.9	indeterminate
	41BL349	–	1	27.1	–	–	–	–	–	5.9	indeterminate
	41CV41	A	2	31.8	–	–	–	–	–	5.9	Fort Hood Yellow
	41CV1443	A	2	17.4	–	–	–	–	–	2.8	indeterminate
	41CV1553	–	3	31.4	–	–	–	–	–	4.8	indeterminate

Note: All measurements are in millimeters.

exhibits reworking, has an alternately beveled serrated blade and ground base, and may have been used as a drill.

Frio

The nearly complete, heavily reworked Frio point has a shallow basal notch (Figure 6.4).

Godley

This proximal fragment has a slightly expanding stem with a convex base (see Figure 6.4). Its lateral edges are parallel, and the pronounced shoulders lack barbs.

Lange

This proximal fragment is thick (8.3 mm) and has a weakly expanding stem and a straight base (see Figure 6.4).

Pedernales

All eight Pedernales points are proximal fragments having almost straight to contracting stems with shallow basal notches (Figure 6.5). Two specimens show evidence of intense heating, and one is made of an indeterminate nonlocal chert (translucent speckled brown).

Provisional Type 1

This point type has been identified at several sites on Fort Hood (Kleinbach et al. 1999:335–344). It appears to date to Collins' (1995) Bulverde interval (ca. 4,000–3,300 B.P.), and possibly somewhat earlier in the Nolan Travis interval (ca. 5,500–4,000 B.P.). This proximal fragment has a rectangular stem with a straight base and lateral edges, along with strong, unbarbed shoulders (Figure 6.6).

Wilson

The Wilson point consists of a proximal fragment with an expanding stem and straight base (see Figure 6.6). The stem edges and base are heavily ground.

Zephyr

This finely chipped, nearly complete point has an alternately beveled and serrated blade (see Figure 6.6). The slightly expanding stem has a concave base.

Untyped Dart Points

Eight untyped dart points consist of two complete specimens, five proximal fragments, and one medial fragment (Figure 6.7). One

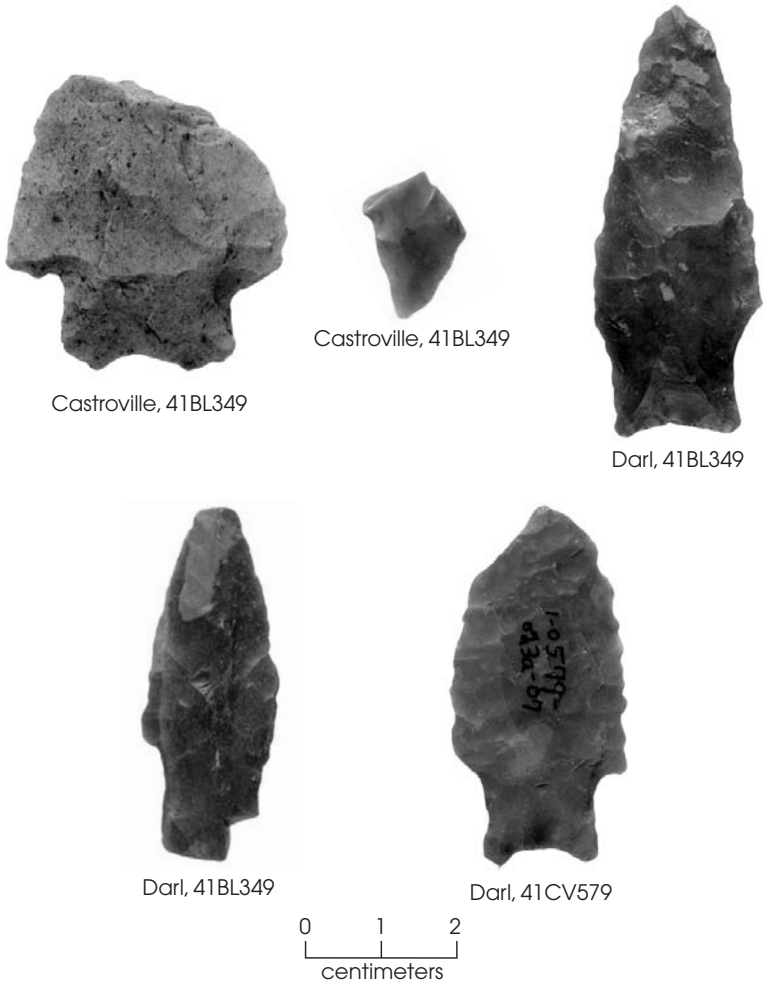

Figure 6.2. Castroville and Darl dart points.

Figure 6.3. Ensor dart points, 41CV41-A.

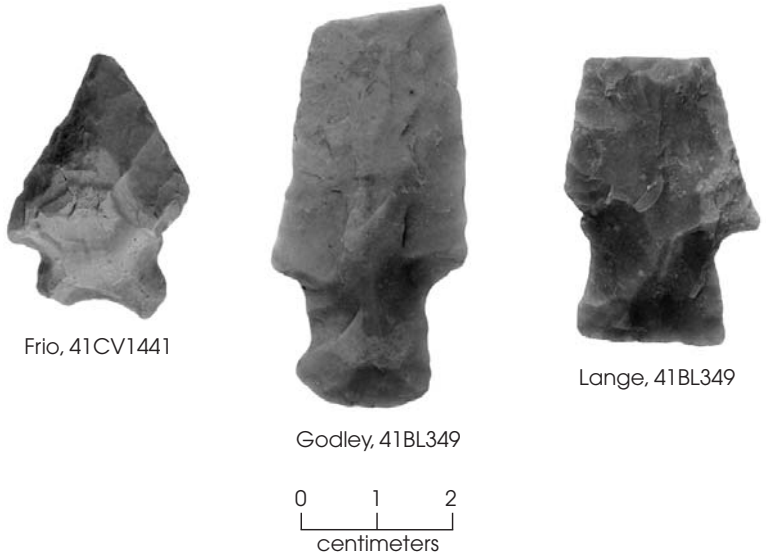

Figure 6.4. Dart points.

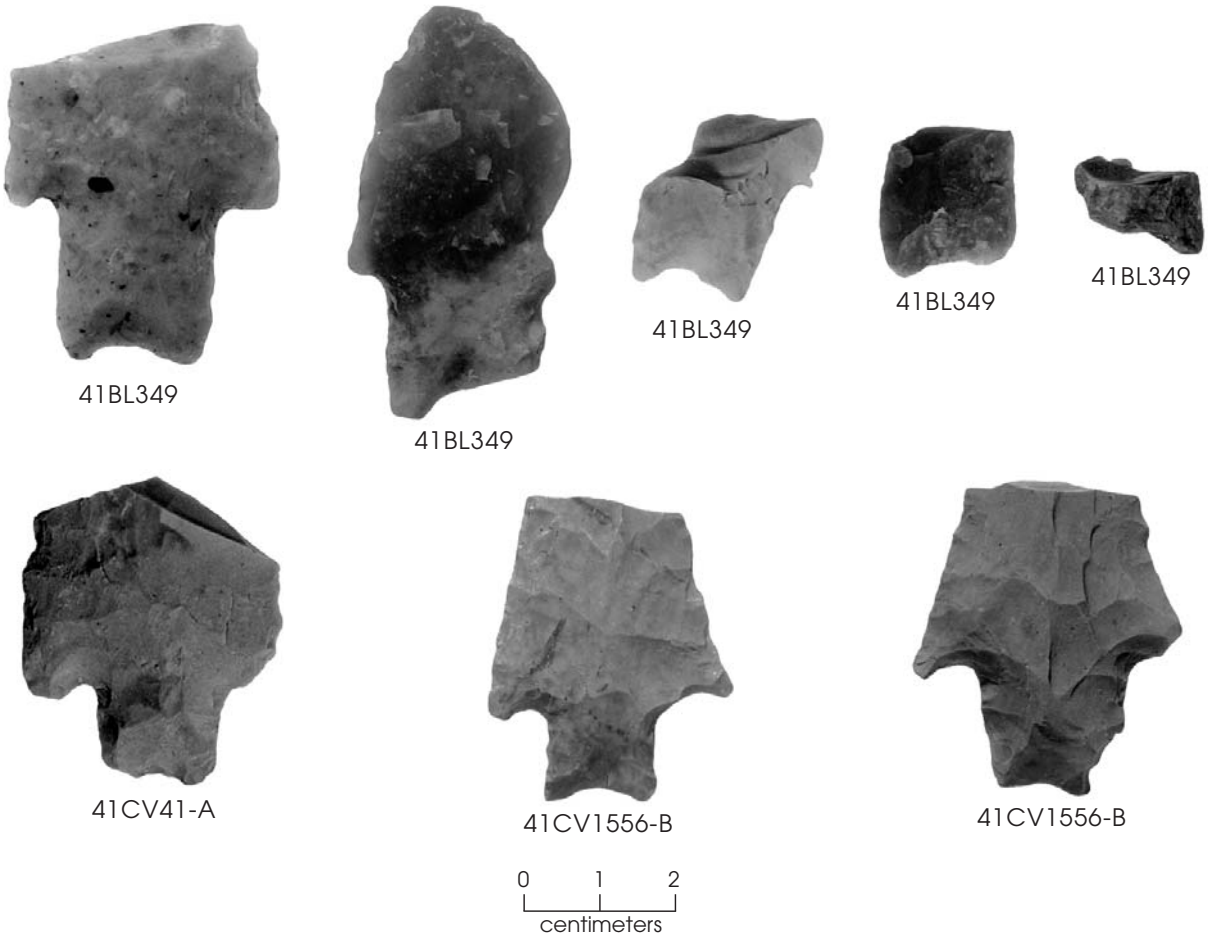

Figure 6.5. Pedernales dart points. The specimen in upper left is made of indeterminate nonlocal chert.

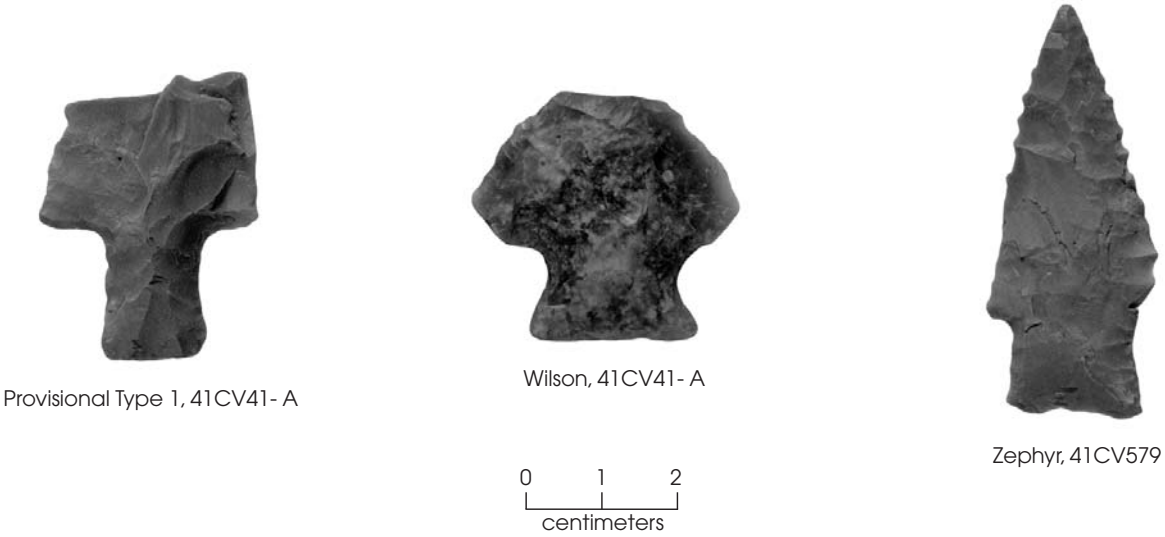

Figure 6.6. Dart points.

complete point is reworked and has straight lateral blade edges. Its weak shoulders lack barbs, and the rounded base has straight stem edges. The other complete point has a narrow blade (19.7 mm) with fairly straight lateral edges. Its contracting stem has a shallow basal notch. One thick proximal fragment (10.0 mm) has a broken stem, but the remaining stem edge is beveled. The other four proximal fragments consist solely of stems. One stem is slightly expanding and has a convex base. Although untyped, one small stem appears to be an Ensor dart point. The third stem exhibits a double burin, and its remaining stem edge and base are ground. The fourth stem is weakly expanding with a concave base. Its stem edges and base are heavily ground.

Untypeable Dart Points

Eight dart points are too fragmentary to be classified to a named type. These specimens consist of one medial and six distal fragments, as well as one barb. Two of the distal fragments have beveled edges.

Other Chipped Stone Tools

Excluding dart and arrow points, 310 chipped stone tools were recovered and later classified into 13 different categories (Table 6.5). These specimens were found in association with 17 different analysis units at 11 sites.

Perforator

These bifacially flaked specimens consist of three distal fragments and one nearly complete tool (broken during excavation). The latter is a long (102.1 mm), triangular artifact that tapers toward the tip (Figure 6.8). The base of the tool is smooth from use or haft wear.

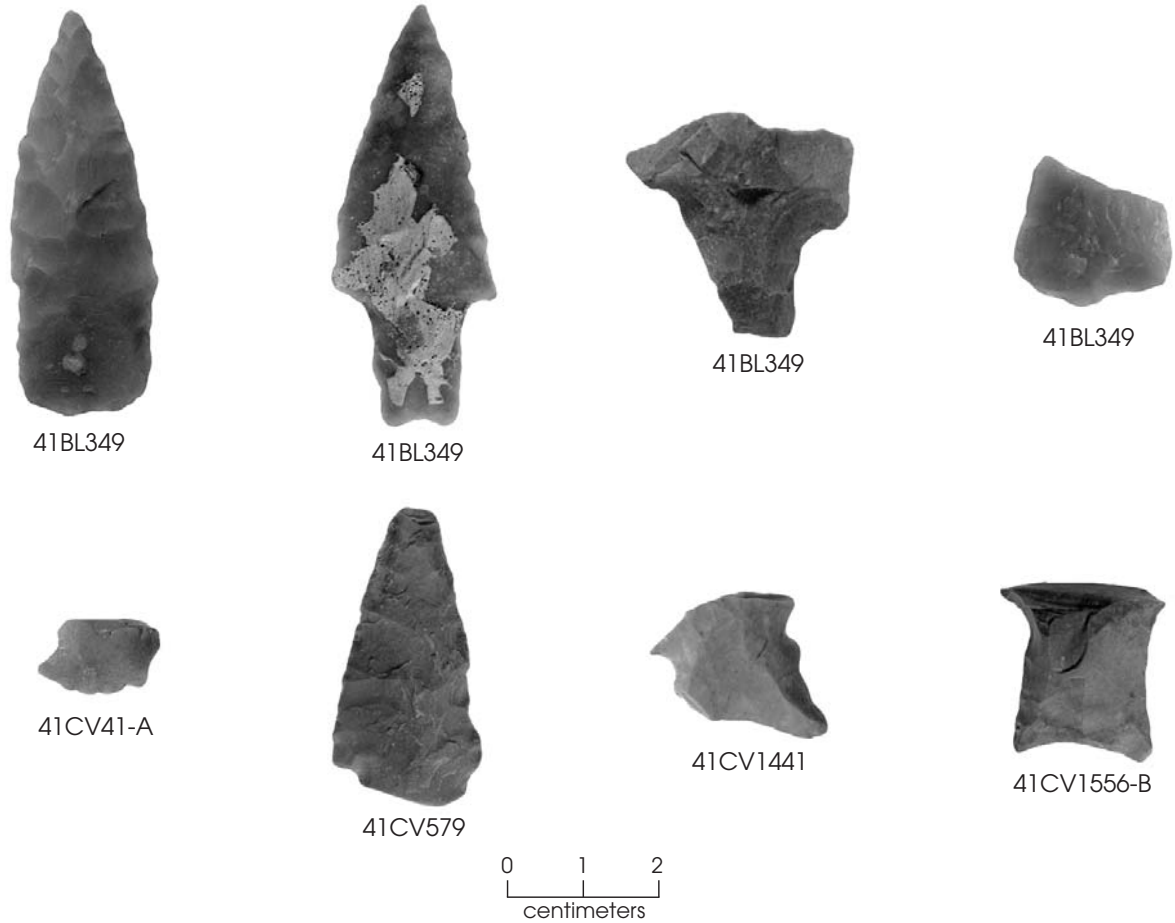

Figure 6.7. Untyped dart points.

Table 6.5. Summary of other chipped stone tools

Site	Subarea	Analysis Unit	Perforators	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous bifaces	End scrapers	Side scrapers	End-Side scraper	Miscellaneous unifaces	Spokeshaves	Graver-Burins	Core tools	Multifunctional tools	Edge-modified flakes	Total
41BL349	–	1	3	1	17	6	1	1	–	4	1	1	–	1	23	59
41CV41	A	1	–	3	2	2	–	–	–	1	–	1	–	1	6	16
		2	–	3	11	1	–	1	1	4	1	–	–	3	61	86
		3	–	2	5	3	–	–	–	3	–	1	4	2	49	69
Subtotal			0	8	18	6	0	1	1	8	1	2	4	6	116	171
41CV94	A	1	–	–	–	–	–	–	–	1	1	–	–	–	4	6
41CV579	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	1
		2	1	2	4	3	–	–	–	1	1	–	1	1	14	28
		3	–	2	1	–	–	–	–	–	–	–	–	–	7	10
Subtotal			1	4	5	3	0	0	0	1	1	0	1	1	22	39
41CV668	B	1	–	1	–	1	–	–	–	–	–	–	–	–	–	2
41CV956	B	1	–	–	–	–	–	–	–	–	–	–	–	–	9	9
41CV1441	–	1	–	–	1	–	1	–	–	–	–	–	–	–	4	6
41CV1443	A	2	–	–	–	–	–	–	–	–	–	–	–	–	1	1
41CV1553	–	1	–	–	–	–	–	–	–	–	–	–	–	–	2	2
		2	–	–	–	–	–	–	–	–	–	–	1	–	–	1
		3	–	–	3	–	–	–	–	–	–	–	–	–	1	4
Subtotal			0	0	3	0	0	0	0	0	0	0	1	0	3	7
41CV1555	–	2	–	–	–	–	–	–	–	–	–	–	–	–	2	2
41CV1556	B	1	–	3	–	1	–	–	–	1	–	–	–	–	3	8
Total			4	17	44	17	2	2	1	15	4	3	6	8	187	310

Figure 6.8. Perforator, 41CV579.

Bifaces

The 78 bifaces (Table 6.6) are divided into 17 early- to middle-stage (21.8 percent), 44 late-stage to finished (56.4 percent), and 17 miscellaneous (21.8 percent). Of the 17 early- to middle-stage bifaces, 8 are complete or nearly complete, and the other 9 are fragments. Most of these bifaces are crude and thick, but several have been shaped and retain little if any cortex (Figure 6.9). The late-stage to finished bifaces consist of 4 complete or nearly complete specimens, along with 8 proximal, 10 medial, 14 distal, 5 edge, and 3 indeterminate fragments. Generally, the late-stage to finished bifaces are triangular, finely flaked, and thin, but a few are manufacturing failures that retain a high spot (or plateau of step fractures) on one surface that could not be reduced further. Four specimens exhibit utilized lateral edges, and a fifth has a smooth base resulting from use or possibly hafting. The 17 miscellaneous bifaces consist of 1 proximal, 1 medial, 1 distal, 13 edge, and 1 indeterminate fragment.

Unifaces

The 20 unifaces (Table 6.7) include 2 end, 2 side, and 1 end-side scrapers (Figure 6.10). The other 15 specimens are typed as miscellaneous unifaces. The 5 scrapers consist of 4 complete specimens and 1 distal fragment. Four scrapers retain more than 50 percent cortex, and one side scraper has none. The 15 miscellaneous unifaces consist of 4 complete specimens and 4 proximal, 3 distal, and 4 edge fragments. These artifacts are too fragmentary to be further classified.

Spokeshaves

Four spokeshaves consist of flakes with unifacially worked notches. They are comprised of two complete specimens, one proximal fragment, and one edge fragment.

Gravers

All three specimens are gravers made on flake fragments.

Table 6.6. Summary of bifaces by completeness and stage of manufacture or type

Completeness	Early- to middle-stage	Late-stage to finished	Miscellaneous	Total
Complete	7	2	–	9
Nearly complete	1	2	–	3
Proximal fragment	5	8	1	14
Medial fragment	2	10	1	13
Distal fragment	1	14	1	16
Edge fragment	1	5	13	19
Indeterminate fragment	–	3	1	4
Total	17	44	17	78

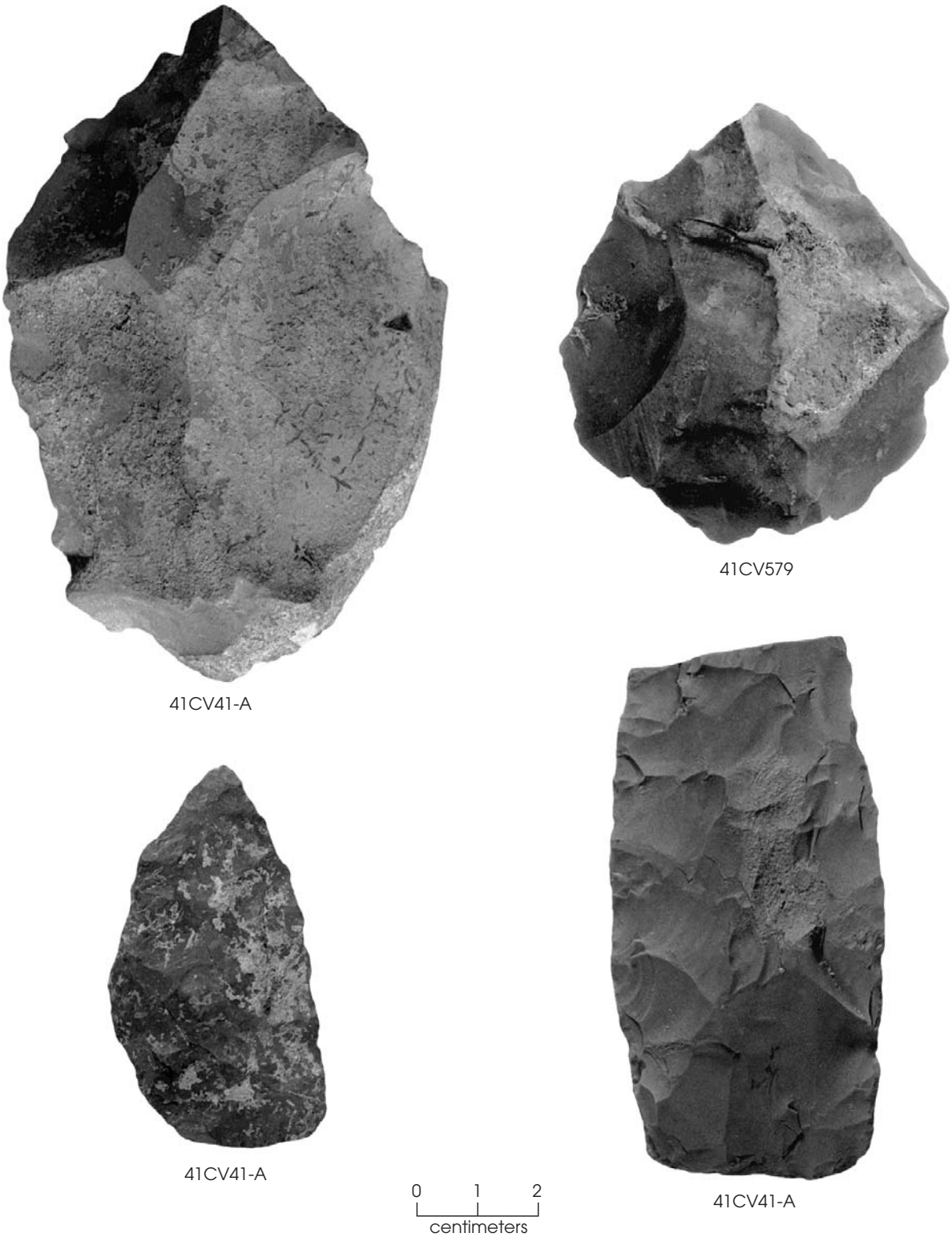

Figure 6.9. Bifaces.

Table 6.7. Summary of unifaces by completeness and tool type

Completeness	End scrapers	Side scrapers	End-side scraper	Miscellaneous unifaces	Total
Complete	2	1	1	4	8
Proximal fragment	–	–	–	4	4
Distal fragment	–	1	–	3	4
Edge fragment	–	–	–	4	4
Total	2	2	1	15	20

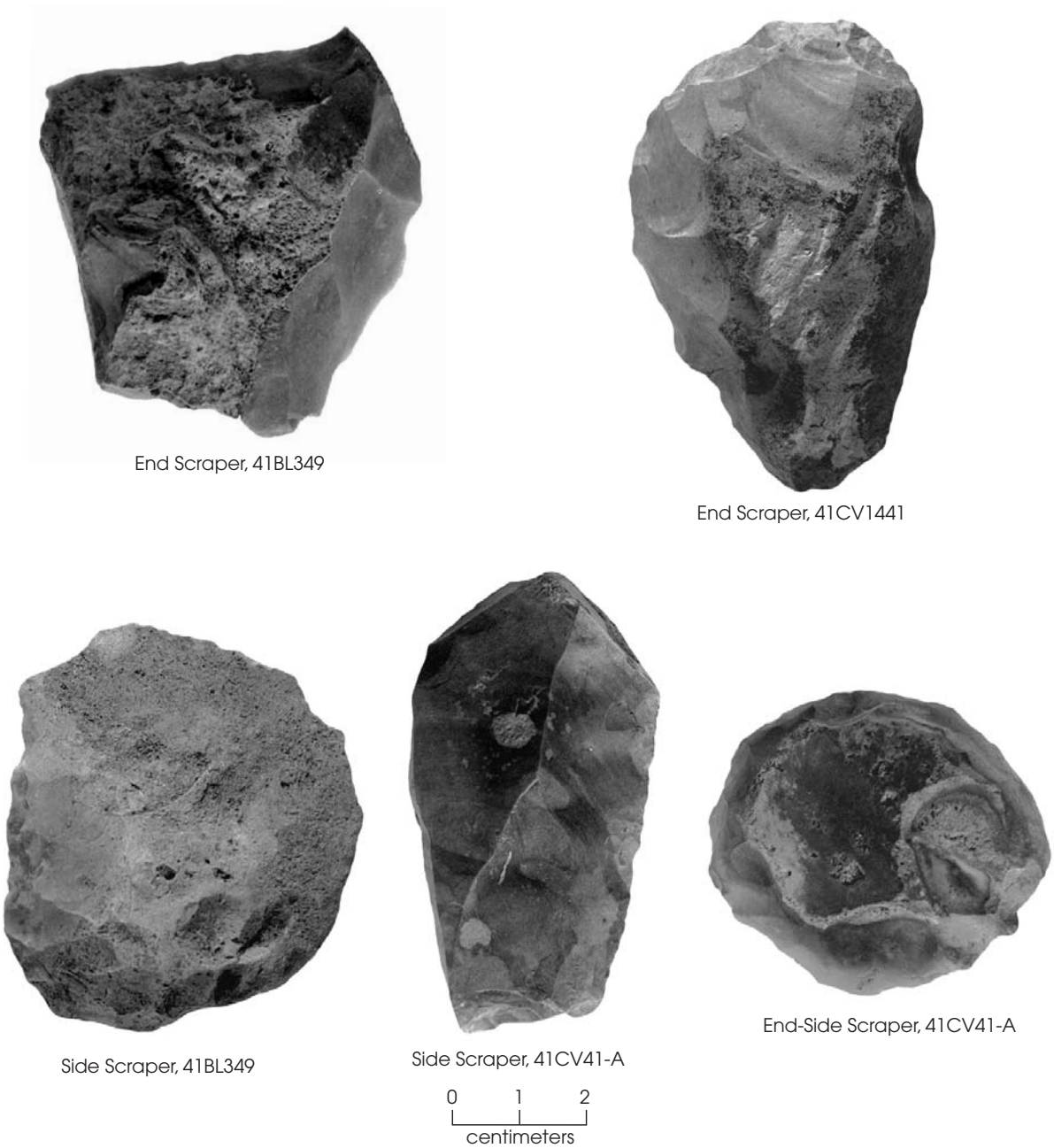

Figure 6.10. Unifaces.

Core Tools

Six complete core tools retain less than 50 percent cortex and exhibit evidence of battering along a lateral or distal edge. Most are subrectangular in shape, but a few smaller specimens are round to ovate.

Multifunctional Tools

Of the eight multifunctional tools recovered, five are complete and the others consist of a proximal, a distal, and an indeterminate fragment. Two served as expedient tools consisting of an edge-modified flake and graver, and five are combinations of edge-modified flakes, spokeshaves, gravers, and miscellaneous unifaces. One formal tool may be classified as a Friday biface (Elton Prewitt, personal communication 2000) and functioned as a knife and spokeshave (Figure 6.11). This long (139.0 mm), thin (7.2 mm) tool has utilized lateral edges, particularly along the medial portion of the artifact. A shallow concavity in the base exhibits unifacial modification indicative of use as a spokeshave.

Edge-modified Flakes

Edge-modified flakes (n = 187) make up 60.3 percent of the 310 chipped stone tools. Complete or nearly complete specimens total 115 (61.5 percent); the rest are fragments classified as proximal (n = 18, 9.6 percent), medial (n = 15, 8 percent), distal (n = 32, 17.1 percent), and edge (n = 7, 3.8 percent).

Cores

Nine cores consist of seven complete artifacts, one distal, and one edge fragment. Three exhibit extensive flake removals and retain no cortex. Slightly more than half (n = 5, 55.6 percent) retain 1 to 50 percent cortex and are moderately worked. Only one (11.1 percent) specimen retains 50 to 99 percent cortex.

As shown in Figure 6.12, one unusual specimen is a cone-shaped core fragment from 41CV579. It is the distal end of a polyhedral core (Steve Tomka, personal communication 2000; LeRoy Johnson, personal communication 2000). The specimen has maximum dimensions of 13.0x10.4x7.8 mm. The tip of the cone has step fractures and impact scars, presumably from the distal end of the core having rested on an anvil while flakes were removed. The sides of the cone show distal ends of flake scars that originated much higher up on the core. The base of the cone is a flat surface that is very slightly curved. It may have been snapped off the end of an elongated core, or it may be the end of a plunging or hinge-terminated flake (see Whittaker 1994:17, Figure 2.4). This type of plunging flake

Figure 6.11. Multifunctional tool (Friday biface), 41CV41-A.

made on a polyhedral core is best illustrated by Tixier (1974:Figures 7.5 and 7.6) and is replicated in the Figure 6.12 illustrations. In either case, there is no definitive evidence to determine if it was a snap break or the broken end of a long, hinge-terminated flake. Critical evidence is missing because there is damage along one edge of the cone's flat surface. Tiny flake scars around the edge of the cone originate from the flat cone base, indicating that the specimen was damaged after the break occurred. It is possible that this small core fragment served as some type of tool, such as a small punch, and that some of the distal tip damage and basal flake scars are the result of use. Regardless, polyhedral cores are rare in central Texas lithic assemblages. This specimen was recovered from burned rock midden deposits at 41CV579 that appear to date to the terminal end of the Late Archaic period, ca. A.D. 700 to 1000 (see Chapter 5).

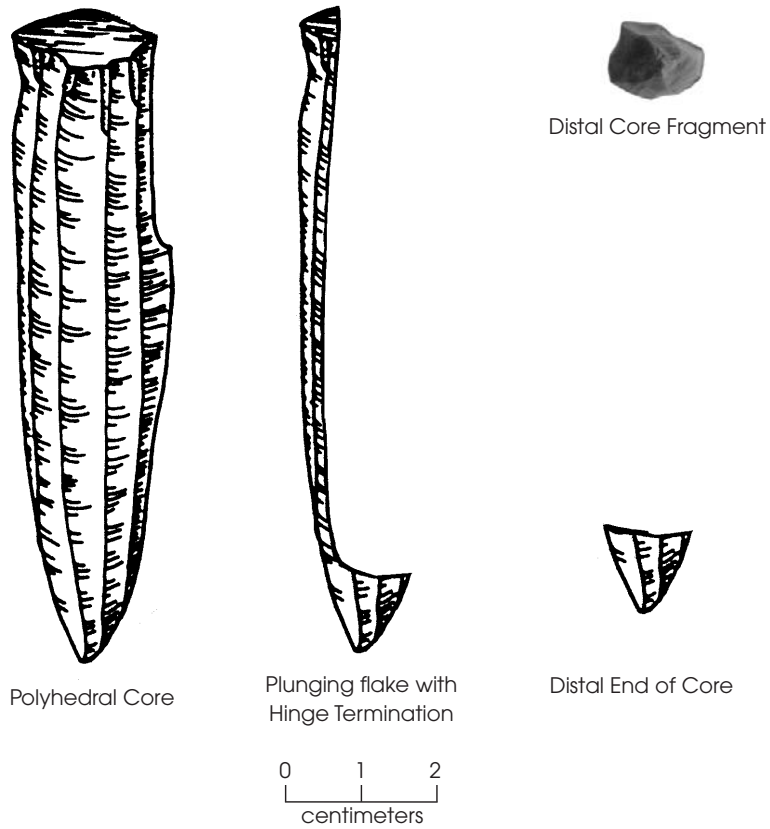

Figure 6.12. Polyhedral core fragment from Feature 1, 41CV579, and reconstructed polyhedral core.

Unmodified Debitage

This artifact type typically dominates the chipped stone assemblage at each site. A total of 6,729 pieces of unmodified debitage were recovered: 2,382 (35.4 percent) are complete, 1,507 (22.4 percent) are proximal fragments, 2,720 (40.4 percent) are chips, and 120 (1.8 percent) are chunks (i.e., angular fragments). Based on the amount of dorsal cortex present, 163 (2.4 percent) are primary flakes, 659 (9.8 percent) are secondary, and 5,907 (87.8 percent) are tertiary. Table 6.8 summarizes the data for dorsal cortex by site and analysis unit.

GROUND AND BATTERED STONE ARTIFACTS

Five ground and battered stone artifacts consist of a metate fragment (41BL349, Feature 1), an indeterminate ground stone fragment (41CV1553, Analysis Unit 2), a nutting stone (41CV1553, Analysis Unit 1, Feature 1), a mano-hammerstone (41CV41-A, Analysis Unit 3, Feature 2), and a hammerstone (41CV41-A, Analysis Unit 2). The first three specimens are burned limestone fragments associated with burned rock features indicating that these tools were recycled as hearthstones. The metate weighs 493 g, and its grinding surface has maximum dimensions of 88.1x60.2 mm. The indeterminate fragment (319 g) has a much smaller (36.9x35.0 mm) ground area. The nutting stone is a tabular rock measuring 190x170x59 mm and weighing 2,354 g. It has a shallow, pitted depression measuring 56.3x41.2x11.3 mm in its center. When removed, this complete artifact was intensively burned and fractured into three pieces. Weighing 212 g, the complete ovate mano-hammerstone

Table 6.8. Summary of unmodified debitage by amount of remaining dorsal cortex

Site	Subarea	Analysis Unit	Percentage of Cortex Remaining 0%	1–50%	50–99%	100%	Total
41BL192	A	1	–	–	–	1	1
41BL349	–	1	1,674	109	21	4	1,808
41CV41	A	1	355	47	7	–	409
		2	2,241	227	37	4	2,509
		3	847	153	44	5	1,049
Subtotal			3,443	427	88	9	3,967
41CV94	A	1	31	3	–	–	34
41CV579	–	1	67	6	4	1	78
	–	2	224	43	13	6	286
	–	3	47	11	3	2	63
Subtotal			338	60	20	9	427
41CV668	B	1	28	4	1	–	33
41CV956	B	1	63	15	3	–	81
41CV1441	–	1	86	11	3	2	102
41CV1443	A	2	6	2	–	–	8
41CV1553	–	1	7	1	–	–	8
		2	22	4	–	–	26
		3	6	1	–	–	7
Subtotal			35	6	0	0	41
41CV1555	–	1	2	–	–	–	2
		2	11	–	–	–	11
Subtotal			13	0	0	0	13
41CV1556	B	1	190	22	1	1	214
Total			5,907	659	137	26	6,729

has maximum dimensions of 66.6x51.0x44.1 mm. The artifact was extensively shaped and heavily used, with the distal end of this unburned quartzite cobble ground flat and smooth. Two surfaces also are smooth and minimally pecked. Two edges (including the proximal end of the rock) show evidence of battering. The circular hammerstone is an unburned fragment of a quartzite cobble that exhibits battering along its entire edge. This specimen measures 71.4x74.4x33.0 mm and weighs 256 g. Although one surface is fairly flat, no evidence of grinding was apparent.

OTHER STONE ARTIFACT

Weighing 654 g, this single specimen is a hematite-stained, limestone burned rock recovered from an extensive occupation zone at 41CV1553. This nearly complete specimen has maximum dimensions of 150.2x115.6x35.1 mm, but it broke into five pieces post excavation. Although one surface is covered with yellow and red ochre and apparently was used for crushing or grinding pigment, no evidence of grinding is visible.

CERAMICS

At 41CV41-A, one test unit placed on Feature 2 yielded eight prehistoric ceramic sherds (Figure 6.13), some with a distinctive engraved design.[1] An analysis Perttula (2000; Perttula et al. 2003) conducted indicates that seven body sherds (two are conjoinable) are from the same vessel—an engraved bottle of Late

[1] The single incised potsherd Mariah Associates found at 41CV41 in 1992 came from the same general area as these sherds (see Trierweiler 1994:A607–A614) and is likely from the same vessel. The total number of sherds recovered from this site to date is nine.

Caddoan design. The bottle was made by coiling and fired in a reducing environment, which its black core indicates. The exterior is also black in color and had been polished; its interior is gray and unsmoothed, with the exception of a few wipe marks on several sherds. The vessel body walls range from 5.6 to 6.8 mm thick. Petrographic analysis of two of these sherds reveals that the natural sandy clay matrix consists of poorly sorted grains of quartz with minor amounts of micrite, hematite, and calcite, as well as some natural shell fragments. Larger grains of quartz, crushed shell fragments, and grog (crushed potsherd) fragments were added as temper (Perttula et al. 2003). One larger sherd has three closely spaced engraved lines that may be from a series of concentric circles centered on the vessel body, with an intersecting engraved line with two excised triangles pendant from the line. Along the outermost concentric engraved line is a scroll that has been well defined by closely spaced crosshatched engraved lines. Four other sherds have portions of the crosshatched engraved scroll. And one sherd has a portion of the crosshatched engraved scroll and a curvilinear engraved line parallel to it with two excised triangles pendant from the line. These bottle sherds appear to be from a Taylor Engraved vessel, a type commonly found in Titus phase contexts (ca. A.D. 1430–1680) in the Big Cypress Creek basin in Northeast Texas (Perttula 1992; Perttula et al. 1995).

The eighth sherd is small and poorly fired; it appears to be the rim of a vasiform Toyah phase smoking pipe. The sherd is only 2.8 mm thick and was incompletely oxidized during firing. The light gray- to buff-colored exterior surface is pocked and rough, and the interior has been poorly smoothed.

The finding of Caddoan-style engraved sherds at 41CV41-A initiated a search for other finds of similar pottery on and close to Fort Hood. Through an examination of published data and ceramic collections, 12 sites on Fort Hood were identified as having yielded plain and decorated pottery (Abbott and Trierweiler 1995:425–450, 483–498, 552–567, 758–760, and Appendix E; Carlson et al. 1987:311; Carlson et al. 1988:159; Mehalchick et al. 2000; Skinner et al. 1984:84; Thomas 1978:208; Trierweiler 1994:A339–A342, A607–A614, A1314–A1320; Trierweiler 1996:573–576). The pottery-producing sites on Fort Hood are:

41BL181	1 sherd, unspecified type
41BL596	1 incised sherd
41CV41-A	8 engraved sherds; 1 possible pipe sherd
41CV48	1 plain bone-tempered sherd
Unreported site near 41CV92	1 engraved sherd
41CV174-A	50 plain bone-tempered sherd

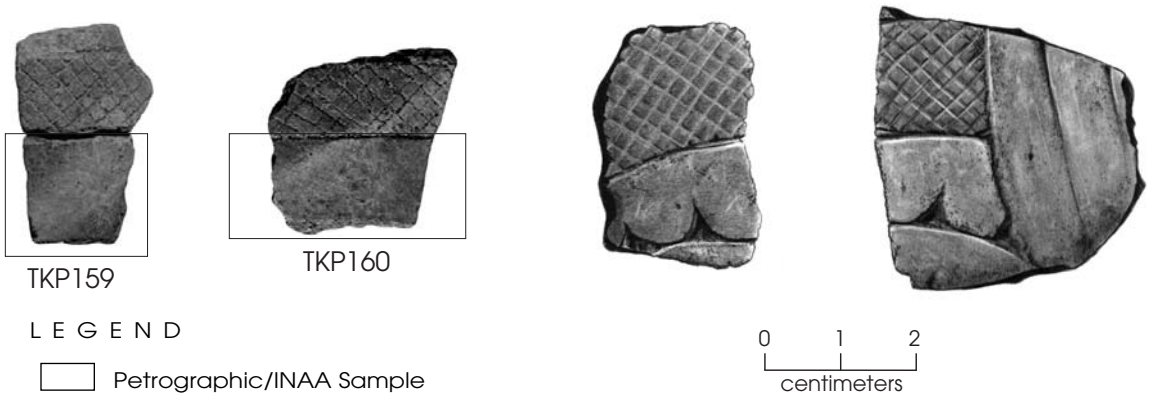

Figure 6.13. Ceramics from Feature 2, 41CV41-A. Sherd photographs on left show portions removed for petrographic and instrumental neutron activation analyses. Sherds on right are line drawings by Gregg Cestaro.

41CV240	10 sherds, unspecified type
41CV344	25+ sherds from several different vessels; 5 refit sherds are engraved
41CV960-A	1 grog-tempered sherd
41CV1038-A	1 plain bone-tempered sherd; 8 brushed sherds
41CV1169	1 sandy paste sherd
41CV495	1 plain bone-tempered sherd

After examing the pottery in the Fort Hood collection (housed at the Cultural Resources Management Program office on Fort Hood), Prewitt and Associates contracted with Tim Perttula to conduct geochemical studies of selected sherds from Fort Hood and comparable ceramic materials from other nearby sites. This study, documented in a separate report (Perttula et al. 2003), examined a sample of 27 sherds from sites in Bell, Coryell, Hill, McClennan, and Williamson Counties (10 sherds are from five Fort Hood sites, and 17 sherds are from six other sites). Two fragments were cut from each sherd, and one piece was examined using instrumental neutron activation analysis (INAA). The other piece from each sherd was thin sectioned and examined using petrographic analysis. Ceramic types represented in the sample are brushed, brushed-punctated, engraved (including Patton Engraved and Taylor Engraved), fingernail punctated, incised, incised-punctated, and plain bone-tempered (including something akin to Goliad Plain). Based on comparative analyses of the INAA and petrographic data, Perttula et al. (2003) concluded that 23 of the 27 sherds are apparently from vessels manufactured by Caddoan groups in northeast Texas between ca. A.D. 1,000 and 1,700. The other five sherds (one engraved and four plain bone-tempered) appear to represent locally made central Texas ceramics. This study confirmed the long-held suspicion that many of the decorated sherds found at sites in the northeastern portion of central Texas do in fact represent imported Caddoan pots rather than locally made pots decorated in Caddoan styles.

BURNED ROCKS

Ten (83 percent) of the 12 tested sites produced 1,643.45 kg of burned limestone rocks (Table 6.9). Most of the burned rocks (1,367.20 kg; 83.2 percent) were found in feature contexts. Burned rocks encountered in test units were quantified in the field and discarded unless they appeared to be modified. When found in a general level context, they were counted and weighed by level. When they came from discrete feature contexts such as a hearth, the rocks were sorted into size categories, counted, and weighed. No attempt was made to quantify burned rocks visible on the surface or occasional burned rocks in exposures such as trench profiles or roadcuts, but their presence was noted.

All observed burned rocks are limestone and appear to be of local origin. The only physical characteristic distinguished in the field was between fossiliferous (typically pink to bright red when fired and containing many fossils) and nonfossiliferous (usually gray-bluish gray to dull red when burned and containing few, if any, inclusions).

FAUNAL REMAINS

Modified Bones

One spirally fractured unburned bone fragment, identified as belonging to a canid- or deer-sized mammal and found in a burned rock midden at site 41CV579, shows modification (Figure 6.14). This fragment of an awl-like implement measures 44.1x4.5 mm. The long, slender bone tool is round in cross section and appears to be an awl, but its distal end is broken. Unlike the smooth surfaces seen on most bone awls, this tool exhibits deep striations running longitudinally the length of the specimen. These striations may have been created during manufacture (i.e., intentionally), or they made be a byproduct of use. The specimen's distal end was clearly broken after the striations were created, and the break itself may be the result of heavy use. After the break, it appears that the broken end was used in some manner, perhaps as a reamer, because the broken edges

Table 6.9. Summary of burned rocks observed

Site	Subarea	Analysis Unit	Burned rocks in feature contexts (kg)	Burned rocks in nonfeature contexts (kg)	Total burned rocks (kg)
41BL192	–	1	–	–	–
41BL349	–	1	364.05	0.10	364.15
41CV41	A	1	27.50	56.25	83.75
	A	2	50.50	38.60	89.10
	A	3	50.00	0.60	50.60
Subtotal			128.00	95.45	223.45
41CV579	–	1	–	5.10	5.10
	–	2	241.40	–	241.40
	–	3	–	16.00	16.00
Subtotal			241.40	21.10	262.50
41CV956	B	1	–	0.50	0.50
41CV1441	–	1	51.75	13.95	65.70
41CV1443	A	2	128.50	20.95	149.45
41CV1553	–	1	17.00	3.10	20.10
	–	2	173.50	6.40	179.90
	–	3	20.50	5.80	26.30
Subtotal			211.00	15.30	226.30
41CV1555	–	1	65.50	1.85	67.35
	–	2	88.50	89.35	177.85
Subtotal			154.00	91.20	245.20
41CV1556	B	1	88.50	17.70	106.20
Total			1,367.20	276.25	1,643.45

Figure 6.14. Bone awl-like implement from Feature 1, 41CV579.

are rounded somewhat. There also is some edge damage on the broken surface that may be rodent gnawing. How this tool functioned is not known (Brian Shaffer, personal communication 2000).

Unmodified Bones

All vertebrate faunal remains discovered in test units and in natural or manmade exposures (such as cutbanks and tank trails) were collected. Animal bones were recovered from 4 (30 percent) of the 12 sites (Table 6.10). Two sites—41CV41-A and 41CV579—are recommended as eligible for listing in the National Register. A total of 707 specimens from 7 analysis units represent 21 species or taxa; 64 percent (n = 452) were recovered from feature contexts (see Appendix C). Two hundred and four (28.9 percent) specimens show spiral fractures, and 153 (21.6 percent) are burned (see Appendix C). Sites 41CV41-A and 41CV579 produced 658 (93.1 percent) of the 707 bones recovered. Between 20 and 30 percent of the bones at each of these sites were spirally fractured or burned.

Unmodified Mussel Shells

All mussel shell valves and fragments with umbos were collected and examined for

Table 6.10. Summary of vertebrate faunal remains recovered

Site	Subarea	Analysis Unit	Spirally Fractured Bones #	Spirally Fractured Bones %	Burned Bones #	Burned Bones %	Total Bones
41BL192	A	1	6	50.0	0	0.0	12
41BL349	–	1	22	59.5	2	5.4	37
41CV41	A	1	16	28.1	12	21.1	57
41CV41	A	2	45	29.2	24	15.6	154
41CV41	A	3	24	35.8	23	34.3	67
41CV579	–	2	74	21.8	88	26.0	339
41CV579	–	3	17	41.5	4	9.8	41
Total			204	28.9	153	21.6	707

completeness, thermal alteration, and cultural modification. In the field, mussel shell fragments lacking umbos were checked for modification and discarded if they were unmodified. A total of 322 unmodified mussel shells were recovered from three sites—41BL349, 41CV41-A, and 41CV579 (Table 6.11). Most (n = 315, 97.8 percent) occurred at 41CV579, and the most common identified species is *Amblema plicata* (n = 75). Nine other species are represented, and five additional species are tentatively identified (see Chapter 5). None of the remains are burned, and only one umbo fragment from 41CV41-A shows possible modification (i.e., cut marks).

Table 6.11. Summary of mussel shells recovered

Site	Subarea	Analysis Unit	No. of Mussel Shells*
41BL349	–	1	3
41CV41	A	1	4
41CV579	–	1	11
		2	252
		3	52
Total			322

*Only specimens with complete or partial umbos are counted.

MACROBOTANICAL REMAINS

Charred plant remains were recovered from charcoal and flotation samples from feature and nonfeature contexts. Of the 53 charcoal and 46 flotation samples collected and processed, 8 charcoal (including 1 retrieved from a flotation sample) and 33 flotation samples were submitted to the Paleoethnobotanical Laboratory at Texas A&M University for macrobotanical analysis (see Appendix E). Five of the 12 formally tested sites are represented in this sample, and 14 of the 33 flotation samples did not yield identifiable charred plant remains. Fourteen different wood types were identified, with oak being the dominant. Three sites also yielded evidence of food processing in the form of charred acorn, nutshell, or bulb fragments.

SUMMARY AND INTERPRETATIONS OF GEOARCHEOLOGICAL AND ARCHEOLOGICAL DATA

Gemma Mehalchick

7

The 11 open campsites and 1 rockshelter tested during the 1999 field season are scattered across the landscape on Fort Hood. The rockshelter is situated on Manning Mountain, and the open campsites, along eight different creeks or rivers (Table 7.1). Of these sites, only 5 open campsites have discrete cultural components and are recommended as eligible for listing in the National Register. The first section of this chapter summarizes and discusses these sites and others in the same drainage basin or in a similar geomorphic setting as follows:

Owl Creek	41CV41-A
Leon River	41CV579
House Creek (and Clear Creek)	41CV1443-A and 41CV1553
Paluxy Site (on Stampede Creek)	41CV1553

The second section of this chapter is a brief comparative discussion of the cultural features, radiocarbon dates, and material remains from the 12 tested sites. Twenty-one features from seven sites were investigated, and diagnostic artifacts and 14 feature-associated radiocarbon dates provide the temporal control for assessing the age of the cultural components.

OWL CREEK DRAINAGE BASIN

The Owl Creek drainage basin covers an area of approximately 72 km^2 (Nordt 1992: Table 1). Owl Creek flows across and incises the Walnut Formation and drains a large area of the Manning surface. Previous investigations at Owl Creek sites on Fort Hood have concentrated on late Quaternary coarse- and fine-grained fan deposits and alluvium (Kleinbach et al. 1999; Mehalchick, Kleinbach et al. 2000; Trierweiler 1996). These sites tend to be situated south of Owl Creek and are dominated by burned rock midden deposits. Site 41CV41-A is south of and occupies the T_1 terrace of Owl Creek. An unnamed tributary that has deposited late Holocene alluvium (West Range and Ford) inset into the Owl Creek sediments (West Range fill) crosses this terrace. At this site, one analysis unit is buried within each of the three alluvial units. Based on absolute chronometric data, temporally diagnostic artifacts, and depositional characteristics, these analysis units represent multiple prehistoric occupations spanning the Late Archaic through Late Prehistoric periods.

A calibrated radiocarbon date of 410–385 B.C. (1 sigma) on charcoal from a basin-shaped hearth (Feature 5) buried in the Owl Creek terrace and a concurrent peak in cultural materials at the same elevation in a nearby excavation unit suggest that there is a laterally extensive Late Archaic period component present (Analysis Unit 1). Sparse cultural materials were recovered from, and surrounding, the hearth, and no macrobotanical remains occurred in the feature fill. Approximately 35 m away, the associated living surface yielded burned rocks, flakes, canid- to deer-sized bones, and turtle shell. About 40 cm above this high-frequency artifact level, another occupation layer consisting of a basin-shaped hearth (Feature 6) and dense cultural materials was present. The feature did not produce charred plant remains, but contained some flakes and unidentifiable bones. The 30-cm-thick cultural deposit yielded dense burned rocks and debitage, as well as some unmodified bones, a possible cut

Table 7.1. Summary of 12 prehistoric sites

Site	Subarea	Location	Analysis Unit	Geomorphic Setting	Temporal-Cultural Periods	Associated Features
41BL192	A	Seven Mile Mountain	1	rockshelter	none defined	1
41BL349	–	North Reese Creek	1	colluvial slope	probably Late Archaic*	1, 2
41CV41	A	Owl Creek	1	T_1 (Owl Creek)	Late Archaic	5, 6
			2	T_1 (tributary)	Late Archaic–Late Prehistoric (Austin phase)	1, 3, 4
			3	T_1 (tributary)	Late Prehistoric (Toyah phase)	2
41CV94	A, B	Owl Creek	1	T_2/ T_1/T_0	none defined	–
41CV579	–	Leon River	1	T_1	none defined	–
			2	T_1	Late Archaic–Late Prehistoric (Austin phase)	1, 2
			3	T_1	Late Archaic	–
41CV668	B	Owl Creek	1	T_1	none defined	–
41CV956	B	Shoal Creek	1	T_1	none defined	–
41CV1441	–	Clear Creek	1	T_2 / T_1/T_0	none defined	2, 3
41CV1443	A	Clear Creek	1	T_1/T_0	none defined	–
			2	T_1	Late Archaic	1, 2
41CV1553	–	Stampede Creek	1	Paluxy	Protohistoric (Toyah phase)	3
			2	Paluxy		1, 4, 6
			3	slope/terrace	Late Archaic–Late Prehistoric none defined	5
41CV1555	–	House Creek	1	T_1	none defined	–
			2	T_1	Late Prehistoric (Austin phase)	1, 2, 3
41CV1556	B	Ripstein Creek	1	T_1/T_0	none defined	–
Total						

*No chronometric data available.

mussel shell, and expedient and formal tools. Tools included a Friday biface that functioned as a knife and spokeshave, an Ensor dart point, and an untyped arrow point. Although it is not known if this deposit represents a single, predominantly Late Archaic component, it clearly postdates the underlying occupation based on diagnostic artifacts.

Buried in tributary alluvium east of the channel, three features and two cultural zones indicate repeated use of the area during the Late Archaic period and into the Late Prehistoric period (Analysis Unit 2). The 20-cm-thick and 60-cm-thick cultural deposits in two separate excavations yielded moderate amounts of burned rocks and unmodified bones, along with dense lithic artifacts. The faunal assemblage is dominated by mouse- to rabbit-sized and canid- to deer-sized mammals but also includes deer remains. Approximately 30 percent of the bones are spirally fractured. Of 10 dart points recovered from these zones, 7 are typed as Ensor points and an eighth is a probable Ensor point. A calibrated radiocarbon date of 80 B.C. to A.D. 30 (1 sigma) was obtained on charcoal from near the middle of the thicker cultural layer.

A third test unit contained a basin-shaped hearth (Feature 1) and an occupation zone (Feature 4). Separated by 14 cm of sediment, these two stratigraphically discrete features contained charcoal that yielded calibrated radiocarbon dates (1 sigma) of A.D. 645–685 and A.D. 880–990. These assays correspond to the end of the Late Archaic period and the beginning of the Late Prehistoric period (Austin phase). As well as burned rocks, Feature 4 yielded several stone artifacts, and Feature 1 produced charred wood of the willow family.

Feature 3, an occupation zone, yielded few flakes and no macrobotanical remains. The surrounding matrix contained only scattered burned rocks and some debitage. Although it

lacked radiocarbon dates or diagnostic artifacts, the relative stratigraphic position of this feature suggests that it dates to the Late Archaic or early part of the Late Prehistoric period.

On a slightly lower terrace by the tributary (Analysis Unit 3), one test unit encountered Feature 2, a 40-cm-thick burned rock midden. This deposit produced abundant burned rocks and stone artifacts (including a Granbury arrow point and a Pedernales dart point not in stratigraphic sequence), a few unmodified mussel shells, several canid- to deer-sized mammal bones, and some deer and cottontail rabbit remains. About a quarter of the vertebrate assemblage showed spiral fractures. Seven engraved Caddoan pottery sherds representing one vessel and one undecorated piece of a possible Toyah pipe also were recovered. Roughly 1 km west (upstream) of 41CV41, one unit at 41CV48 contained an undecorated sherd identified as Leon Plain and eight additional sherds with brushed exteriors (Trierweiler 1996:157–166). These two sites indicate a strong presence of Caddoan influence in the Owl Creek drainage on Fort Hood. Perttula et al. (2003) present a detailed compositional study of pottery from 41CV41, 41CV48, and other sites on and near Fort Hood. Although inverted, the calibrated (1 sigma) radiocarbon dates of A.D. 1,235–1,285 and A.D. 1,300–1,410 on charcoal from the midden reveal that the feature was accreting at the end of the Austin phase and into the Toyah phase of the Late Prehistoric period. Charred plant remains from the midden consist of oak wood and pecan shell fragments.

Summary

Repeatedly and intensively occupied during the Late Archaic through the Late Prehistoric periods, 41CV41-A contains dated components that span at least 1,820 years, from 410 B.C. to A.D. 1,410. Diverse cultural assemblages representing various stages of lithic reduction; hunting, gathering, and processing; ceramic technology, and trade items are sealed in different depositional settings along Owl Creek and its tributary. Oak wood and pecan shells are the only identified carbonized remains from feature contexts, but the tributary valley supports a relict riparian woodland rarely encountered at Fort Hood. Here, the plant community includes chinquapin oak, bigtooth maple, spicebush, rusty blackhaw viburnum, black walnut, rough-leaf dogwood, and red mulberry. This unique setting may have been an attractive location for Late Prehistoric peoples.

LEON RIVER DRAINAGE BASIN

A 12-km-long stretch of the Leon River forms the northern border of Fort Hood. Within the T_1 terraces along this stretch of the river, previous investigations encountered prehistoric occupations buried in an alluvial soil designated the Leon River paleosol (Mehalchick et al. 1999:219–220). This soil formed on the West Range alluvium and appears to be a significant cultural-bearing deposit. Cultural components within the paleosol date primarily to the latter half of the Late Archaic period and the Late Prehistoric period, Austin phase. Geomorphic evidence indicates a period of surface stability at this time and allowed for intensive use of the floodplain by prehistoric peoples. Occupation zones and hearths that show a suite of activities and excellent preservation of a variety of macrobotanical remains characterize most cultural components in this paleosol.

Although during the 1999 investigations the Leon River paleosol was observed in several excavations and in the cutbank at 41CV579, significant cultural deposits were restricted to the east end of the site (Analysis Unit 3). Here, the paleosol was at least 170 cm thick and capped by Ford alluvium. A 10-cm-thick cultural deposit produced carbonized wood and oxidized soil that yielded a calibrated radiocarbon date of A.D. 250–400 (1 sigma), correlating to the Late Archaic period. Cultural materials consisted of burned rocks, unmodified bones and mussel shells, a few stone tools, and several flakes. A burned rock midden (Feature 1) and an internal basin-shaped hearth (Feature 2) were present approximately 15 cm above the Late Archaic occupation. Calibrated (1 sigma) dates of A.D. 770–890 and A.D. 900–1,005 on the midden deposits, along with Darl and Zephyr dart points, reveal that the midden accreted during the Late Archaic period and Late Prehistoric period, Austin phase (Analysis Unit 2). Burned rocks, stone artifacts, and unmodified vertebrate and invertebrate remains dominate the cultural assemblage. A polyhedral core fragment and one modified canid- to deer-sized bone (an awl-like tool) were recovered. Compared to other Leon

River sites, charred macrobotanical remains (oak wood and hickory nut fragments) were minimal, but the faunal assemblage consists of more than 20 different land and aquatic taxa, including c.f. bobcat and turkey, deer, cottontail rabbit, fish, and turtle. Approximately 24 percent of the vertebrate remains show spiral fractures. A high frequency of shells found in the midden suggest intensive exploitation of fresh water mussels.

Summary

Calibrated charcoal dates (1 sigma) from previously investigated sites in the Leon River Drainage reveal two periods of repeated occupation from ca. 348 B.C.–A.D. 315 and A.D. 898–1,621 (Mehalchick et al. 1999:213–220). At 41CV579, one calibrated radiocarbon date of A.D. 250–400 (1 sigma) falls within the earlier temporal time frame, and two separate assays obtained from midden deposits correspond to the latter period of occupation. This site also provides the first evidence of a burned rock midden, containing a discrete internal hearth, within the Leon River drainage basin on Fort Hood. The midden deposit suggests intensive cooking activities and a reliance on the surrounding plant community. Overall, the cultural assemblage reveals a suite of activities, and the floral and faunal remains reveal the diversity of the aquatic, plant, and animal populations that made the Leon River attractive.

HOUSE CREEK DRAINAGE BASIN

Site 41CV1555 is situated along House Creek, and 41CV1443-A is along Clear Creek. Previously tested sites within the House Creek drainage basin are situated along House, Ripstein, Clear, and Turkey Run Creeks. For comparative purposes, sites included herein are restricted to those situated on terraces adjoining Clear Creek and an unnamed tributary south of House Creek.

Situated on broad T_1 surfaces east of Clear Creek, 41CV117-C and 41CV413-B contain extensive burned rock middens that clearly indicate intensive, repeated occupations (Mehalchick, Killian et al. 2002; Trierweiler 1996:223–233). These terraces encompass Fort Hood, West Range, and Ford alluvium. At both sites, the midden deposits accreted on early- to middle-Holocene gravelly channel fill representing Fort Hood alluvium, with the bulk of the midden consisting of anthropogenic deposits within West Range alluvium.

At 41CV117-C, a severely looted midden yielded dense burned rocks and stone artifacts, several vertebrate (primarily deer) and invertebrate faunal remains, charred white oak wood, and a carbonized bulb fragment of the lily family. Conventional radiocarbon ages of 4,040 ± 50 B.P. and 2,140 ± 50 B.P. (Trierweiler 1996:Appendix F), along with diagnostic artifacts, indicate that the midden accreted during the Middle and Late Archaic periods. The midden at 41CV117-C is similar to one at 41CV413-B, and both yielded large quantities of cultural materials.

Construction activities extensively disturbed the upper deposits of the midden at 41CV413-B. Despite this damage, substantial intact midden deposits remain, and there were stratigraphically discrete hearths within and outside the midden area. Two hearths found within the midden deposits yielded conventional radiocarbon ages of 3,520 ± 50 B.P. and 2,510 ± 50 B.P., and conventional radiocarbon ages of 5,090 ± 50 B.P. and 4,180 ± 50 B.P. were obtained from hearths outside the midden. The chronometric data indicate multiple Middle and Late Archaic occupations. A burial pit originating from the lower midden deposits also intruded into the underlying matrix; analysis of the human remains indicated interment of one individual.

The midden at 41CV413-B produced extremely high quantities of burned rocks, debitage, and expedient and formal tools, including a corner tang knife base. Although there were Early and Middle Archaic dart points present, most (particularly Pedernales points) recovered from the midden context were Late Archaic styles. Unlike many formally tested middens on Fort Hood, this feature yielded a moderate amount of ground stone tools, including several metates recycled as burned rocks. Overall, 24 taxa made up the vertebrate faunal assemblage. Deer and canid- to deer-sized mammals dominated the identified taxa, and 21.7 percent of the assemblage was spirally fractured. Although charred macrobotanical remains were sparse, oak, sycamore, and elm woods; an oak acorn; and one plantain seed were identified.

Upstream from the two previously mentioned sites, 1999 investigations revealed that 41CV1443-A subsumes a series of narrow terraces (T_0 and T_1) situated on the west bank of Clear Creek. The terraces consist of fine-grained Ford and West Range alluvium interbedded with coarse-grained chute channel deposits. Approximately 15 m apart, an occupation zone (Feature 1) and one basin-shaped hearth (Feature 2) yielded calibrated radiocarbon dates of A.D. 670–775 and A.D. 560–645. These two contemporaneous features signify occupations toward the end of the Late Archaic period (Analysis Unit 2). Aside from burned rocks, the associated cultural assemblages are limited. Hickory nut fragments and charred oak and juniper wood from feature contexts represent fuel and food resources.

Approximately 1.6 km east of Clear Creek, a north-flowing unnamed tributary empties into House Creek. There are Fort Hood, West Range, and Ford deposits present within this valley, with isolable cultural components encountered in the two older fills. Previous work at 41CV578-A yielded components dating to the Middle Archaic (3,650–3,530 and 2,145–2,015 B.C.) and Late Archaic (A.D. 560–635) periods (Kleinbach et al. 1999:139–151). Excavated features consisted of two burned rock concentrations (Features 4 and 8) and four hearths (Features 5, 6, 7, and 9). Exposed in a cutbank but not excavated, Features 1, 2, and 3 are a burned rock concentration, probable hearth, and basin-shaped hearth. The Middle Archaic components produced a limited cultural assemblage, but did include vertebrate and invertebrate remains. Cultural materials associated with the Late Archaic occupations consisted of unmodified mussel shells, one drilled mussel shell, stone artifacts, including Pedernales and Darl dart points, charred oak and elm wood, and carbonized fragments of fruit, pecan shells, and possibly walnut shells.

During the 1999 investigations at 41CV1555, Features 2 and 3 (basin-shaped hearths) yielded calibrated radiocarbon dates of A.D. 1,275–1,300 and A.D. 780–900. These results indicate use of the area during the Late Prehistoric period, Austin phase (Analysis Unit 2). The associated artifact assemblage is minimal, but the feature fill contained charred macrobotanical remains of sumac, hackberry, juniper, oak, and willow family wood, as well as oak acorns and hickory shell fragments. The hearths are less than 5 m apart and an associated peak in cultural materials at the same levels in another excavation approximately 12 m to the north suggests that this occupation zone is horizontally extensive.

Summary

Absolute and relative dating of sites along House and Clear Creeks reveal multiple Middle and Late Archaic occupations. In the lower reaches of Clear Creek, sites situated on broad terraces with channel gravel deposits provided a readily available source on which burned rock middens were formed. These sites indicate a range of cultural activities, including various stages of lithic reduction, hunting and gathering, plant processing and bone marrow extraction, and mortuary practice. Further upstream, one site on a horizontally restricted terrace provides evidence of a laterally extensive buried occupation zone or living surface. East of Clear Creek, multicomponent sites along an unnamed tributary of House Creek also contain Middle Archaic-through Late Prehistoric-period, Austin-phase occupations. Hearth features containing a variety of charred nut shells, suggesting gathering and processing of arboreal food resources, dominate these sites. Although limited in quantity, animal bones and mussel shells indicate hunting and exploitation of the aquatic resources.

PALUXY SITES

Intensive geomorphological and archeological work was conducted on many Paluxy sites during several field seasons (Abbott and Trierweiler 1995a; Kleinbach et al. 1999; Trierweiler 1996, ed. 1994). Confined to the west-central portion of Fort Hood and near intermittent drainages, these localities are situated on sandy outcrops of in situ weathered Paluxy Formation sandstone or buried within colluvium derived from the Paluxy and Walnut Formations. These sandy deposits can be up to 2 m thick and vary considerably in thickness because of differing and complex weathering and erosion. Kleinbach et al. (1999:49–53, 382) identified two stratigraphic units—Strata I and II—that characterize Paluxy sites. Stratum I is usually less than 50 cm thick, contains all of the

cultural deposits, and accumulated primarily between 3,500 and 500 B.P. Although the age of Stratum II is unknown, the top of the stratum consists of a well-developed Bt horizon that was truncated about 5,000–4,000 B.P. No cultural materials have been found in Stratum II, and it probably began to accumulate during the late Pleistocene. The contact between Strata I and II is abrupt to very abrupt and wavy. Typically, Glen Rose limestone underlies Stratum II. Cultural components at Paluxy sites are dominated by burned rocks and burned rock features thought to be related primarily to intensive plant gathering and processing. The chronometric data indicate that the isolated Paluxy sand localities were occupied during the Late Archaic through Late Prehistoric periods, and no cultural deposits buried in Paluxy sediments predate the Late Archaic period. Older components are likely to be rare, given current theories on how sites form(see Kibler 1999).

The 1999 investigations at 41CV1553 demonstrate that Paluxy deposits are restricted to the slope north of an unnamed tributary. Within one laterally extensive occupation zone (Analysis Unit 2), two hearths (Features 1, 4, and 6) yielded calibrated radiocarbon dates of A.D. 60–140 and 180–45 B.C. The occupation zone produced dense burned rocks and charred oak wood, along with a ground stone fragment, a hematite-stained burned rock, and a few flakes. Constructed mainly of large limestone slabs, these hearths rested on and were incorporated into undulating weathered bedrock. Extremely sparse artifacts were recovered from the hearth fill, but charred woods of black locust, hackberry, elm, oak, sumac, and juniper were present. One hearth also yielded unidentifiable bulb fragments, possibly indicating that it served as an earth oven for cooking plant foods. Although no discrete cultural deposits were encountered, a Scallorn arrow point found just above the occupation zone intimates there also may be younger occupations present.

An isolated hearth (Feature 3) is situated upslope from the Late Archaic component and just below the base of the Walnut Clay. This shallowly buried hearth dated to A.D. 1,640–1,795, revealing that the area was used in the Protohistoric period (Analysis Unit 1). The hearth was composed of slabs and tabular burned rocks, one of which was a recycled nutting stone. The presence of elm, sumac, oak, juniper, ash, holly, walnut, and pecan wood; walnut, pecan, and hickory nut shell fragments; oak acorns; and indeterminate bulb fragments demonstrated the excellent preservation of charred plant remains. Although nut and acorn fragments may be unintentional byproducts of burned wood, recovery of a nutting stone suggests that these remains do represent processed food items and that the site was occupied during the fall but do not preclude occupations during other seasons.

On a small colluvial toeslope south of the unnamed tributary, a burned rock concentration was buried in non-Paluxy slopewash (Analysis Unit 3). Lacking chronometric data and diagnostic artifacts, the relationship of this component to those encountered in the Paluxy sediments is not known.

Summary

Site 41CV1553 is yet another locality demonstrating that the Paluxy environment afforded a wide variety and possibly a unique suite of food resources, wood fuels, and abundant limestone rocks for constructing cooking features. Past geomorphic evidence suggests that Paluxy sites were wooded areas, rather than grasslands like the nearby uplands, and the macrobotanical remains continue to indicate the diversity of available resources. These open sites can provide substantial and significant botanical data, particularly with regard to identifying plant root foods. Another Paluxy site—41CV988—contained a hearth with evidence of root (corm) fragments. Only two other sites—41CV1106 and 41CV1553—have produced evidence signifying use of the area during the Late Prehistoric period. It is possible that the late occupations of these two sites represent previously unrecognized plant processing by Toyah phase peoples, who are typically recognized by their bison hunting activities and tool kits.

CULTURAL FEATURES, RADIOCARBON DATES, AND MATERIAL CULTURE

In the 1999 field season, 21 features were wholly or partially removed during hand excavation (Table 7.2). Most features identified are classified according to the same feature

typology Mariah Associates used before 1995 (Trierweiler 1996:Figure 8.1) and Prewitt and Associates used in 1995, 1996, and 1997 (Kleinbach et al. 1999; Mehalchick et al. 1999; Mehalchick, Kleinbach et al. 2000), but one new feature type, an infilled gully, was recognized during this field season. The features consist of 11 basin-shaped hearths, 2 burned rock concentrations, 3 burned rock middens, 4 occupation zones, and 1 infilled gully (with midden deposits). Each feature contains or is constructed primarily of burned rocks. Fourteen calibrated charcoal radiocarbon dates were obtained for 12 of the 21 features (Table 7.3, Figure 7.1). Radiocarbon dates, feature types, and associated cultural assemblages are discussed below.

Basin-shaped Hearths

Eleven hearths were investigated at 6 sites. Only Feature 3 at 41CV1553 was completely excavated; the rest were partially excavated because erosion or trenching displaced portions of the feature or the feature extended beyond the limits of the test unit. All hearths were constructed of limestone rocks. Based on their morphologies, maximum dimensions for 7 of the 11 hearths could be confidently estimated and range from 100 to 200 cm in diameter, with thickness varying between 15 and 47 cm. The one completely excavated hearth had maximum dimensions of 80x78x15 cm (see Table 7.2). One hearth, Feature 2 at 41CV579, is an internal feature within a burned rock midden (Feature 1) and presumably represents an earth oven.

Feature 2 at 41CV1443-A consisted of four layers of burned rocks, but all of the hearths comprised one to two burned rock layers. Eight hearths were composed predominantly of slabs and larger tabular pieces, but many rocks were fractured in situ. Fossiliferous limestone was noted in five hearths, including all three features at 41CV1553 (a Paluxy site). The hearths at 41CV1553 also contained charcoal-stained sediment, particularly Feature 3, which contained large chunks of charred wood.

Eight hearths yielded identifiable organic remains, representing several wood types and edible plant materials (see Appendix D). Many of the identifiable remains are macroplant samples submitted for radiocarbon dating. Although oak was the most common wood type, charred wood of hackberry, elm, black locust, sumac, holly, ash, walnut, pecan, juniper, and the willow family also were present. Notably, 8 of the 11 identified wood types occurred in Feature 3 at 41CV1553. This hearth—as well as Feature 6 at 41CV1553—yielded unidentifiable bulb fragments. Identifiable carbonized food resources consist of hickory, pecan, and walnut shell fragments, oak acorns, and possibly black locust seed. Few or no cultural materials were recovered from hearth fill contexts, but Feature 6 at 41CV41-A and Feature 2 at 41CV579 contained some debitage, along with unmodified bones and mussel shells.

Eight charcoal samples collected directly from six hearths provide absolute chronology (see Table 7.3). The calibrated dates span the Late Archaic through Protohistoric periods from 410 B.C. to A.D. 1,795, with five dates corresponding to the older period.

Burned Rock Concentrations

Burned rock concentrations were encountered at 41CV1441-A and 41CV1553. No chronometric data are available for these two features, and their functions are unknown because their morphologies are indistinct. They may be dispersed hearths or parts of larger features. The features are 10- to 17-cm-thick and consist of one layer of burned rocks. Feature 2 at 41CV1441-A produced only burned rocks, whereas Feature 5 at 41CV1553 yielded burned rocks and a few flakes.

Burned Rock Middens

There are three burned rock middens at three sites. The middens at 41BL349 (Feature 1) and 41CV41-A (Feature 2) showed minimal disturbance from looting, and the midden at 41CV579 (Feature 1) is deeply buried and intact. Based on exposures provided by the excavations, potholes, and cutbanks and on geomorphic setting, estimated maximum dimensions for two middens range from 85x80 m (Feature 1 at 41BL349) to 20x12 m (Feature 2 at 41CV41-A). The horizontal extent of Feature 1 at 41CV579 is unknown. Maximum thickness varies between 40 and 60 cm. At 41BL349, a portion of the midden accreted over a gully (see Infilled Gully below), and one discrete internal hearth was encountered in the midden at 41CV579.

Table 7.2. Summary of investigated cultural features

Site	Subarea	Location	Analysis Unit	Geomorphic Setting	Feature Number	Excavation Exposures and Depth	Relationship to Other Features	Maximum Excavated Dimensions*	Estimated Dimensions
BASIN-SHAPED HEARTHS									
41CV41	A	Owl Creek	1	T_1	5	Test Unit 4; Backhoe Trench 3 (85–105 cm)	–	0.68x0.5x0.2 m	unknown
			1	T_1	6	Test Unit 6 (34–49 cm)	–	0.5x0.46x0.15 m	unknown
			2	T_1	1	Test Unit 1 (114–128 cm)	–	0.62x0.44x0.23 m	1.24x0.88x0.23 m
41CV579	–	Leon River	2	T_1	2	Test Unit 5; Backhoe Trench 7 (169–188 cm)	internal feature within Feature 1	1x0.66x0.19 m	unknown
41CV1441	–	Clear Creek	1	T_1	3	Test Unit 3 (62–88 cm)	–	0.96x0.7x0.26 m	1x1x.026 m
41CV1443	A	Clear Creek	2	T_1	2	Test Units 2 and 3 (127–166 cm)	contemporaneous with Feature 1	1.3x0.7x0.39 m	1.4x1.3x0.39 m
41CV1553	–	Paluxy	1	slope	3	Test Unit 4; Backhoe Trench 1 (10–25 cm)	–	0.8x0.78x0.15 m	0.8x0.78x0.15 m
41CV1553	–	Paluxy	2	slope	4	Test Unit 5; Backhoe Trench 3 (21–68 cm)	contemporaneous with Feature 1	1x0.94x0.47 m	2x2x0.47 m
41CV1553	–	Paluxy	2	slope	6	Test Unit 5; Backhoe Trench 3 (28–47 cm)	contemporaneous with Feature 1	0.63x0.62x0.19 m	2x2x0.19 m
41CV1555	–	House Creek	2	T_1	2	Test Unit 1; Backhoe Trench 2 (10–26 cm)	contemporaneous with Feature 3	1.12x0.61x0.16 m	1.15x1.12x0.16 m
41CV1555	–	House Creek	2	T_1	3	Test Unit 2; Backhoe Trench 2 (22–37 cm)	contemporaneous with Feature 2	1x0.56x0.15 m	1.15x1x0.15 m
BURNED ROCK CONCENTRATIONS									
41CV1441	A	Clear Creek	1	T_1	2	Test Unit 2; Backhoe Trench 5 (126–143 cm)	–	0.5x0.5x0.17 m	2.5x0.5x0.17 m
41CV1553	–	Paluxy	3	slope	5	Test Unit 6; Backhoe Trench 8 (30–40 cm)	–	0.84x0.5x0.1 m	unknown
BURNED ROCK MIDDENS									
41BL349	–	North Reese Creek	1	colluvial slope	1	Test Units 1, 2, and 3; Backhoe Trenches 1, 3, and 4 (0–60 cm)	contemporaneous with Feature 2	3x3x0.5 m	85x80x0.6 m
41CV41	A	Owl Creek	3	T_1	2	Test Unit 2 (10–50 cm)	–	1x1x0.4 m	20x12x0.4 m
41CV579	–	Leon River	2	T_1	1	Test Units 5 and 6; Backhoe Trench 7 (150–205 cm)	contains an internal hearth (Feature 2)	2.5x2x0.5 m**	unknown

Table 7.2, continued

Site	Subarea	Location	Analysis Unit	Geomorphic Setting	Feature Number	Excavation Exposures and Depth	Relationship to Other Features	Maximum Excavated Dimensions*	Estimated Dimensions
OCCUPATION ZONES									
41CV41	A	Owl Creek	2	T_1	3	Test Unit 3 (58–68 cm)	–	0.8x0.68x0.1 m	unknown
41CV41	A	Owl Creek	2	T_1	4	Test Unit 1 (77–100 cm)	–	1x0.55x0.8 m**	unknown
41CV1443	A	Clear Creek	2	T_1	1	Test Unit 4 (130–141 cm)	contemporaneous with Feature 2	1x0.6x0.11 m	unknown
41CV1553	–	Paluxy	2	slope	1	Test Units 2, 3, and 5; Backhoe Trench 3 (10–20 and 20–30 cm)	contains two internal hearths (Features 4 and 6)	3.5x3x0.1 m	45x30x0.1 m
INFILLED GULLY									
41BL349	–	North Reese Creek	1	colluvial slope	2	Test Units 1 and 3; Backhoe Trenches 1 and 4 (50–184)	contemporaneous with Feature 1	2x2x1.34 m	20x6x1.34 m

*Dimensions based on manual excavations
**Actual thickness because of slope of feature

Table 7.3. Summary of calibrated charcoal radiocarbon dates for 12 cultural features

Site	Subarea	Feature	Calibrated Calendrical Date (1-sigma range)	Time Period
BASIN-SHAPED HEARTHS				
41CV41	A	1	A.D. 645–685	Late Archaic
41CV41	A	5	410–385 B.C.	Late Archaic
41CV1443	A	2	A.D. 560–645	Late Archaic
41CV1553	–	3	A.D. 1640–1795	Protohistoric
41CV1553	–	4	A.D. 60–140	Late Archaic
41CV1553	–	6	180–45 B.C.	Late Archaic
41CV1555	–	2	A.D. 1275–1300	Late Prehistoric (Austin phase)
41CV1555	–	3	A.D. 780–900	Late Prehistoric (Austin phase)
BURNED ROCK MIDDENS				
41CV41	A	2	A.D. 1235–1285	Late Prehistoric (Austin phase)
41CV41	A	2	A.D. 1300–1410	Late Prehistoric (Toyah phase)
41CV579	–	1	A.D. 770–890	Late Archaic–Late Prehistoric (Austin phase)
41CV579	–	1	A.D. 900–1005	Late Prehistoric (Austin phase)
OCCUPATION ZONES				
41CV41	A	4	A.D. 880–990	Late Prehistoric (Austin phase)
41CV1443	A	1	A.D. 670–775	Late Archaic

Note: For complete data on radiocarbon assays, see Appendix A.

Table 7.4. summarizes the cultural material frequencies for each midden. Debitage is the most common artifact type recovered from the middens, but all three yielded expedient and formal tools including diagnostic projectile points, as well as unmodified bones and mussel shells. Approximately one-fourth of the vertebrate faunal remains in each midden at 41CV41-A and 41CV579 were spirally fractured. The vertebrate and invertebrate assemblage at 41CV579 represents more than 20 different taxa. Other unique artifacts consist of seven Caddoan sherds and one probable fragment of a Toyah smoking pipe from the midden at 41CV41-A and an awl-like bone tool and the distal fragment of a polyhedral core from the 41CV579 midden. These middens also yielded charred macrobotanical remains of pecan shell fragments and oak and indeterminate hardwood. Only one piece of ground stone was recovered. Large numbers of mussel shells were recovered from the midden at 41CV579 (283 specimens per m^3).

Although no radiocarbon assays were obtained for Feature 1 at 41BL349, diagnostic artifacts consist primarily of Late Archaic dart points. Paired radiocarbon ages near the top and bottom of Feature 2 at 41CV41-A are inverted, with an Austin phase date (A.D. 1,235–1,285) above a Toyah phase date (A.D. 1,300–1,410). These reversed dates could be because of past depositional bioturbation but are more likely from churning of the midden deposits through prehistoric activities (e.g., earth oven cooking). In contrast, the ceramics and one Granbury arrow point were in proper stratigraphic sequence. Virtually overlapping dates of A.D. 770–890 and A.D. 900–1,005 from Feature 1 at 41CV579 suggest that this midden accreted toward the end of the Late Archaic period into the Austin phase of the Late Prehistoric period. Recovery of Darl and Zephyr dart points supports the chronometric data.

Occupation Zones

Four occupation zones were identified at three sites. These features may represent single-event or short-duration activity areas. Ranging from 8 to 11 cm thick, each of these features is a vertically discrete lens of cultural materials dominated by one to two layers of burned rocks. Other sparse cultural items recovered in these zones included stone tools, debitage, unmodified mussel shell and bone, ground stone, and one ochre-stained burned rock. Three occupation zones yielded charred macrobotanical remains of hickory shell fragments, oak wood, and an indeterminate hardwood. Estimated dimensions

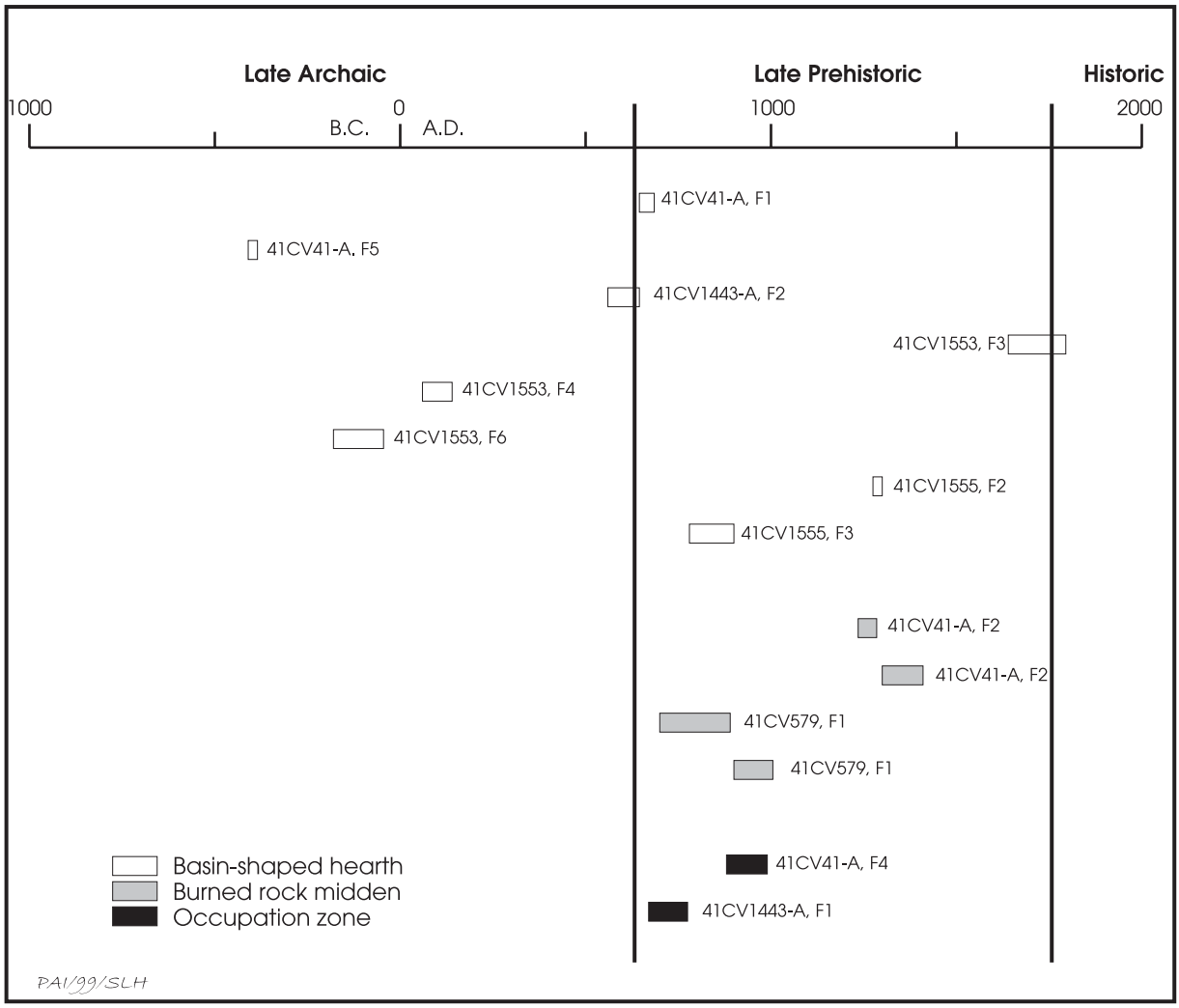

Figure 7.1. Comparison of calibrated radiocarbon dates by feature type.

for Feature 1 at 41CV1553 are 45x30 m; this zone also contained two internal hearths, Features 4 and 6. Calibrated dates of A.D. 670–775 (Feature 1, 41CV1443-A) and A.D. 880–990 (Feature 4, 41CV41-A) indicate occupation during the Late Archaic and Late Prehistoric (Austin phase) periods.

Infilled Gully

After considerable testing to identify its nature and origin, Feature 2 at 41BL349 was determined to be an old gully that was filled with cultural midden deposits, primarily by natural processes. It appears that the 1.5- to 2-m-deep gully was present on site when the burned rock midden (Feature 1) was being formed. The bulk of the midden deposits appear to have been washed into the gully, although it is possible that some portion of the deposits represent intentional discard by people occupying the site. But no intact features (such as hearths) were encountered, and the gully-fill cultural deposits appear to be completely jumbled. After the gully was filled, the burned rock midden continued to accrete, eventually expanding across the top of the gully.

Chert Resource Use

As is typical of prehistoric sites on Fort Hood, chipped stone artifacts made of chert—with only a few ground stone and other artifacts made of limestone or quartzite—dominate the stone artifact assemblages from the sites tested

Table 7.4. Comparison of cultural material quantity and frequency for burned rock middens

Site	Feature	Volume excavated	Burned rocks (count)	Burned rocks (kg)	Stone tools	Unmodified debitage	Ceramics	Bones	Mussel shells
				QUANTITY					
41BL349	1	1.40 m^3	1,038	152.5	44	892	–	10	1
41CV41-A	2	0.40 m^3	679	50.0	73	958	8	67	2
41CV579	1	0.78 m^3	1,661	182.8	30	263	–	244	221
				FREQUENCY (per m^3)					
41BL349	1	1 m^3	741.4	108.9	31.4	637.1	–	7.1	0.7
41CV41-A	2	1 m^3	1,697.5	125.0	182.5	2,395.0	20.0	167.5	5.0
41CV579	1	1 m^3	2,129.5	234.4	38.5	337.2	–	312.8	283.3

in 1999 (Table 7.5). Also typical of sites on Fort Hood, the sizes of the stone artifact assemblages from the 19 defined analysis units vary considerably, from 2 to 2,607 specimens, and the indeterminate chert types account for more than half of all chipped stone artifacts (3,639 of the 7,096 specimens). Only one specimen, a proximal section of a Pedernales point from 41BL349 (see Figure 6.5) is identified as a nonlocal chert that originated from outside Fort Hood. Of the 3,638 chert specimens that are classified into named types, the dominant cherts are Fort Hood Yellow (42.8 percent) and Owl Creek Black (51.7 percent).

A closer examination of the chert types represented in the chipped stone assemblages from selected analysis units is revealing. Only five analysis units from three sites have more than 100 chipped stone specimens that could be assigned to named types. When the chert types and artifact classes are compared for these analysis units (Tables 7.6), the data show that for each assemblage the chert types that dominate are well represented by unmodified flakes and by other tool classes as well, especially bifaces and points. Thus, it appears that the majority of tool manufacture was occurring on site using local materials. Only four projectile points are made of a chert type for which little or no debitage was recovered. These consist of two dart points of Cowhouse Dark Gray and Fort Hood Gray from 41BL349, Analysis Unit 1, and two dart points of Cowhouse White and Heiner Lake Translucent Brown from 41CV41-A, Analysis Unit 2. These points are candidates for having been made elsewhere and brought back to the sites in finished form.

This propensity for intensively using the closest cherts is further demonstrated when the chipped stone assemblages are collapsed and compared only by identifiable chert types (Table 7.7). Owl Creek Black and Fort Hood Yellow, both North Fort chert types readily available in close proximity to the site, dominate the chipped stone artifacts from three analysis units at 41CV41-A on Owl Creek. One of the other two well-represented chert types, Gray-Brown-Green, also is a North Fort type. Only the East Range Flecked, which accounts for only 10.5 percent of the identified specimens in one analysis unit, is a Southeast Range chert that may be coming from the only known source area about 10 km away (Trierweiler ed. 1994:C-7).

Fort Hood Yellow heavily dominates the chipped stone from 41CV579, Analysis Unit 2. This is not surprising given that the site is situated along the Leon River in the far northern end of the installation where Fort Hood Yellow is super abundant.

Two chert types, Heiner Lake Translucent Brown and Heiner Lake Tan, that collectively account for 70.8 percent of the chipped stone dominate the lithic materials recovered from Analysis Unit 1 at 41BL349. The site is along North Reese Creek in the southernmost portion of West Fort Hood, and both types were originally classified as Southeast Range types found mainly around Heiner Lake (Trierweiler ed. 1994:275–293). This would suggest that these cherts could have come from many kilometers away, but later research showed that there are some Southeast Range cherts in the western portion of the installation (Kleinbach et al. 1999:376-380). There also is a large area off-post between the Lake Belton and West Fort

Table 7.5. Summary of stone artifact assemblages by material and chert type

Site	Analysis Unit	Limestone*	Quartzite*	Cowhouse White	Anderson Mountain Gray	Seven Mile Mountain Novaculite	Texas Novaculite	Heiner Lake Tan	Fort Hood Yellow	Heiner Lake Translucent Brown	Heiner Lake Blue	East Range Flat	East Range Flecked	Fort Hood Gray	Gray-Brown-Green	Leona Park	Owl Creek Black	Cowhouse Dark Gray	Cowhouse Brown Flecked	indeterminate black	indeterminate light brown	indeterminate dark brown	indeterminate light gray	indeterminate dark gray	indeterminate mottled	indeterminate red	indeterminate yellow	indeterminate white	indeterminate nonlocal	Total
41BL0192-A	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	2
41BL0349	1	1	–	–	12	–	2	47	71	215	8	–	–	1	–	–	11	2	–	15	956	345	49	103	3	8	8	32	1	1,890
41CV0041-A	1	–	–	–	–	–	–	1	102	–	–	27	31	–	47	2	85	1	–	4	45	33	27	13	6	–	–	4	–	428
41CV0041-A	2	–	1	3	–	1	–	–	565	2	–	43	32	6	37	14	941	29	–	148	287	198	105	164	7	1	–	23	–	2,607
41CV0041-A	3	–	1	–	–	–	1	–	371	–	–	35	7	5	55	7	154	–	–	21	165	109	107	58	8	4	–	15	–	1,123
41CV0094-A	1	–	–	–	–	–	–	–	14	1	–	–	1	–	–	–	14	–	–	–	8	1	1	–	–	–	–	–	–	40
41CV0579	1	–	–	–	–	–	–	–	37	–	–	–	4	1	3	–	1	1	2	–	18	2	7	1	–	–	1	2	–	80
41CV0579	2	–	–	1	–	–	–	–	192	–	–	–	3	4	5	–	4	–	–	–	72	21	5	7	2	–	–	1	–	317
41CV0579	3	–	–	–	–	–	–	–	44	–	–	–	1	–	4	–	1	–	–	–	17	2	1	3	–	–	–	1	–	74
41CV0668-B	1	–	–	–	–	–	–	–	10	–	–	–	–	–	1	–	–	–	–	–	8	–	1	–	5	–	9	1	–	35
41CV0956-B	1	–	–	–	–	–	–	–	59	–	–	–	–	–	–	–	–	–	–	–	23	1	–	–	2	–	5	–	–	90
41CV1441	1	–	–	–	7	–	–	–	2	–	–	–	–	1	–	–	–	–	–	–	57	6	10	3	3	1	–	21	–	112
41CV1443-A	2	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	1	–	–	1	–	–	1	–	10
41CV1553	1	1	–	2	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	3	2	–	–	1	–	–	1	–	11
41CV1553	2	2	–	5	–	–	–	–	5	–	–	–	–	–	–	–	–	–	–	–	11	3	–	–	2	–	1	1	–	30
41CV1553	3	–	–	2	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	5	–	–	–	1	–	–	3	–	12
41CV1555	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1555	2	–	–	–	–	–	–	–	2	–	2	–	–	–	–	–	–	–	–	–	7	–	–	2	–	1	–	–	–	14
41CV1556-B	1	–	–	–	39	–	–	–	3	–		–	–	–	–	–	–	–	–	1	98	6	25	9	6	–	–	38	–	225
Total		4	2	13	61	1	3	49	1,478	218	10	105	79	19	152	23	1,211	33	2	189	1,786	730	339	363	48	15	24	144	1	7,102

* The limestone and quartzite specimens consist of five ground and battered stone tools and an unmodified stone with hematite staining. All other specimens are chipped stone artifacts.

Table 7.6. Chipped stone artifacts by chert type for selected analysis units

Chert Type	Arrow points	Dart points	Perforators	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous bifaces	End scraper	Side scrapers	End-side scraper	Miscellaneous unifaces	Spokeshaves	Gravers	Core tools	Multifunctional tools	Edge-modified flakes	Cores	Unmodified debitage	Total
41BL349, ANALYSIS UNIT 1																		
Anderson Mountain Gray	–	2	–	–	–	–	–	–	–	–	–	–	–	–	1	–	9	12
Cowhouse Dark Gray	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2
Fort Hood Gray	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Fort Hood Yellow	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	68	71
Heiner Lake Blue	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8	8
Heiner Lake Tan	–	–	–	1	1	–	–	–	–	–	–	–	–	–	4	–	41	47
Heiner Lake Translucent Brown	–	6	1	–	6	–	–	–	–	–	–	–	–	–	7	–	195	215
Owl Creek Black	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	9	11
Texas Novaculite	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2
Indeterminate	–	10	2	–	9	6	1	1	–	4	1	1	–	–	8	2	1,475	1,520
Subtotal	0	20	3	1	17	6	1	1	0	4	1	1	0	1	23	2	1,808	1,889
41CV41-A, ANALYSIS UNIT 1																		
Cowhouse Dark Gray	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
East Range Flecked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	31	31
East Range Flat	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	25	27
Fort Hood Yellow	1	1	–	1	1	–	–	–	–	–	–	1	–	–	1	–	96	102
Gray-Brown-Green	–	1	–	–	–	2	–	–	–	–	–	–	–	1	2	–	41	47
Heiner Lake Tan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Leona Park	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2
Owl Creek Black	–	–	–	–	–	–	–	–	–	1	–	–	–	–	2	–	82	85
Indeterminate	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	131	132
Subtotal	1	2	0	3	2	2	0	0	0	1	0	1	0	1	6	0	409	428
41CV41-A, ANALYSIS UNIT 2																		
Cowhouse Dark Gray	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	29	29
Cowhouse White	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	3
East Range Flecked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	32	32
East Range Flat	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	41	43
Fort Hood Gray	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	4	6
Fort Hood Yellow	–	4	–	2	2	–	–	–	1	2	–	–	–	2	32	–	520	565

Table 7.6, continued

Chert Type	Arrow points	Dart points	Perforators	Early- to middle-stage bifaces	Late-stage to finished bifaces	Miscellaneous bifaces	End scraper	Side scrapers	End-side scraper	Miscellaneous unifaces	Spokeshaves	Gravers	Core tools	Multifunctional tools	Edge-modified flakes	Cores	Unmodified debitage	Total
41CV41-A, ANALYSIS UNIT 2, *continued*																		
Gray-Brown-Green	–	–	–	–	1	–	–	1	–	–	–	–	–	–	4	–	31	37
Heiner Lake Translucent Brown	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2
Leona Park	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	13	14
Owl Creek Black	–	2	–	–	5	1	–	–	–	–	–	–	–	1	8	–	924	941
Seven Mile Mountain	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Indeterminate	–	2	–	1	2	–	–	–	–	2	–	–	–	–	14	1	911	933
Subtotal	0	10	0	3	11	1	0	1	1	4	1	0	0	3	61	1	2,509	2,606
41CV41- A, ANALYSIS UNIT 3																		
East Range Flecked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	6	7
East Range Flat	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	32	35
Fort Hood Gray	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	5
Fort Hood Yellow	1	1	–	1	2	3	–	–	–	1	–	1	–	1	24	1	335	371
Gray-Brown-Green	–	–	–	–	–	–	–	–	–	–	–	–	2	–	3	–	50	55
Leona Park	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	7
Owl Creek Black	–	–	–	–	2	–	–	–	–	2	–	–	–	–	5	–	145	154
Texas Novaculite	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Indeterminate	–	–	–	1	1	–	–	–	–	–	–	–	2	1	13	1	468	487
Subtotal	1	1	0	2	5	3	0	0	0	3	0	1	4	2	49	2	1,049	1,122
41CV579, ANALYSIS UNIT 2																		
Cowhouse White	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
East Range Flecked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3
Fort Hood Gray	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	3	4
Fort Hood Yellow	–	1	–	2	3	1	–	–	–	–	1	–	1	1	9	–	173	192
Gray-Brown-Green	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	4	5
Owl Creek Black	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	4
Indeterminate	–	1	–	–	–	2	–	–	–	–	–	–	–	–	5	1	99	108
Subtotal	0	2	1	2	4	3	0	0	0	1	1	0	1	1	14	1	286	317
Total	2	35	4	11	39	15	1	2	1	13	3	3	5	8	153	6	6,061	6,362

Note: Selected analysis units contain more than 200 chipped stone artifacts.

Table 7.7. Frequency of identifiable chert types in the chipped stone assemblages from selected analysis units

Site	41BL0349	41CV0041-A	41CV0041-A	41CV0041-A	41CV0579	
Analysis Unit	1	1	2	3	2	
Drainage Basin	North Reese Creek (%)	Owl Creek (%)	Owl Creek (%)	Owl Creek (%)	Leon River (%)	Total Sample Size
Cowhouse White	0.0	0.0	0.2	0.0	0.5	4
Anderson Mountain Gray	3.2	0.0	0.0	0.0	0.0	12
Seven Mile Mountain Novaculite	0.0	0.0	0.1	0.0	0.0	1
Texas Novaculite	0.5	0.0	0.0	0.2	0.0	3
Heiner Lake Tan	12.7	0.3	0.0	0.0	0.0	48
Fort Hood Yellow	19.2	34.5	33.8	58.4	91.9	1,301
Heiner Lake Translucent Brown	58.1	0.0	0.1	0.0	0.0	217
Heiner Lake Blue	2.2	0.0	0.0	0.0	0.0	8
East Range Flat	0.0	9.1	2.6	5.5	0.0	105
East Range Flecked	0.0	10.5	1.9	1.1	1.4	73
Fort Hood Gray	0.3	0.0	0.4	0.8	1.9	16
Gray-Brown-Green	0.0	15.9	2.2	8.7	2.4	144
Leona Park	0.0	0.7	0.8	1.1	0.0	23
Owl Creek Black	3.0	28.7	56.2	24.3	1.9	1,195
Cowhouse Dark Gray	0.5	0.3	1.7	0.0	0.0	32
Cowhouse Brown Flecked	0.0	0.0	0.0	0.0	0.0	0
Indeterminate nonlocal*	0.3	0.0	0.0	0.0	0.0	1
Total Sample Size	370	296	1,673	635	209	3,183

Notes: Selected analysis units contain more than 100 chipped stone artifacts identified to named chert types. Chert types that represent more than 10 percent of the sample are shaded.
*Indeterminate nonlocal is included, but all other indeterminate specimens are excluded.

Hood where these cherts may occur. Thus, it is likely that the Heiner Lake cherts were available fairly close (within a few kilometers) to 41BL349. IBut the Fort Hood Yellow that accounts for 19.2 percent of the chipped stone artifacts in Analysis Unit 1 probably was procured at a greater distance, perhaps 15 to 20 km.

The cherts that dominate each analysis unit in this small sample represent materials that are available in close proximity to each site, but this should not be surprising. This pattern has been observed in most other sites on Fort Hood where sizable lithic assemblages have been recovered (Abbott and Trierweiler 1995:679–734; Mehalchick et al. 1999:227–242; Trierweiler ed. 1994:285). As we learn more about the natural distribution of chert sources on Fort Hood, it appears that the cherts prehistoric peoples used most heavily were those most readily available in close proximity. As Abbott and Trierweiler (1995:723–725) noted, the movement of cherts within Fort Hood provides important evidence for understanding group mobility and how people used the landscape over time, but there are still many gaps in our knowledge of the availability of various types of chert on and around Fort Hood.

NATIONAL REGISTER EVALUATIONS AND MANAGEMENT RECOMMENDATIONS

Gemma Mehalchick

8

In 1999, Prewitt and Associates formally tested 12 sites. In this chapter, these sites are evaluated according to the National Register of Historic Places (NRHP) criteria defined in the Fort Hood research design (Ellis et al. 1994). The first section discusses the recommendations for National Register eligibility of each site and recommendations for further work at sites recommended as eligible. The second section addresses programmatic recommendations related to long-term management of the cultural resources at Fort Hood.

RECOMMENDATIONS OF NATIONAL REGISTER ELIGIBILITY AND FURTHER SITE INVESTIGATIONS

The 12 investigated prehistoric sites consisted of 13 subareas. Recommendations of National Register eligibility for each site or subarea are summarized in Table 8.1.

Eight of the sites and subareas are recommended as not eligible for listing in the National Register and do not meet the basic data needs defined in the Fort Hood site significance model (Table 8.2). Compared to this model, these sites and subareas all have contextual fatal flaws. No stratigraphically discrete and intact cultural components could be isolated, and these sites are considered to possess limited or no research potential and warrant no further work or management.

Five sites or subareas are recommended as eligible for listing in the National Register. All meet one or more of the four essential data needs required to demonstrate their archeological research potential, as described in Chapter 2.

Although testing was limited in scope, the information obtained from each site-subarea recommended as eligible is useful for planning a data recovery strategy or estimating mitigative levels of effort. In certain cases, such as sites-subareas containing archeological remains restricted to well-defined landforms, current testing data can be used to reliably estimate the work needed for a data recovery excavation. The extent of cultural components buried within large alluvial terraces is more difficult to assess, and the full horizontal distributions of deposits are poorly identified at some sites. In these cases, specific levels of effort for data recovery can be recommended, but the degree of confidence is lower because of more unknown variables.

Table 8.3 summarizes the recommendations for additional work at the five National Register-

Table 8.1. Summary of National Register eligibility recommendations

Site	Subarea	Recommended Eligibility
41BL192	A*	not eligible
41BL349	–	not eligible
41CV41	A	eligible
41CV94	A	not eligible
41CV94	B	not eligible
41CV579	–	eligible
41CV668	B	not eligible
41CV956	B	not eligible
41CV1441	–	not eligible
41CV1443	A	eligible
41CV1553	–	eligible
41CV1555	–	eligible
41CV1556	B	not eligible

*rockshelter

Table 8.2. Summary of key data needs for National Register evaluations of prehistoric sites*

Site	Subarea	Identifiable and dateable bones or shells	Identifiable and dateable macrobotanical remains	Features with economic or chronometric potential	Multiple spatially separated features	Burned rock features present	Unique artifacts, concentrations, or features
41BL192	A	yes	no	no	no	no	no
41BL349	–	yes	no	no	no	yes	no
41CV41	A	yes	yes	yes	yes	yes	yes
41CV94	A	no	no	no	no	no	no
41CV94	B	no	no	no	no	no	no
41CV579	–	yes	yes	yes	yes	yes	yes
41CV668	B	no	no	no	no	no	no
41CV956	B	no	no	no	no	no	no
41CV1441	–	no	no	no	yes	yes	no
41CV1443	A	no	yes	yes	yes	yes	no
41CV1553	–	no	yes	yes	yes	yes	yes
41CV1555	–	no	yes	yes	yes	yes	no
41CV1556	B	no	no	no	yes	yes	no

Note: Shading represents sites recommended as eligible for listing in the National Register.
*Key data needs as specified by Ellis et al. (1994:187–188); see Chapter 3. Numbers 1, 2, 3, and 6 are considered essential data needs for determining research potential and National Register significance.
**Site 41BL192, Subarea A is a rockshelter; all others are open campsites.

eligible sites. Further testing is needed at each site to better define the cultural deposits before making final decisions on exactly where the data recovery should be directed. Recommended levels of intensive testing range from two to six additional backhoe trenches and two to six test units. Recommended volumes for hand excavation in the data recovery work range from as little as 40–60 m^3, up to 125–150 m^3. The intensive testing and data recovery recommendations are discussed below for each site.

RECOMMENDATIONS FOR NATIONAL REGISTER-ELIGIBLE SITES

Situated in different drainage systems or geomorphic settings, 5 of 13 sites and subareas are recommended as eligible for listing in the National Register (see Table 8.1); multiple discrete components encountered at these sites contain substantial archeological data (see Table 8.2). Avoidance and protection are recommended for each site, but if avoidance and protection are not possible, intensive testing and data recovery are warranted (see Table 8.3). Maximum site dimensions are not established at 41CV41-A and 41CV579 because portions of the Holocene terraces extend an unknown distance in various directions. The full horizontal extent of subsurface cultural deposits is only vaguely defined at most of the sites. Further testing will be needed to estimate the level of data recovery and to identify areas within the sites where data recovery excavations would be most productive.

At 41CV41-A, multiple cultural deposits were encountered at various depths and are spatially separated in isolated alluvial terraces. These deposits consist of six burned rock features, including a midden, as well as four distinct occupation layers in three test units. These components span the Late Archaic through Late Prehistoric (Toyah phase) periods. Before data recovery, a minimum of six backhoe trenches and six test units will be needed to help delimit the buried components, particularly on the higher Owl Creek terrace west of the tributary (Analysis Unit 1). Although trenching of the lower inset terraces would be helpful east of the unnamed drainage, logistical problems and a unique riparian habitat may preempt such an undertaking. Data recovery should center around the known archeological remains in the vicinity of the six test units excavated on both sides of the tributary (Analysis Units 2 and 3) if no significant areas are exposed in the additional testing. Based on the intensive testing results, cultural occupations can be targeted efficiently,

Table 8.3. Recommended testing and data recovery at National Register-eligible sites

Site	Subarea	Size (m)	Area (m^3)	Recommended Intensive Testing	Targeted Analysis Units	Recommended Hand Excavation for Data Recovery (m^3)
41CV41	A	128x63*	8,064	6 BHTs, 6 TUs	1	125–150
					2	125–150
					3	125–150
41CV579	–	150x40*	6,000	5 BHTs, 4 TUs	2	75–100
					3	75–100
41CV1443	A	390x45	17,550	4 BHTs, 2 TUs	2	50–70
41CV1553	–	300x200	60,000	5 BHTs, 3 TUs	1	75–100
					2	75–100
41CV1555	–	315x50	15,750	3 BHTs, 3 TUs	2	40–60

Note: BHT = Backhoe Trench; TU = Test Unit
*Minimum dimensions

and mechanical stripping of sterile zones should be employed in the Owl Creek terrace to facilitate excavation. Internal features within larger midden deposits provide interpretable data sets, and mechanical excavation of midden is a cost-effective method of investigating these features (Boyd et al. 1999). Feature 2 (a 40-cm-thick midden defined as Analysis Unit 3), however, appears to be restricted to a 20x12 m area, and mechanical stripping is not necessary. The Caddoan ceramics—found primarily in the midden—are rare and suggest that there may be a discrete Toyah component present. These findings, coupled with access problems for mechanical equipment in this area, indicate that hand excavation of the entire Feature 2 midden is appropriate. Here, a block excavation (up to 100 m^2) incorporating Test Unit 2 at its center is recommended. Overall, data recovery should include a minimum of 125–150 m^3 of hand excavation in all areas of 41CV41-A.

Site 41CV579 contains a 50-cm-thick burned rock midden (Feature 1) with an internal hearth (Feature 2) defined as Analysis Unit 2 and an isolable cultural deposit ca. 15 cm below the midden defined as Analysis Unit 3. Encapsulated within the Leon River paleosol, these deposits represent Late Archaic and Late Prehistoric (Austin phase) components. The midden, exposed the entire length of a backhoe trench, is laterally extensive. Topographically, the terrace is delimited in three directions but continues an unknown distance to the east. Untested portions of the terrace may also produce stratigraphically discrete cultural deposits, both horizontally and below the limits of testing. At least five backhoe trenches and four test units should be excavated to help define the extent of the cultural deposits before undertaking data recovery. If more buried archeological materials are not encountered, data recovery should focus on the buried cultural components identified in Test Units 5 and 6. Mechanical excavation of the midden would be helpful in identifying discrete internal features, but adequate sampling of the midden deposits with more-intensive hand excavations could provide substantial data because testing results indicate that the midden may have formed rapidly. The associated cultural assemblage, which may represent a relatively short period of occupation, includes a wide variety of vertebrate and invertebrate faunal remains and a polyhedral core fragment indicating lithic technology uncommon to central Texas sites. It is estimated that 75–100 m^3 of hand excavation would be needed to provide adequate data recovery samples for Analysis Units 2 and 3.

At 41CV1443-A, an occupation zone and hearth approximately 15 m apart and exposed in the cutbank of Clear Creek date to the Late Archaic period (Analysis Unit 2). Although the hearth was completely excavated, the occupation zone extends beyond the limits of the test unit. Backhoe trenches located about 30 m south and 30 m north of the hand excavations did not expose any cultural deposits that would be contemporaneous with these features. Before data recovery can be undertaken, at least four backhoe trenches and two test units should be

excavated to further delineate the horizontal and vertical extent of the cultural deposits in this area. If no further cultural materials are encountered, data recovery should concentrate on the area near Test Units 2–4. Because the features were capped by an extremely gravelly fill up to 110 cm thick, these sterile deposits should be mechanically removed. A minimum of 50–70 m^3 of hand excavation may be required for data recovery.

Situated on a slope consisting primarily of Paluxy-derived sediments, Analysis Units 1 and 2 at 41CV1553 correlate to the end of the Late Prehistoric and the Late Archaic periods. Because much of the Paluxy and non-Paluxy sediments (including the area comprising Analysis Unit 3) were not adequately tested, at least five backhoe trenches and three test units should be excavated to prospect for more cultural deposits. If no other significant cultural materials are encountered, data recovery should concentrate on two areas. The first is the central, upslope margin of the site where Backhoe Trench 1 and Test Unit 4 were excavated. Here, Analysis Unit 1 encompasses one hearth confined to the upper 30 cm of deposits that produced diverse macrobotanical remains, including bulb fragments. The use of a Gradall in this area would be highly effective at locating features to be hand excavated. An area measuring ca. 40x30 m could be systematically scraped to expose more features and associated living surfaces. Toward the eastern site margin, the area subsuming Analysis Unit 2 is approximately 100 m downslope from Analysis Unit 1. The excavations, surface exposures, and a roadcut indicate that an occupation zone (Feature 1) measures at least 45x30 m. Two large, slab lined, internal hearths were encountered in Feature 1. These cooking facilities yielded a variety of plant remains, including bulbs. The bulk of these cultural deposits are contained within the upper 40 cm of fill, but the hearths rest on weathered bedrock to a maximum depth of ca. 70 cm. Again, mechanical stripping with a Gradall could facilitate excavation by locating features and exposing the occupation layers. It is estimated that minimum data recovery for Analysis Units 1 and 2 would include 75–100 m^3 of hand excavation.

About 4 m apart, two hearths at 41CV1555 date to the Late Prehistoric period, Austin phase (Analysis Unit 2). Twelve meters north of these features, a concurrent increase in cultural materials in another test unit is probably contemporaneous. Before data recovery is undertaken, at least three backhoe trenches and three test units should be excavated to further delineate the extent of the cultural deposits in this area. If no other cultural materials are encountered, data recovery should concentrate on the area near Test Units 1–3. Based on surface and subsurface exposures in this area, the extent of the interpretable cultural deposits is at least 40 m north-south by 30 m east-west and occurs in the upper 40 cm of deposit. Use of a Gradall at this site could aid in identifying more features and associated living surfaces. It is recommended that 40–60 m^3 of hand excavation is sufficient to obtain an interpretable sample of features and artifacts from Analysis Unit 2.

PROGRAMMATIC RECOMMENDATIONS

Only 3 of the 13 tested sites and subareas show evidence of vandalism. The middens at 41BL349 and 41CV41-A were minimally looted; this is unusual, given the high artifact densities and presence of prehistoric ceramics at the latter site. A looting incident at the third site—41CV579—occurred while formal testing was being conducted. Although disturbance to the midden and hearth were minimal, continued looting of deposits is possible given the easy access to the site, the high visibility of the test excavations (now backfilled), and the history of tenacious looting at Fort Hood.

Regardless of whether vandalism has occurred, pot hunting must be considered a potential threat to all midden sites. Many middens that have minimal evidence of vandalism appear to have been only tested by pot hunters checking the artifact return. Even this can be very destructive, and others may dig there simply because they see that someone else has. Once word gets out that a midden is rich in artifacts, the intensity of digging may escalate. Researchers from Mariah Associates and Prewitt and Associates have observed many cases of recent vandalism to midden deposits since 1991, and it is obvious that the problem is continuing (see Boyd et al. 1999:52–54).

Stopping the vandalism of middens will be difficult, if not impossible, given the difficulties

of protecting many widely scattered sites with limited resources. The most effective deterrent would be to catch vandals in the act of digging and obtain sufficient evidence to prosecute them under the Archeological Resources Protection Act (ARPA) of 1979 (PL 96-95, as amended; 16 USC 470 et seq.). If an ARPA conviction can be obtained, publicizing it widely would help deter future vandalism. The most efficient way to catch vandals and obtain criminal evidence to get an ARPA conviction is to install surveillance equipment to monitor and record unauthorized intrusions. It is recommended therefore that the Fort Hood Archeological Resource Management Program immediately initiate an archeological site surveillance program to help protect burned rock middens and rockshelters from vandalism. Similar recommendations for protecting rockshelters have been made in previous reports (see Boyd et al. 1999). Although long term protective strategies such as surveillance should be pursued, it is unrealistic to expect that looting will be stopped or slowed significantly in the next decade. It is more realistic to expect that the loss of significant archeological data will continue in the foreseeable future, so it also is recommended that Fort Hood consider adopting a comprehensive plan for data recovery at selected middens and rockshelters that are threatened by looting.

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APPENDIX A: Summary and Evaluation of Radiocarbon Dates

Gemma Mehalchick

Twenty-one charcoal samples from feature and nonfeature contexts at eight archeological sites were radiocarbon dated by Beta Analytic, Inc., of Miami, Florida. Twenty-two samples were submitted for assay, but 1 from 41CV579 (Beta-136835) consisted of carbon stained sediment that would not yield a reliable result, so it was not dated. Of the 21 radiocarbon assays, 5 are from sites where geomorphic reconnaissance and shovel testing were conducted, and the other 16 are from National Register-tested sites. Nineteen of the 21 samples (90.5 percent) were dated using the AMS method.

Table A.1 presents laboratory sample numbers, dated material, site and provenience designations, conventional radiocarbon age and $\delta^{13}C$ value in ‰, calibrated calendrical dates (1-sigma range), and wood identification if appropriate for each of the 21 samples. Two of the charcoal samples assayed by the standard radiometric method were very small and required extended counting time.

The conventional radiocarbon ages ($\delta^{13}C$-corrected ages) are reported in radiocarbon years before present (RCYBP), where present is A.D. 1950. They were calculated using the Libby ^{14}C half life of 5,568 years. The $^{13}C/^{12}C$ ratios are relative to the PDB-1 international standard, and RCYBP ages are normalized to –25 per mil. All of the conventional radiocarbon ages were tree-ring calibrated by Beta Analytic using INTERCAL 98 (Stuiver et al. 1998; Stuiver and van der Plicht; Talma and Vogel 1993).

The charcoal radiocarbon dates are considered to be fairly accurate age estimates that approximate the time when cultural activities associated with features and occupation zones occurred. Although radiocarbon assays on wood charcoal actually date the death of the tree, the old-wood factor is not likely to be significant in most cases.

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Table A.1. Summary of radiocarbon dates

Beta Sample No.	Sample Material	Site and Analysis Unit	Sample Provenience (by test unit)	Feature Association	Conventional Age B.P. ($\delta^{13}C$)	1-sigma Calibrated Range and Intercepts[1]	Wood Identification
Beta–136823[2]	charcoal	41BL797	1 (80–90 cm)	Feature 1	1,510 ± 50 (-25.3)	A.D. 530 (560) 615	*Quercus* sp.
Beta–136824[2]	charcoal	41BL934	1 (40–50 cm)	none	1,950 ± 50 (-24.7)	A.D. 5 (60) 95	*Juniperus* sp.
Beta–136825[3]	charcoal[4]	41BL934	3 (28 cm)	none	280 ± 60 (-26.5)	A.D. 1,515–1,590, 1,620 (1,645) 1,660	*Carya* sp.
Beta–136826[2]	charcoal	41BL929-D	5 (76–87 cm)	Feature 3	550 ± 50 (-26.3)	A.D. 1,325–1,345, 1,395 (1,410) 1,425	
Beta–136827[2]	charcoal	41BL929-B	7 (13–30 cm)	Feature 1	1,150 ± 50 (-25.8)	A.D. 815–840, 855 (890) 970	*Quercus* sp.
Beta–136828[2]	charcoal	41CV41-A (3)	2 (10–20 cm)	Feature 2	760 ±50 (-25.7)	A.D. 1,235 (1,270) 1,285	*Quercus* sp.
Beta–136829[2]	charcoal	41CV41-A (3)	2 (30–40 cm)	Feature 2	600 ± 50 (-23.2)	A.D. 1,300 (1,325, 1,345, 1,395) 1,410	
Beta–136830[2]	charcoal	41CV41-A (1)	4 (92 cm)	Feature 5	2,340 ± 50 (-25.0)	410 (395) 385 B.C.	
Beta–136831[2]	charcoal	41CV41-A (2)	5 (55 cm)	none	2,030 ± 50 (-25.1)	80 B.C. (40 B.C.) A.D. 30	
Beta–136832[2]	charcoal	41CV41-A (2)	1 (77–100 cm)	Feature 4	1,120 ± 50 (-24.7)	A.D. 880 (910, 920, 955) 990	
Beta–136833[2]	charcoal	41CV41-A (2)	1 (114–128 cm)	Feature 1	1,360 ± 50 (-27.9)	A.D. 645 (665) 685	Indeterminate hardwood
Beta–136834[2]	charcoal	41CV579 (3)	6 (227 cm)	none	1,720 ± 50 (-26.5)	A.D. 250 (340) 400	*Quercus* sp.
Beta–136835	carbon-stained sediment	41CV579 (3)	6 (300 cm)	none	not dated	not dated	
Beta–136836[2]	charcoal	41CV579 (2)	6 (172–198 cm)	Feature 1	1,200 ± 50 (-25.0)	A.D. 770 (815, 840, 855) 890	
Beta–136837[2]	charcoal	41CV579 (2)	6 (188–205 cm)	Feature 1	1,080 ± 50 (-26.7)	A.D. 900 (980) 1005	
Beta–136838[2]	charcoal	41CV1443-A (2)	4 (133 cm)	Feature 1	1,290 ± 50 (-27.5)	A.D. 670 (700) 775	
Beta–136839[2]	charcoal	41CV1443-A (2)	3 (154 cm)	Feature 2	1,460 ± 50 (-26.8)	A.D. 560 (615) 645	Salicaceae
Beta–136840[3]	charcoal[4]	41CV1553 (1)	4 (14 cm)	Feature 3	240 ± 50 (-25.9)	A.D. 1,640 (1,655) 1,670, 1,780–1,795	*Quercus* sp.
Beta–136841[2]	charcoal	41CV1553 (2)	5 (50 cm)	Feature 4	1,900 ± 50 (-28.1)	A.D. 60 (95) 140	*Quercus* sp.
Beta–136842[2]	charcoal	41CV1553 (2)	5 (41 cm)	Feature 6	2,090 ± 50 (-27.9)	180 (100) 45 B.C.	*Quercus* sp.
Beta–136843[2]	charcoal	41CV1555 (2)	2 (36 cm)	Feature 3	1,180 ± 50 (-26.3)	A.D. 780 (875) 900	*Quercus* sp.
Beta–136844[2]	charcoal	41CV1555 (2)	1 (10–26 cm)	Feature 2	700 ± 50 (-26.7)	A.D. 1,275 (1,290) 1,300	

[1] Calibrations were done by Beta Analytic using INTERCAL 98 (Stuiver et al. 1998; Stuiver and van der Plicht 1998); Talma and Vogel 1993).
[2] AMS radiocarbon date
[3] standard radiometric date
[4] small sample that required extended counting time

APPENDIX B: Soil Stratigraphic Profiles

S. Christopher Caran

Karl W. Kibler

and

Amy M. Holmes

Site 41BL192

Test Unit 2, northeast and southeast walls

Zone 1 0–4/6 cm Very pale brown (10YR 7/3, dry) and pale brown (10YR 6/3, moist); gravelly silt loam (sandy clayey gravelly silt); sand is mostly very fine to fine, but with common medium to very coarse sand; laterally variable concentration (uncommon to locally common) of isolated angular to subrounded spalled granules, pebbles, and cobbles of locally derived marl and marly limestone; silt through fine sand is composed of quartz and marl fragments, but coarser clasts consist of marl and marly limestone only; against low bedrock face at rear of shelter, floor is armored with spalled granules, pebbles, and cobbles of marl and marly limestone; soft (dry), sticky and plastic (wet); weak fine blocky angular structure, but locally moderate medium blocky angular where partly cemented with secondary $CaCO_3$ from seepage; few laminae consisting of brittle calcite films precipitated from seepage; few fine pores; subtle subhorizontal laminae conforming to lower boundary, formed by vertical accretion of spalled and slaked particles and eolian calcareous dust; very abrupt wavy lower boundary, CB horizon. Note: Zone 1 overlies Zone 2 in the northeast wall of Test Unit 2. Zone 1 overlies Zone 3 directly in most of the southeast wall of Test Unit 2 except its northernmost end, where Zone 1 overlies Zone 2.

Zone 2 4/6–28 cm Very pale brown (10YR 8/2, dry) and very pale brown (10YR 7/3, moist), silt loam (sandy clayey silt with rare granules and pebbles and one tabular cobble cemented onto the upper horizon boundary); sand is mostly very fine to fine, but with common medium to very coarse sand; clasts coarser than sand are subrounded; silt through fine sand is composed of quartz and slaked marl fragments, but coarser clasts consist of spalled marl and marly limestone only; slightly hard (dry), slightly plastic (wet); moderate medium blocky angular structure; few fine distinct (10YR 6/3) mottles (partly decomposed pellets) and few discrete (10YR 5/2) lenses containing pieces of charcoal (probable ash scatters); subhorizontal lenses (laterally discontinuous and varying in thickness from 1 to 5 cm) of sandy clayey silt with a few granule- to pebble-sized fragments of charcoal, probably representing ash scatters; few fine roots; few fine pores; common scattered partly decomposed elongate-spherical pebble-sized rodent pellets; at the southern end of the northeastern wall, Zone 2 is separated from Zone 3 by a very abrupt irregular lower boundary (inclined 28∞ north-northwest), at the northern end of the southeastern wall, Zone 2 is separated from Zone 3 by a very abrupt irregular lower boundary (inclined <10∞ east-northeastward), Bkmb horizon.

Zone 3 0/15–28+ cm Zone 2 wedges out 10 cm south of northeastern wall); Highly calcareous white (whiter than 5YR 8/1, dry and moist) clay in beds 3–10 cm thick separated by 1–4 cm thick gray (10YR 5/1, dry) sandy loam (silty clayey sand) beds; sand is mostly very fine, but with common fine to very coarse sand and a few granules; silt through fine sand is composed of quartz and slaked marl fragments, but coarser clasts consist of spalled marl and marly limestone only; clay beds are hard (dry) and preserve weak horizontal laminae, but are compacted and recemented and have massive soil structure, and are very sticky and very plastic (wet); sandy loam beds are loose (dry); lower boundary not observed, $2Bkm^2b$ horizon. Note: Zone 3 underlies Zone 2 in the northeastern wall. Rearward from the point where

the shelter attains its maximum extant height, Zone 3 is exposed and forms the floor of the shelter until it reaches the western edge of Zone 1. Zone 1 then overlies Zone 3 in most of the southeastern wall except at its northernmost end, where Zone 2 overlies Zone 3. Where Zone 3 forms the floor of the shelter, it is covered in part by scattered sand- and granule-sized particles resulting from slaking and spalling of strata in the ceiling. The veneer of scattered particles forms a layer that thickens toward the entrance from the point where the shelter attains its maximum extant height.

Site 41BL239

Test Units 1 and 2

Zone 1	0–25 cm	Black (7.5YR 2.5/1, dry); gravelly silty clay loam; slightly hard (dry); moderate medium blocky subangular structure; 20 percent gravel content consists of subangular granules, pebbles, and cobbles; clear smooth lower boundary, A horizon.
Zone 2	25–30+ cm	Brown (7.5YR 4/4, dry); gravelly clay loam; hard (dry); moderate medium blocky angular structure; 20 percent gravel content consists of subangular large pebbles; lower boundary not observed, B horizon.

Site 41BL349

Backhoe Trench 1, northeast wall

Zone 1	0–8/11 cm	Very dark gray (10YR 3/1, dry) and black (10YR 2/1, moist); silty clay (very silty sandy clay with rare gravel); sand is mostly very fine to fine, but with uncommon medium to very coarse sand and granules; gravel consists of rare pebbles and cobbles; soft (dry), slightly sticky and slightly plastic (wet); moderate fine blocky angular structure; abundant fine and few medium roots; abundant fine pores; abundant casts; common snail shell fragments; abundant fine pressure faces; abrupt wavy lower boundary, A horizon. Zone 1 thickens to 30 cm downslope (to the northwest).
Zone 2	8/11–32/169 cm	Dark gray to gray (10YR 4.5/1, dry) and very dark gray (10YR 3/1, moist), gravelly silty clay (very silty sandy clay with common gravel); sand is mostly very fine to fine, but with uncommon medium to very coarse sand and granules; gravel consists of common isolated pebbles and uncommon cobbles and small boulders, some clustered or stacked and burned in situ(?); slightly hard, locally loose in lower 30–45 cm (dry); weak fine blocky angular structure breaking to granular; abundant fine and few medium roots in upper 25 cm, uncommon fine roots below; abundant fine pores; abundant casts; common snail shell fragments; common fine pressure faces; calcareous films and threads uncommon to common in upper 25 cm and abundant below, with thin discontinuous calcareous coatings on coarse clasts; abrupt to locally clear, highly irregular lower boundary, BA horizon (anthropogenic in part).
Zone 3	32/169–176+ cm	White (10YR 8/1, dry) sandy loam (highly calcareous silty clayey sand with granule- and pebble-sized residual particles of limestone); 30-cm thick laminar cap (where intact) with pebble-sized pisoids and pendulous structures, overlying massive deposits resulting from in situ weathering and recementation of soft marly limestone with hard limestone thin beds;

very hard to soft (dry), sticky and nonplastic (wet); few fine and medium roots; abundant fine to medium pores (solution conduits); abundant casts; pedokarstic pits (to 26 cm deep) and cavities filled with largely decalcified residuum and/or Zone 2 material; lower boundary not observed, Bkm horizon. Unweathered limestone is exposed at the upslope end of Backhoe Trench 1.

Site 41BL797

Test Unit 1, north wall

Zone 1 0–37 cm Very dark grayish brown (10YR 3/2, moist); silt loam; friable (moist); structureless; 10 percent gravel content consists of angular pebbles; abrupt wavy lower boundary, AC horizon (looter's backdirt pile).

Zone 2 37–100+ cm Very dark gray (10YR 3/1, moist); gravelly silt loam; friable (moist); weak medium blocky subangular structure; 10 percent gravel content consists of angular pebbles, at 70–100 cm 50 percent gravel content consists of angular pebbles and cobbles; lower boundary not observed, C horizon.

Site 41BL902

Test Unit 1, east wall

Zone 1 0–42 cm Black (10YR 2/1, moist); gravelly loam; loose (moist); weak medium granular structure; 30 percent gravel content consists of angular cobbles; common matrix-supported organic debris; lower boundary not observed, A horizon.

Site 41BL904

Test Unit 1

Zone 1 0–10 cm Very dark brown (10YR 2/2, moist); gravelly silty clay loam; friable (moist); weak fine blocky subangular structure; 25 percent gravel content consists of angular granules and pebbles; abrupt broken lower boundary (rests on limestone bedrock), AC horizon.

Site 41BL905

Test Unit 1

Zone 1 0–12 cm Pale yellow (2.5Y 8/4, moist); silt; very friable (moist); structureless; 10 percent gravel content consists of angular granules and pebbles; abrupt broken lower boundary (rests on limestone bedrock), C horizon.

Site 41BL911

Shelter A, Test Unit 3

Zone 1 0–17 cm Very dark gray (10YR 3/1, moist); gravelly silt loam; friable (moist); weak fine blocky subangular structure; 20 percent gravel content consists of angular granules and pebbles; clear smooth lower boundary, A horizon.

Zone 2 17–39+ cm Very dark grayish brown (10YR 3/2, moist); gravelly silty clay loam; friable (moist); weak fine blocky subangular structure; 50 percent gravel content consists of angular granules, pebbles, and cobbles; lower boundary not observed, Bw horizon.

Shelter B, Test Unit 4

Zone 1	0–24 cm	Very dark gray (10YR 3/1, moist); silt loam; friable (moist); weak fine blocky subangular structure; 10 percent gravel content consists of angular granules and pebbles; clear smooth lower boundary, A horizon.
Zone 2	24–35+ cm	Dark grayish brown (10YR 4/2, moist); gravelly silty clay loam; friable (moist); weak fine blocky subangular structure; 25 percent gravel content consists of angular granules, pebbles, and cobbles; lower boundary not observed, Bw horizon.

Site 41BL912

Test Unit 1

Zone 1	0–22 cm	Grayish brown (10YR 5/2, dry); gravelly silty clay loam; soft (dry); weak very fine blocky subangular structure; 50 percent gravel content consists of subangular pebbles and cobbles; lower boundary not observed, AC horizon.

Site 41BL927

Test Unit 1

Zone 1	0–140+ cm	Black (10YR 2/1, moist); very gravelly silty clay loam; friable (moist); structureless; 50 percent gravel content consists of angular granules, pebbles, and cobbles; lower boundary not observed, AC horizon.

Test Unit 3

Zone 1	0–30 cm	Black (10YR 2/1, moist); very gravelly silty clay loam; friable (moist); structureless; 50 percent gravel content consists of angular granules, pebbles, and cobbles; abrupt wavy lower boundary (rests on limestone bedrock), AC horizon.

Site BL929

Shelter A, Test Unit 1

Zone 1	0–26 cm	Black (10YR 2/1, moist); silt loam; slightly hard (dry); weak fine blocky subangular structure; 10 percent gravel content consists of subangular pebbles; abrupt smooth lower boundary, A horizon.
Zone 2	26–51 cm	Very dark grayish brown (10YR 3/2, dry); gravelly silty clay loam; slightly hard (dry); weak very fine blocky subangular structure; 30 percent gravel content consists of pebbles and cobbles; abrupt smooth lower boundary, BC horizon.
Zone 3	51–89+ cm	Light brownish gray (10YR 6/2, dry); silty clay loam; slightly hard (dry); weak fine blocky subangular structure; 5 percent gravel content consists of subangular pebbles; lower boundary not observed, C horizon.

Shelter B, Test Unit 3

Zone 1	0–34+ cm	Black (10YR 2/1, dry); silt loam; loose (dry); weak very fine blocky subangular structure; 10 percent gravel content consists of pebbles and cobbles, lower boundary not observed, AC horizon.

Shelter C, Test Unit 5

Zone 1	0–17 cm	Grayish brown (10YR 5/2, dry); silt loam; slightly hard (dry); weak medium blocky subangular structure; 10 percent gravel content consists of

subangular pebbles; abrupt wavy lower boundary, A horizon.

Zone 2	17–31 cm	Light gray (10YR 7/1, dry); silt loam; slightly hard (dry); weak medium blocky subangular structure; 7 percent gravel content consists of subangular pebbles; clear smooth lower boundary, C horizon.
Zone 3	31–75+ cm	Gray (10YR 6/1, dry); silt loam; slightly hard (dry); weak medium blocky subangular structure; 10 percent gravel content consists subangular pebbles; lower boundary not observed, C horizon.

Shelter D, Test Unit 6

Zone 1	0–61 cm	Black (10YR 2/1, dry); gravelly silt loam; slightly hard (dry); weak coarse granular structure; 20 percent gravel content consists of subangular pebbles; clear smooth lower boundary, AC horizon.
Zone 2	61–83+ cm	Black (10YR 2/1, dry); very gravelly silt loam; loose (dry); weak medium granular structure; 50 percent gravel content consists of subangular pebbles and cobbles; lower boundary not observed, C horizon.

Site 41BL934

Shelter A, Test Unit 1

Zone 1	0–60 cm	Black (10YR 2/1, moist); very gravelly silty clay loam; friable (moist); structureless; 50 percent gravel content consists of angular pebbles, cobbles, and boulders; very abrupt wavy lower boundary (rests on broken limestone bedrock), A horizon.

Shelter B, Test Unit 3

Zone 1	0–32 cm	Black (10YR 2/1, moist); gravelly silty clay loam; friable (moist); weak fine blocky subangular structure; 25 percent gravel content consists of angular pebbles; very abrupt wavy lower boundary (rests on broken limestone bedrock), A horizon.

Site 41CV41

Test Unit 5, north wall

Zone 1	0–5/10 cm	Very dark gray (7.5YR 3/1, dry) and black (7.5YR 2.5/1, moist); clay (silty sandy clay); sand is very fine to fine with rare medium sand; very friable (moist), sticky and plastic (wet); weak fine blocky angular structure, but with relict laminae; few medium and abundant fine roots; common fine pores; abundant casts; common snail shell fragments; clear smooth lower boundary, A horizon.
Zone 2	5/10–20 cm	Very dark gray (7.5YR 3/1, dry) and black (7.5YR 2.5/1, moist); very gravelly silty clay (very clayey very silty sandy gravel); sand is very fine to fine; gravel consists of granules, pebbles, and rare cobbles; friable (moist), sticky and plastic (wet); weak fine blocky angular structure; few to common medium roots; common fine pores; common casts; common snail shell fragments; clear wavy to locally irregular lower boundary, Ab horizon. The distribution of coarse clasts appears to be anthropogenic, although some clasts may have been disbursed through incidental activity at the site during occupation.
Zone 3	20–107+ cm	Brown (7.5YR 4/2, dry) and dark gray (7.5YR 4/1, moist); gravelly sandy loam (very silty very clayey sand with uncommon isolated gravel); sand is

very fine to fine; gravel consists of granules, pebbles, and rare cobbles; soft (dry), sticky and plastic (wet); weak fine blocky angular structure breaking to granular; common calcareous films and threads; few fine and medium roots; abundant fine pores; whole large snail shells (*Rabdotus* sp.) in pockets and in a layer from 78–84 cm; lower boundary not observed, Bw horizon. The distribution of coarse clasts appears to be anthropogenic, although some clasts may have been disbursed through incidental activity at the site during occupation. At least some of the coarse clasts appear to be burned, but not in situ.

Site 41CV94

Backhoe Trench 5, west end of trench

Zone 1 0–21 cm Dark brown (7.5YR 3/2, dry) and very dark gray to dark brown (7.5YR 3/1.5, moist); clay (very silty sandy clay); sand is mostly very fine with rare fine to very coarse sand, few isolated granules and pebbles, and few pebble-sized fragments (ripup clasts) of Zone 2 material below 9 cm; thin concentration of pebbles at ground level; very hard (dry), sticky and plastic (wet); strong fine blocky angular structure with a subtle pseudo-platy overprint resulting from plowing and/or compaction; few fine distinct (7.5YR 4/4) mottles below 9 cm; common fine roots; common fine pores; few casts; common snail shell fragments; common fine syneresis fractures (open cracks to at least 17 cm depth); gradual wavy lower boundary, Ap horizon.

Zone 2 21–45/52 cm Brown (7.5YR 4/3.5, dry and moist); slightly gravelly clay loam (very sandy very silty clay with rare to few granules and pebbles); sand is mostly very fine with rare fine to very coarse sand; isolated granules and pebbles throughout and locally concentrated along lower boundary; friable (moist), sticky and plastic (wet); moderate fine blocky angular structure breaking to granular; few fine faint (7.5YR 3/2) mottles; thick complete argillans on peds; uncommon calcareous films and threads, particularly in lower part of zone; few manganese stains; few fine roots; common fine pores; few casts; gradual, wavy to locally irregular lower boundary, Bt horizon.

Zone 3 45/52–95+ cm Pink (7.5YR 7/4, dry) and light brown (7.5YR 6/4, moist); gravelly to extremely gravelly sandy loam (silty to locally very silty clayey sand with gravelly to extremely gravelly zones); sand is very fine to fine with rare medium to very coarse sand; gravel consists of granules, pebbles, and rare cobbles of limestone concentrated in lenses and in a 10–20 cm thick soil karstic lag at top of zone; hard (dry), slightly sticky and slightly plastic (wet); moderate medium blocky subangular structure, but primary sedimentary structures are preserved, including lenses of cross-bedded imbricated sandy gravel; few fine faint (7.5YR 6/6 and 10YR 8/1) mottles; mottled zones are very silty; no roots; no pores; few fine calcareous root conduits (concretionary fill); lower boundary not observed, Bkm horizon.

Test Unit 2 (adjacent to Backhoe Trench 2) east wall

Zone 1 0–38 cm Very dark gray (10YR 3/1, dry) and dark gray (10YR 4/1, moist); clay (silty sandy clay with rare granules and isolated pebbles); sand is very fine to fine with rare medium to coarse sand; rare granules and isolated pebbles of limestone throughout; hard (dry), sticky and plastic (wet); moderate fine blocky angular structure; few to common (increasing below 10 cm depth) fine distinct (10YR 6/1) mottles; common fine roots; common fine

pores; common casts; common fine pressure faces; common fine syneresis fractures; gradual smooth lower boundary, A horizon.

Zone 2 38–52 cm Light brownish gray (10YR 6/2, dry) and dark gray (10YR 4/1, moist); gravelly sandy loam grading upward to clay (upward fining from gravelly clayey silty sand to silty sandy clay); sand is poorly sorted throughout, mostly very fine to medium, but with coarse and very coarse sand; gravel consists of granules, pebbles, and rare cobbles of limestone; hard (dry), sticky and plastic (wet); moderate fine blocky angular structure breaking to granular; few fine distinct (10YR 3/1) mottles; few fine roots; common fine pores (some pores are clay lined and calcareous); common casts; clear wavy lower boundary. CB1 horizon.

Zone 3 52–78 cm Light brownish gray (10YR 6/2, dry) and grayish brown (10YR 5/2, moist); slightly gravelly silty clay (very silty sandy clay with few stringers of sandy gravel throughout and few granules and pebbles along lower boundary); sand is poorly sorted mostly very fine to medium, but with coarse and very coarse sand; gravel consists of granules, pebbles, and rare cobbles of limestone; hard (dry), sticky and plastic (wet); weak fine blocky angular structure; few fine faint (10YR 3/1) mottles; incipient argillans on peds; few fine roots; abundant fine pores, few medium pores; common casts; gradual smooth lower boundary, CB2 horizon.

Zone 4 78–116 cm Very dark gray to dark gray (7.5YR 3.5/1, dry) and very dark gray (7.5YR 3/1, moist); clay (silty sandy clay); sand is mostly very fine to fine with uncommon medium to very coarse sand and granules and rare pebbles throughout; very hard (dry), sticky and plastic (wet); moderate fine blocky angular structure; common to many (increasing downward) fine distinct (7.5YR 6/2) mottles; incipient argillans and few calcareous threads on peds; few fine roots; abundant fine pores; few casts; abundant fine syneresis fractures; gradual wavy lower boundary, Ab horizon.

Zone 5 116–200+ cm Pinkish gray (7.5YR 6/2, dry) and gray to pinkish gray (7.5YR 6/1.5, moist); clay loam to extremely gravelly sandy loam (very sandy very silty clay to very sandy silty clayey gravel); lenses (approximately 20 cm thick) of sandy gravel throughout fine matrix; sand is very fine to very coarse; gravel consists of granules, pebbles, and uncommon cobbles; friable (moist), sticky and plastic (wet); weak fine blocky angular structure; few fine faint (7.5YR 4/1) mottles from 116 to 136 cm; common medium faint (7.5YR 7/6 to 7.5YR 5/6) mottles below 136 cm; few fine roots; common fine pores; few casts; common snail shell fragments; 1 mussel shell (whole), concave up; lower boundary not observed, CBb horizon.

Site 41CV579

Test Unit 2, southeast wall

Zone 1 0–122 cm Generally light gray to dark gray (10YR 7/1 to 10YR 4/1); loamy sand to clay (stacked upward fining sequences from silty very fine to fine and rare medium sand at base to silty very fine sandy clay at top); 11 discrete upward fining flood sequences are evident, each ranging from 9 to 22 cm thick; a 7 cm thick layer of flood deposited fine to coarse organic detritus caps one of the sequences; sands at the base of each sequence preserve cross laminae; deposits within each sequence were heavily bioturbated before burial;

		common to few fine roots (decreasing downward); common fine pores; common snail shell fragments; abrupt smooth lower boundary, C horizon.
Zone 2	122–214+ cm	Dark gray (10YR 4/1, moist); clay (silty slightly sandy clay); sand is very fine to fine; firm (moist), slightly sticky and plastic (wet); moderate fine blocky angular structure, but faint cross laminae are preserved; common fine distinct (10YR 6/2 and 10YR 4/3) mottles from 122 to 133 cm; few fine roots; few fine pores; few snail shell fragments; abundant fine pressure faces; lower boundary not observed, Ab horizon.

Test Unit 5 (adjacent to Backhoe Trench 7), northwest wall

Zone 1	0–37 cm	Dark gray (10YR 4/1, dry) and very dark gray to dark gray (10YR 3.5/1, moist); clay (silty clay with very fine to fine sand filling fine root conduits throughout); firm (moist), very sticky and very plastic (wet); moderate fine blocky angular structure, but with well preserved laminae exhibiting minor textural variations (silt content greatest at bottom of lamina); few fine roots; common fine pores; few snail shell fragments; common casts; leaf matter along bedding planes in upper 6 cm; abrupt wavy (locally irregular where medium root conduits allowed intrusion of Zone 1 material as much as 15 cm into Zone 2, with few calcareous threads and spots in material filling conduits) lower boundary, A horizon.
Zone 2	37–63 cm	Pale brown (10YR 6/3, dry) and dark grayish brown (10YR 4/2, moist); sandy loam (very silty sand); sand is very fine with rare fine sand; Zone 1 material intrusive along root conduits locally (penetrating as much as 15 cm below base of Zone 1); very friable (moist), nonsticky and nonplastic (wet); weak fine blocky angular structure breaking to granular locally; few fine to medium roots; common fine pores, few medium pores in upper 15 cm (mostly filled with Zone 1 material); few whole terrestrial snail shells; abrupt wavy lower boundary, CA horizon.
Zone 3	63–115 cm	Grayish brown (10YR 5/2, dry) and dark grayish brown (10YR 4/2, moist); clay (silty clayey sand); sand is very fine to fine with rare medium sand; very hard (dry), sticky and plastic (wet); weak (moderate in lower 17 cm) fine blocky angular structure; whole hackberry endocarps throughout (locally common in upper 10 cm, few elsewhere); few (abundant in lower 17 cm) calcareous films and threads; few fine roots; common fine pores; common to abundant casts; few whole terrestrial snail shells; gradual wavy lower boundary, BC horizon.
Zone 4	115–208 cm	Very dark grayish brown (10YR 3/2, dry) and black (10YR 2/1, moist); silty clay (very silty clay with local concentrations of very fine sand filling root conduits and along ped faces); few (between 150 to 185 cm depth) to abundant (between 185 and 208 cm depth) burned fire-cracked rock consisting of rounded (stream rolled) cobbles and small boulders of highly fossiliferous limestone, fractured in situ forming angular pebble-sized and coarser fragments; friable (moist), sticky and plastic (wet); strong fine blocky angular structure; many fine distinct (10YR 8/1) films covering more than 30 percent of peds; few fine roots; few fine pores; few casts; irregularly distributed, but locally concentrated, whole mussel valves, few pairs articulated; gradual irregular to wavy lower boundary, Ab horizon.

Zone 5	208–238+ cm	Dark gray (7.5YR 4/1, dry) and very dark gray (7.5YR 3/1, moist); clay (slightly silty clay with few local concentrations of very fine to fine sand filling root conduits); rare burned rocks (angular pebbles and cobbles) throughout zone; very hard (dry), friable (moist); moderate fine prismatic structure breaking to blocky angular; lower boundary not observed, Btb horizon.
Zone 6	260–318+ cm	(exposed in Test Unit 6, immediately north-northeast of Test Unit 5), same as Zone 5 of Test Unit 5, including rare burned rocks to base of exposure, but with common (abundant at 268–298 cm) soft powdery pebble-sized calcareous nodules with distinct margins, lower boundary not observed, Btkb horizon.

Backhoe Trench 3, east end

Zone 1	0–11 cm	Very dark gray to dark gray (10YR 3.5/1, dry and moist); silty clay (very silty slightly sandy clay); sand is very fine; firm (moist); weak fine blocky angular structure breaking to granular, but with faint relict laminations; common fine roots; common fine pores; common casts; admixed fibric organic matter; common fine pressure faces; common fine syneresis fractures; abrupt smooth lower boundary, AC1 horizon.
Zone 2	11–69 cm	Very dark gray (10YR 3/1, moist); silty clay to clay (stacked upward fining sequences from very silty very sandy clay at base to silty clay at top); sand is very fine to fine; four very faint discrete upward fining flood sequences are evident, each ranging from 13 to 16 cm thick; firm (moist), slightly sticky and plastic (wet); weak fine blocky angular structure breaking to granular, but with inconspicuous relict bedding; common fine roots; few fine pores; few casts; common fine pressure faces; common healed syneresis fractures filled with silty very fine sand; abrupt smooth lower boundary, AC2 horizon.
Zone 3	69–115+ cm	Black to very dark gray (10YR 2.5/1, dry and moist); clay, (slightly silty clay); friable (moist), sticky and plastic (wet); moderate to strong fine blocky angular structure; common fine roots; few fine pores; few casts; well defined medium pressure faces; common healed syneresis fractures; lower boundary not observed, BA horizon.

Site 41CV668

Test Unit 1, southeastern wall

Zone 1	0–5.5/9.5 cm	Very dark gray to dark gray (7.5YR 3.5/1, dry) and dark brown (7.5YR 3/2, moist); clay loam (very silty very sandy clay); sand is very fine to medium; slightly hard (dry), nonsticky and nonplastic (wet); weak fine blocky subangular structure breaking to granular; abundant fine to medium casts; abundant organic detritus; few medium roots; abrupt wavy lower boundary, CB horizon.
Zone 2	5.5/9.5–15.5 cm	Dark gray (7.5YR 4/1, dry) and very dark gray to dark gray (7.5YR 3.5/1, moist); clay loam (very silty very sandy clay with scattered gravel along lower boundary); sand is very fine to medium; very hard (dry), nonsticky and nonplastic (moist); weak fine blocky subangular structure breaking to granular; few pebbles; few medium roots; abundant casts; abrupt smooth lower boundary (lower boundary slopes downward away from channel); AC horizon.

Zone 3	15.5–40/47 cm	Upward fining sequence of brown (7.5YR 4/2, dry) and dark brown (7.5YR 3/2, moist) gravelly clay loam to clay loam (gravel along lower boundary grading upward to very silty very sandy clay); sand is very fine to medium; common pebbles and cobbles along lower boundary; very firm (moist), nonsticky and nonplastic (wet); weak fine blocky angular structure; few medium distinct (7.5YR 4/3) mottles; few fine roots, few medium in roots lower part of zone; abrupt wavy lower boundary, CB horizon.
Zone 4	40/47–60 cm	Dark brown (7.5YR 4/1, dry) and very dark brown (7.5YR 3/1, moist); gravelly clay (silty sandy clay with common isolated pebbles); sand is very fine to medium; common pebbles throughout; moderate fine blocky angular structure; few medium roots; clear wavy lower boundary, ABb horizon.
Zone 5	60–87+ cm	Dark gray (7.5 YR 4/1, dry) and brown (7.5 YR 4/2, moist) gravelly clay (silty sandy clay with common isolated gravel); sand is very fine to medium; common isolated pebbles and cobbles throughout; friable (moist); moderate fine blocky angular structure; common medium distinct (7.5YR 4/3) mottles; abrupt irregular lower boundary (on weathered nodular limestone), BCb horizon.

Test Unit 2, southwest wall

Zone 1	0–4.5/7.5 cm	Upward fining sequence of brown (7.5YR 5/2, dry) and dark brown (7.5YR 3/2, moist) gravelly clay loam grading upward to clay loam (gravelly very silty very sandy clay in basal 3 cm grading upward to very silty very sandy clay with uncommon isolated gravel throughout; sand is very fine to very coarse; gravel consists of granules and pebbles; friable (moist), nonsticky and nonplastic (wet); weak fine blocky subangular structure, but laminated and micro-graded; abundant fine casts; rare very coarse sand-sized snail shell fragments; abundant granule- to pebble-sized fragments of plant debris (juniper); abrupt wavy lower boundary, C horizon.
Zone 2	4.5/7.5–39/42 cm	Very dark gray (7.5YR 3/1, dry) and black to very dark gray (7.5YR 2.5/1, moist); clay (silty sandy clay with isolated gravel); sand is very coarse with rare medium and coarse sand; few isolated pebbles; very firm (moist), nonsticky and nonplastic (wet); strong fine blocky angular structure; common fine to medium roots; clear smooth lower boundary, AB horizon.
Zone 3	39/42–76/79 cm	Very dark gray to dark gray (7.5YR 3.5/1, dry) and dark gray (7.5YR 4/1, moist); slightly gravelly clay (silty sandy clay with isolated gravel); sand is very coarse with rare medium and coarse sand; gravel consists of pebbles and rare cobbles; firm (moist), nonsticky and nonplastic (wet); weak fine blocky angular structure breaking to granular; few fine roots; abundant fine casts; fine pressure faces; clear smooth lower boundary, Bw horizon.
Zone 4	76/79–86+ cm	Very dark gray to dark gray (7.5YR 3.5/1, dry) and dark gray (7.5YR 4/1, moist); slightly to extremely gravelly clay (silty sandy clay with isolated gravel to clayey silty sandy gravel); sand is very coarse with rare medium and coarse sand; gravel is isolated throughout to locally clustered and consists of granules and pebbles; firm (moist), nonsticky and nonplastic (wet); weak fine blocky subangular structure breaking to granular; rare fine roots; abundant fine casts; common fine pressure faces; lower boundary not observed, BC horizon.

Site 41CV956

Backhoe Trench 2, west wall

Zone 1	0–28 cm	Very dark gray (10YR 3/1, dry) and black (10YR 2/1, moist); silty clay (very silty sandy clay); sand is very fine; very hard (dry), sticky and plastic (wet); weak fine blocky subangular structure with a pseudo-platy overprint; abundant fine and medium roots; abundant fine pores; common casts; few snail shell fragments; common fine pressure faces; common syneresis fractures with common fibric organic matter along fractures; clear irregular lower boundary, Ap horizon.
Zone 2	28–65 cm	Very dark gray (10YR 3/1, dry) and black (10YR 2/1, moist) silty clay (very silty sandy clay); sand is very fine with rare fine sand; hard (dry), sticky and plastic (wet); weak fine blocky subangular structure; abundant fine and medium roots; abundant fine pores; common casts; common fine pressure faces; common fine syneresis fractures; clear irregular lower boundary, A horizon.
Zone 3	65–123 cm	Very dark gray (10YR 3/1, dry and moist); silty clay (very silty slightly sandy clay); friable (moist), sticky and plastic (wet); moderate medium blocky angular structure breaking to fine blocky angular; common gray (10YR 5/1) calcareous films and threads; few fine and medium roots; common fine pores; few casts; few snail shell fragments and whole snail shells; abundant fine pressure faces; common calcareous threads (hollow tubules) and concretionary films along healed syneresis fractures; gradual wavy lower boundary, BA horizon.
Zone 4	123–180+ cm	Dark gray (10YR 4/1, moist) with white coarse clasts; upward fining sequence of very gravelly sandy clay loam grading upward to slightly gravelly clay loam (very sandy very clayey silty gravel grading upward to very sandy very silty clay with isolated gravel); sand is very fine to very coarse; gravel consists of mostly subangular granules and pebbles of limestone; friable (moist), slightly sticky and plastic (wet); moderate medium blocky angular structure breaking to fine blocky angular; no roots; common fine pores; few casts; common snail shell, 2CB horizon.

Backhoe Trench 6, west wall

Zone 1	0–26 cm	Very dark gray (10YR 3/1, dry) and black (10YR 2/1, moist); silty clay (very silty sandy clay); sand is very fine; very hard (dry), sticky and plastic (wet); weak fine blocky subangular with a pseudo-platy overprint; abundant fine and medium roots; abundant fine pores; common casts; few snail shell fragments; common fine pressure faces; common syneresis fractures with common fibric organic matter along fractures; clear irregular lower boundary, Ap horizon.
Zone 2	26–39 cm	Very dark gray (10YR 3/1, dry) and black (10YR 2/1, moist); silty clay (very silty very sandy clay); sand is very fine with rare fine sand; hard (dry), sticky and plastic (wet); weak fine blocky subangular structure; abundant fine and medium roots; abundant fine pores; common casts; common fine pressure faces; common fine syneresis fractures; clear irregular lower boundary, A horizon.

Zone 3 39–57 cm Dark gray (10YR 4/1, dry and moist); silty clay (very silty very sandy clay); hard (dry), sticky and plastic (wet); moderate medium blocky angular structure; few fine faint (10YR 4/2) mottles and common white calcareous threads; abundant fine and medium roots; abundant fine pores; common casts; common fine pressure faces; common fine syneresis fractures; common calcareous threads; clear wavy lower boundary, AB horizon.

Zone 4 57–100+ cm Grayish brown (10YR 5/2, dry), but gravel beds are light gray (10YR 7/2, dry) with white coarse clasts; extremely gravelly sandy loam with beds up to 10 cm thick of gravelly sandy clay (very sandy silty gravel with beds of very sandy silty gravelly clay); sand is very fine to very coarse; gravel consists of mostly subangular granules, pebbles, and rare cobbles of limestone; extremely gravelly sandy loam beds are slightly hard (dry), gravelly sandy clay beds are very hard (dry); weak fine blocky angular structure breaking to granular, but with primary sedimentary structures (low angle cross-beds) preserved; few fine roots; few fine pores; few casts; few calcareous threads and films throughout; lower boundary not observed, 2CB horizon.

Site 41CV1441

Backhoe Trench 4, southwest wall

Zone 1 0–15/29 cm Brown (7.5YR 4/4, dry) and brown (7.5YR 4/3, moist); silty clay (very silty clay with uncommon sand and rare isolated gravel); sand is very fine to fine with rare medium to very coarse sand; gravel consists of granules and pebbles; very hard (dry), very sticky and very plastic (wet); relict moderate medium blocky angular breaking to fine blocky angular with a pseudo-platy (plowed) overprint; few fine roots; few fine pores; rare snail shell fragments; few displaced, hard, granule- to pebble-sized calcareous nodules with distinct margins; common fine pressure faces; common fine syneresis fractures throughout; abrupt wavy (cusped from plowing) lower boundary, Ap horizon.

Zone 2 15/29–88 cm Brown (7.5YR 5/2, dry) and brown (7.5YR 4/3 to 7.5YR 4/4, moist, varying laterally); slightly gravelly silty clay (very silty sandy gravelly clay); sand is mostly very fine to fine, but with uncommon medium to very coarse sand concentrated locally along syneresis fractures and root conduits; gravel consists of uncommon granules and pebbles (intrusive from above) to 30 cm, rarely to 40 cm; very hard (dry), very sticky and very plastic (moist); strong fine blocky angular structure; many medium distinct (7.5YR 5/4 and 7.5YR 8/2) mottles; few fine roots; common fine pores; common fine pressure faces; few snail shell fragments; abundant hard granule- to pebble-sized calcareous nodules and common calcareous threads and films (forming a reticulate pattern among peds); clear smooth lower boundary, Bk horizon (locally disturbed to 40 cm depth, probably representing an historic plow zone).

Zone 3 88–102+ cm Gray (7.5YR 6/1, dry) and brown (7.5YR 5/2 to 7.5YR 5/3, moist); extremely gravelly sandy clay (very clayey very sandy gravel); sand is poorly sorted very fine to very coarse; gravel consists of granules and pebbles in clast-to-clast contact (i.e., deposit is coarse-clast supported); extremely hard (dry), very sticky and very plastic (wet); moderate fine blocky angular structure; common medium distinct (7.5YR 6/6 and 7.5YR 8/2) mottles; no

roots; rare fine pores; common thin incomplete calcareous films; common thick, nearly complete argillans; lower boundary not observed. 2Bt horizon.

Backhoe Trench 5, south (Zones 1–5) and north (Zone 6) walls

Zone 1	0–30 cm	Dark gray (10YR 4/1, dry) and dark grayish brown (10YR 4/2, moist); clay (silty sandy clay); sand is mostly very fine to fine with rare medium sand; firm (moist), sticky and plastic (wet); weak fine blocky subangular structure; common fine and few medium roots; common fine pores; common snail shell fragments; common casts; clear smooth lower boundary, Spoil.
Zone 2	30–53 cm	Color varies laterally from very dark gray to very dark grayish brown (10YR 3/1 to 10YR 3/2, dry) and downward to dark grayish brown (10YR 4/2, dry) and very dark brown (10YR 2/2, moist); clay (silty sandy clay); sand is mostly very fine to fine with rare medium to coarse sand and granules and isolated pebbles and cobbles (probably anthropogenic); firm (moist), sticky and plastic (wet); moderate medium blocky angular structure; few fine and medium roots; common fine pores; common casts; few snail shell fragments; gradual wavy lower boundary; A horizon.
Zone 3	53–102 cm	Brown (10YR 4/3, dry) with white threads and dark grayish brown (10YR 4/2, moist); clay (silty sandy clay); sand is mostly very fine to fine with rare medium to coarse sand and granules and isolated burned pebbles and cobbles (anthropogenic); firm (moist); moderate medium blocky angular structure; few fine roots; common fine pores; few casts; few snail shell fragments; common thin incomplete argillans on peds; common calcareous threads and hollow tubes; clear, irregular to wavy (inclined 2° downward to the east-northeast) lower boundary, Bt horizon.
Zone 4	102–114 cm	Brown (10YR 4/3, dry) and dark grayish brown (10YR 4/2, moist); extremely gravelly sandy clay loam (clayey silty sandy gravel); friable (moist); moderate fine blocky angular structure; common medium distinct white mottles (calcareous films and masses); few fine roots; few fine pores; common thin incomplete argillans on peds and coating coarse clasts; common calcareous films and granule-sized soft masses; abrupt wavy (inclined 2° downward to the east-northeast) lower boundary, 2Btk horizon.
Zone 5	114–256 cm	Very dark gray (10YR 3/1, dry and moist); clay (silty slightly sandy clay); sand is very fine; extremely hard and dense (dry), sticky and plastic (moist); strong medium prismatic structure breaking to blocky angular; few fine roots; few fine pores; thick complete argillans on peds; common calcareous threads and hard pebble-sized concretions, which appear to have grown diffusively; gradual wavy lower boundary, 3Btk horizon.
Zone 6	256–342+ cm	Pale brown (10YR 6/3, dry and moist); gravelly clay (silty sandy gravelly clay) grading to extremely gravelly sandy loam (clayey silty sandy gravel) in lower 20 cm; sand is mostly very fine to medium, but with rare coarse and very coarse sand and granules; gravel consists of granules and pebbles of limestone; coarse clasts appear to have been etched in situ and polished to a porcelaneous sheen, possibly by vertic movements; firm (moist); moderate medium blocky angular structure; common fine distinct (10YR 5/6 and 10YR 7/8) mottles; no roots; few fine pores; lower boundary not observed, 4BC horizon.

Site 41CV1443

Backhoe Trench 3, north wall

Zone 1 0–16/26 cm Dark gray (10YR 4/1, dry) and very dark gray (10YR 3/1, moist), with light colored clasts; silty clay (very silty sandy clay); sand is very fine to medium; firm (moist), slightly sticky and slightly plastic (wet); weak medium blocky subangular structure; abundant medium and fine roots; abundant fine pores; abundant casts; abundant fine snail shell fragments; abrupt wavy lower boundary, A horizon.

Zone 2 16/26–111 cm Dark gray (10YR 4/1, dry) and very dark gray (10YR 3/1, moist), with light colored clasts and white calcareous films; gravelly loam (gravelly silty clayey sand); lower 34 cm extremely gravelly locally; sand is mostly very fine to medium, but with rare coarse and very coarse sand; gravel consists of mostly isolated, rounded to subangular granules and pebbles with rare cobbles and small boulders, including some boulders that were burned and fractured in situ), as well as unburned(?) tabular boulders that appear to have been deliberately placed on the former ground surface before deposition of Zone 1; most granules to small boulders are composed of limestone, but a few cobbles and small boulders are very sandy, porous, low-density travertine; friable to firm (moist), slightly sticky and slightly plastic (wet); weak fine blocky subangular structure; common fine roots (heavily bioturbated); abundant fine pores; abundant casts; abundant fine snail shell fragments; common calcareous films (thin, incomplete); clear, wavy to locally irregular lower boundary, AB horizon.

Zone 3 111–252 cm Gray to grayish brown (10YR 5/1 to 10YR 5/2, dry) and dark grayish brown (10YR 4/2, moist), with light-colored clasts and white calcareous threads; loam to clay (very silty very clayey sand to silty sandy clay) interbedded with extremely gravelly sandy clay (very sandy very silty clayey gravel); 8–25-cm-thick fine-grained deposits filled channels defined by 7–8-cm-thick coarse-grained beds, but were incised repeatedly; channels shifted eastward from the base to the top of Zone 3; sand is very fine to very coarse; gravel consists of granules and pebbles; very friable to extremely firm (moist), slightly sticky and slightly plastic (wet); weak fine blocky subangular structure, but with well preserved trough cross beds (troughs had north-south flow axes and maximum 20∞ slopes on their flanks, decreasing upward; few fine roots; common fine pores; complete charophyte preserved in fine-grained beds, indicating ponding within the channel segment; very common calcareous threads throughout and surrounding coarse clasts (some nearly coated); abrupt irregular lower boundary, CB1 horizon.

Zone 4 252–282+ cm Grayish brown (10YR 5/2, dry) and brown (10YR 5/3, moist); sandy clay loam (very clayey very silty sand); sand is very fine to very coarse; very friable (moist), slightly sticky and slightly plastic (wet); weak fine blocky subangular structure, but relict upward fining cycles are suggested by variation in sand content at vertical intervals; no roots (few in upper 10 cm); few fine pores; lower boundary not observed, CB2 horizon.

Site 41CV1553

Backhoe Trench 1, west wall

Zone 1 0–12 cm Brown (7.5YR 4/2.5, dry) and dark brown (7.5YR 3/2, moist); sandy loam (silty slightly clayey sand): sand is mostly fine with uncommon very fine

sand; hard (dry), nonsticky and nonplastic (wet); weak to moderate coarse blocky angular structure breaking to fine blocky angular; common fine roots; common fine pores (some filled with nearly white sand); gradual irregular lower boundary, A horizon.

Zone 2	12–76 cm	Yellowish red (5YR 4/6, dry) and reddish brown to yellowish red (5YR 4/5, moist); sandy loam (silty slightly clayey sand); sand is mostly fine with uncommon very fine sand; very hard (dry), nonsticky and nonplastic (wet); moderate coarse blocky angular structure breaking to medium blocky angular; few to common (lower 23 cm) fine diffuse (5YR 4/4) mottles, some on fractures; few sand-filled fractures extend to 40 cm depth; few fine roots; few fine pores; common casts; tabular cobble of botryoidal hematite (calcareous coating on underside) at 71 cm depth; rare calcareous threads decreasing to very rare upward; clear smooth lower boundary, Bw horizon.
Zone 3	76–115 cm	Red (2.5YR 4/8, dry) and red (2.5YR 4/7, moist) with white calcareous masses; sandy loam (silty slightly clayey sand): sand is mostly fine with uncommon very fine sand; rare isolated to locally clustered pebbles; hard (dry), nonsticky and nonplastic (wet); moderate medium blocky angular structure breaking to fine blocky angular; abundant calcareous threads, common calcareous films, few isolated hard calcareous nodules with diffuse margins; few fine roots; few fine pores; cluster of whole adult *Rabdotus* sp. shells along upper boundary locally; gradual wavy lower boundary, Bk horizon.
Zone 4	115–166 cm	Reddish yellow (5YR 6/6, dry) and yellowish red to reddish yellow (5YR 5.5/6, moist); sandy loam (silty slightly clayey sand): sand is mostly fine with uncommon very fine sand; soft (dry), nonsticky and nonplastic (wet); weak fine blocky angular structure; few fine diffuse (5YR 8/2) mottles in the bottom 35 cm, increasing downward and northward in profile; few fine roots; few fine pores; few faint calcareous threads and few light-colored pebble-sized subrounded calcareous masses slightly firmer than matrix; abrupt wavy lower boundary, CBk horizon.
Zone 5	166–170+ cm	White; indurated; thin bedded; coated with soft secondary calcite infiltrating along fractures (Cretaceous limestone), R horizon.

Backhoe Trench 4, east wall

Zone 1	0–24 cm	Dark reddish gray (5YR 4/2, dry) and very dark gray (5YR 3/1, moist); sandy loam (silty sand); sand is very fine to fine; firm (dry), sticky and plastic (moist); moderate fine blocky angular structure; common fine roots; common fine pores; gradual irregular lower boundary, A horizon.
Zone 2	24–55 cm	Red (2.5YR 4/6, dry) and dark red (2.5YR 3/6, moist); loam (silty clayey sand with very rare isolated pebbles); sand is very fine to fine; hard (dry), sticky and plastic (wet); strong medium blocky angular structure breaking to strong fine blocky angular; common fine diffuse (2.5YR 4/4) mottles; few thin incomplete argillans on peds; few fine roots; common fine pores; few casts; abrupt wavy lower boundary, Bw horizon.
Zone 3	55–97 cm	Reddish brown (5YR 4/4, dry) and dark reddish brown (5YR 3/4, moist); sandy clay loam (very clayey silty sand); sand is very fine to fine; firm (dry); moderate fine blocky angular structure; few fine roots; few fine pores; few thin incomplete argillans; few to common calcareous threads

(increasing upward) and few to common hard granule- to pebble-sized calcareous nodules with moderately abrupt margins; cluster of whole small snail shells (*Rabdotus* sp.); clear wavy lower boundary, Bk horizon.

Zone 4 97–135 cm Reddish brown (5YR 4/3, dry) and dark reddish brown (5YR 3/3, moist); sandy clay (very sandy clay); sand is very fine to fine; very hard (dry), sticky and plastic (wet); strong fine blocky angular structure; common thin nearly complete argillans; abundant calcareous threads and hard granule- to pebble-sized calcareous nodules with moderately distinct margins; few fine roots; common fine pores; gradual wavy lower boundary, Btk horizon.

Zone 5 135–176 cm Reddish gray (5YR 5/2, dry) and dark reddish gray to reddish gray (5YR 4.5/2, moist); sandy clay (very sandy clay); sand is very fine to fine; hard (dry), sticky and plastic (wet); moderate fine blocky angular structure; abundant hard granule- to pebble-sized calcareous nodules with moderately distinct margins, common to abundant calcareous films (increasing downward), diffuse calcareous cementation and common soft cobble-sized masses at base; few whole small snail shells (physid?); clear wavy lower boundary, Btk2 horizon.

Zone 6 176–193+ cm Reddish gray (5YR 5/2, dry) and pinkish gray (5YR 6/2, moist); slightly gravelly sandy clay (very sandy slightly gravelly clay); sand is mostly very fine to fine, but with uncommon medium to coarse sand; gravel consists of uncommon granules and pebbles; hard (dry), sticky and plastic (wet); moderate fine blocky angular structure; common fine diffuse (5YR 6/6) mottles; abundant hard pebble-sized nodules with distinct margins and abundant calcareous films; lower boundary not observed, 2Btk3 horizon.

Backhoe Trench 5, west wall

Zone 1 0–50 cm Black (7.5YR 2.5/1, dry and moist); locally gravelly to very gravelly clay (silty sandy clay with common to abundant gravel in basal 10 cm); sand is very fine to fine with rare medium sand, but bottom 10 cm includes common to abundant coarse to very coarse sand; gravel consists of granules and pebbles; very hard (dry), sticky and plastic (wet); moderate fine blocky angular structure; common fine roots; common fine pores; gradual wavy lower boundary, A horizon.

Zone 2 50–66 cm Dark gray (7.5YR 4/1, dry) and very dark gray (7.5YR 3/1, moist); extremely gravelly sandy clay (very clayey sandy gravel); sand is very fine to very coarse; gravel consists of granules and pebbles with rare cobbles; weak fine blocky subangular structure breaking to granular; coarse clasts retain imbrication (fine-grained component probably represents a sieve deposit); few fine roots; common fine pores; few whole snail shells (*Rabdotus* sp.) and unidentified shell fragments; clear wavy to locally irregular (erosional contact) lower boundary, 2CB horizon.

Zone 3 60–136+ cm Pinkish gray (7.5YR 6/2) and white (dry) and brown (7.5YR 4/2, moist); gravelly to very gravelly sandy clay; sand is very fine to very coarse; gravel consists of granules and pebbles concentrated in irregular thin beds approximately 13 cm thick; hard (dry), sticky and plastic (wet); weak fine blocky subangular structure breaking to granular; retains relict bedding defined by distribution of coarse clasts; abundant calcareous threads

(reticulate pattern) and films and common hard pebble-sized calcareous nodules; few fine roots; few fine pores; few whole shells (*Rabdotus* sp.); lower boundary not observed, 3Bkb horizon (truncated).

Backhoe Trench 7, west wall

Zone 1 0–56 cm Dark gray (10YR 4/1, dry) and very dark grayish brown (10YR 3/2, moist); Slightly gravelly sandy clay loam (very clayey very silty sand with rare to uncommon gravel); sand is very fine to fine with rare medium sand and both isolated and locally concentrated coarse sand; gravel consists of granules and pebbles, some in stringers; slightly hard (dry), sticky and plastic (wet); moderate fine blocky angular structure; common fine and rare medium roots; abundant fine pores; common casts; clear wavy lower boundary, AC horizon.

Zone 2 56–77 cm Grayish brown (10YR 5/2, dry) and dark grayish brown (10YR 4/2, moist); slightly gravelly sandy clay loam (very clayey very silty sand with rare to uncommon gravel); sand is very fine to fine with rare medium sand and both isolated and locally concentrated coarse sand; gravel consists of granules and pebbles, some in stringers; hard (dry), sticky and plastic (wet); moderate fine blocky angular structure; few fine roots; abundant fine pores; few casts; clear wavy lower boundary, BC horizon.

Zone 3 77–112 cm Dark grayish brown (10YR 4/2, dry) and very dark grayish brown (10YR 3/2, moist); slightly gravelly sandy clay loam (very clayey very silty sand with rare to uncommon gravel); sand is very fine to fine with rare medium and coarse sand; gravel consists of isolated granules and pebbles; moderate fine blocky angular structure; very hard (dry), sticky and plastic (wet); few fine diffuse (10YR 4/1) mottles; thin to moderately thick nearly complete argillans on peds; common hard granule- to pebble-sized calcareous nodules with diffuse margins and common calcareous films; few fine roots; common fine pores; clear wavy lower boundary, Btk horizon.

Zone 4 112–130+ cm Dark grayish brown (10YR 4/2, dry) and very dark grayish brown (10YR 3/2, moist) extremely gravelly sandy loam (very sandy silty gravel); sand is mostly fine to medium, but with rare very fine and coarse to very coarse sand; gravel consists of granules and pebbles; hard (dry), nonsticky and nonplastic (wet); moderate medium blocky subangular structure; relict thin beds; common hard granule- to pebble-sized calcareous nodules with diffuse margins and common calcareous films; few fine roots; few fine pores; lower boundary not observed, BCk horizon.

Site 41CV1555

Test Unit 2, northwest wall

Zone 1 0–6 cm Very dark gray (10YR 3/1, dry) and black (10YR 2/1, moist); clay (silty sandy clay); sand is mostly very fine to fine with rare medium to coarse sand; few isolated pebbles and granules; very firm (moist), sticky and plastic (wet); moderate granular structure with relict horizontal laminae; common fine roots, common fine pores, few casts, few mollusk shell fragments; abrupt smooth lower boundary, AC horizon.

Zone 2 6–20/35 cm Black (5YR 2.5/1, dry and moist); slightly gravelly to gravelly clay loam (very silty very sandy clay with local concentrations of gravel); sand is very fine to coarse with rare very coarse sand; gravel consists of granules

and pebbles with common, purposely placed angular to subangular, primarily tabular cobbles and rare small boulders of limestone and siliceous limestone forming a hearth. The hearth appears to have a flat floor and margins dipping 22∞ toward its center. It is both lined and filled with cobbles and small boulders, some of which are fractured and partly calcined as a result of extensive heating (perhaps repeatedly). Between the limestone clasts and beneath the center and edges of the hearth, there is a dark gray (5YR 3/1), 4-cm-thick layer of compacted clay that appears to have undergone dehydration as a result of heating; very firm (moist), sticky and plastic (wet); moderate fine blocky angular structure breaking to granular; abundant fine and medium roots; abundant fine pores; abundant casts; few snail shell fragments; abrupt irregular lower boundary (lower boundary corresponds to bottom of hearth), Ab horizon (anthrosolic).

Zone 3 20/35–66 cm Dark gray (10YR 4/1, dry) and very dark grayish brown (10YR 3/2, moist); gravelly clay loam (very silty very sandy gravelly clay); sand is poorly sorted very fine to very coarse; gravel is both isolated and concentrated in beds and primarily consists of granules and pebbles, with isolated cobbles and small boulders (coarse clasts appear non-anthropogenic); friable to firm (moist), sticky and plastic (wet); moderate medium blocky angular structure; few fine roots, rare medium roots; common fine pores; few casts; few snail shell fragments; clear wavy lower boundary, BCb horizon.

Zone 4 66–185+ cm Yellowish brown (10YR 5/4, dry), with white calcareous bodies; extremely gravelly clay loam (very sandy silty clayey gravel); sand is poorly sorted very fine to very coarse; gravel consists primarily of granules and pebbles with common cobbles and small boulders; friable to firm (moist); moderate medium blocky angular structure, but low-angle cross beds and imbrication of coarse clasts are preserved; no roots; abundant fine pores; common casts; abundant calcareous threads forming incomplete films on clasts, and few pebble-sized soft calcareous nodules with indistinct margins; lower boundary not observed, CBkb horizon.

Site 41CV1556

Backhoe Trench 4, northeast wall

Zone 1 0–16 cm Very dark gray to dark gray (10YR 3.5/1, dry) and black to very dark gray (10YR 2.5/1, moist); slightly gravelly silty sandy clay (very silty sandy gravelly clay); sand is mostly very fine to fine, but with uncommon medium to very coarse sand; gravel mostly along base of zone and consists of isolated uncommon granules and pebbles and rare cobbles (possibly anthropogenic); very hard (dry), sticky and plastic (wet); moderate medium blocky angular structure breaking to moderate fine blocky angular; abundant fine and few medium roots; abundant fine pores, mostly filled with casts; abundant casts; common snail shell fragments; clear wavy lower boundary, A horizon.

Zone 2 16–77 cm Brown (7.5YR 4/3, dry) and dark brown (7.5YR 3/3, moist); slightly gravelly clay (silty sandy gravelly clay); sand is mostly very fine to fine, but with uncommon medium to very coarse sand; gravel consists of isolated rare granules, pebbles, and cobbles (possibly anthropogenic); hard (dry), sticky and plastic (wet); strong medium blocky angular structure breaking to strong fine blocky angular; common thin nearly complete argillans on peds; common fine pressure faces; common slickensides; common fine and

uncommon medium roots; abundant fine pores (clay lined), mostly filled with casts; abundant casts; common snail shell fragments; gradual wavy lower boundary, Bt horizon.

Zone 3 77–95+ cm Pinkish gray (7.5YR 6/2, dry) and brown (7.5YR 4/3, moist); extremely gravelly silty clay (very clayey very silty sandy gravel); sand is very fine to very coarse; gravel consists of abundant granules and pebbles and uncommon cobbles; slightly hard (dry), sticky and plastic (wet); moderate fine blocky angular structure breaking to granular (around clasts); common fine diffuse white mottles; abundant calcareous films, threads, and clast coatings; no roots; few fine pores; few casts; common snail shell fragments; lower boundary not observed, 2Bk horizon.

Backhoe Trench 5, north wall

Zone 1 0–20/70 cm Dark gray to brown (7.5YR 4/1.5, dry) and very dark gray (7.5YR 3/1, moist); silty clay (very silty sandy clay with rare isolated granules); sand is very fine with rare isolated fine to very coarse sand; extremely hard (dry), sticky and plastic (wet); strong medium angular to blocky subangular structure; large pressure faces; few syneresis fractures; common fine roots; few fine pores; few snail shell fragments; clear wavy (inclined downward to the west-northwest) lower boundary, A horizon.

Zone 2 20/70–139 cm Dark reddish gray (5YR 4/2, dry) and dark reddish brown (5YR 3/2, moist); slightly gravelly to gravelly clay (silty slightly gravelly to gravelly slightly sandy clay); sand is very fine with rare isolated fine to very coarse sand; gravel is uncommon to common (varying laterally and increasing downward), consists of isolated granules and pebbles, and appears to be intrusive along syneresis fractures; extremely hard (dry), sticky and plastic (wet); very strong medium blocky angular structure; few fine diffuse (5YR 3/1) mottles; thin to thick nearly complete argillans; few soft spherical medium to very coarse sand-sized masses of clay, ferric iron, and manganese with abrupt margins; large prominent pressure faces sloping 30∞; few syneresis fractures (one fracture extends from ground level to 120 cm depth); rare to uncommon fine and rare medium roots (decreasing downward); few fine open pores; gradual smooth lower boundary, Bt horizon.

Zone 3 139–202 cm Dark reddish brown (2.5YR 3/4, dry and moist); slightly gravelly to gravelly clay (silty slightly gravelly to gravelly slightly sandy clay with very silty zones along healed syneresis fractures); sand is very fine with rare isolated fine to very coarse sand; gravel is uncommon to common (varying laterally), consists of isolated granules and pebbles, and appears to be intrusive along syneresis fractures; extremely firm (moist), sticky and plastic (wet); very strong coarse blocky angular structure breaking to strong medium blocky angular; thin to thick nearly complete argillans; uncommon granule- to pebble-sized hard calcareous nodules with moderately abrupt margins; large prominent pressure faces sloping 30∞; few to common slickensides (increasing downward); few syneresis fractures; few fine to medium roots; few fine open pores; gradual wavy lower boundary, Btkb horizon.

Zone 4 202–215+ cm Reddish brown to red (2.5YR 4/4 to 4/6, dry) and dark reddish brown (2.5YR 3/4, moist); extremely gravelly sandy clay loam (sandy clayey gravel); sand is very fine to very coarse; gravel consists of granules and pebbles; friable

(moist), sticky and plastic (wet); medium fine blocky angular structure; thin to thick nearly complete argillans; uncommon granule- to pebble-sized hard calcareous nodules with moderately abrupt margins; common small pressure faces (not inclined); few fine and rare medium roots; few fine pores; lower boundary not observed, 2Btk2b horizon.

Backhoe Trench 13, west-southwest wall

Zone 1	0–17 cm	Dark gray (7.5YR 4/1, dry) and very dark gray (7.5YR 3/1, moist); slightly gravelly clay (silty sandy gravelly clay); sand is mostly very fine to fine with uncommon medium and rare coarse to very coarse sand; gravel consists of common isolated granules and rare isolated pebbles; very hard (dry), sticky and plastic (wet); moderate medium to fine blocky angular structure; common fine roots; common fine pores, mostly filled with casts and sand; common casts; few snail shell fragments; gradual wavy lower boundary, A horizon.
Zone 2	17–39 cm	Brown (7.5YR 5/3, dry) and brown (7.5YR 4/3, moist); slightly gravelly clay (silty sandy gravelly clay); sand is mostly very fine to fine with uncommon medium and rare coarse to very coarse sand; gravel consists of common isolated granules and rare isolated pebbles; burned-rock feature at base of Zone 2 elsewhere in this trench (coarse clasts in burned-rock feature are angular, heat-fractured, tabular and equant limestone cobbles, probably darkened through heat exposure); slightly hard (dry); moderate medium blocky angular structure breaking to granular; common fine roots; abundant fine pores, mostly filled with casts; common casts; few snail shell fragments and few whole *Rabdotus* sp.; thin, nearly complete argillans; few calcareous films; common fine pressure faces; clear smooth lower boundary, Bt horizon.
Zone 3	39–73 cm	Brown (7.5YR 4/3, dry and moist); slightly gravelly clay (silty sandy gravelly clay); sand is mostly very fine to fine with uncommon medium and rare coarse to very coarse sand; gravel consists of common isolated granules and pebbles; common fine diffuse brown (7.5YR 5/2) mottles and white calcareous masses; slightly hard (dry), sticky and plastic (wet); moderate fine blocky angular structure breaking to granular; few fine roots; common fine pores, mostly filled with common casts; common casts; few whole snail shells; thin, nearly complete argillans; common soft pebble-sized calcareous nodules; common fine pressure faces; clear wavy lower boundary, Btk horizon.
Zone 4	73–82+ cm	Brown (7.5YR 4/2, dry and moist); gravelly sandy clay loam (very clayey silty sandy gravel); sand is poorly sorted very fine to very coarse; gravel consists of granules, pebbles, and uncommon cobbles (relict fluvial deposits, not colluvium); common fine distinct (7.5YR 5/3 and 7.5YR 5/4) mottles; hard (dry); moderate fine blocky angular structure; few fine roots; few fine pores; no casts; thin, nearly complete argillans; common soft pebble-sized calcareous nodules; common fine pressure faces; lower boundary not observed, 2Btk2 horizon.

APPENDIX C: Vertebrate Faunal Analysis

Brian S. Shaffer

and

Jay Barry
Institute of Applied Sciences
University of North Texas

Vertebrate remains recovered from 15 sites from Fort Hood were analyzed to identify taxa representation (Table C.1) and evidence of cultural and natural modification (Table C.2). Taxa representation varied widely between the sites. Larger samples yielded more identified taxa than sites with smaller samples, and most specimens were associated with cultural features. None of the samples included taxa foreign to the region, with the possible exception of the large artiodactyl incisors recovered from 41BL902. These appeared to be recent and could possibly be from modern cattle (*Bos* spp.). Recovery of armadillo (*Dasypus novemcintus*) dermal ossicles from 41CV405 and 41CV580 B indicates that those assemblages have a historic component because armadillos entered Texas historically (see Davis and Schmidly 1994: 82–85).

METHODS

Faunal remains were identified by comparison with the collections of the Zooarchaeology Laboratory, Institute of Applied Sciences, at the University of North Texas. Data were recorded using a faunal database program (Shaffer and Baker 1992). Specimens were identified to the most specific taxon possible given analyst skill, size and condition of the specimens, and comparative material available. In many cases, all that could be said for specimens is that they were osseous materials from vertebrates, or that they could be identified to Class (Osteichthyes, Aves, or Mammalia). Except for taxa represented by only one species in a genus, identifications were not taken beyond the level of genus the specimens were in poor condition, and making more-specific identifications would have risked introducing inaccuracies. When identification appeared to be correct but some uncertainty still existed, the notation of "cf." (compares favorably) precedes the identification. Less certain identifications were taken to the next higher taxonomic level.

Data recorded include quantity, provenience, taxon, element, portion of element, side of element, age and aging criteria used (only in a limited number of cases), weathering, breakage, burning, gnawing, acid etching, and other comments as necessary. Quantification was recorded simply on the number of identified specimens (NISP). The minimum number of individuals (MNI) was assessed based on treating each site as a single aggregate, with no attempt made at separating vertical or horizontal areas into separate aggregates. Therefore, the MNI for each taxon was based entirely on the duplication of elements. Aging was also taken into consideration for MNI purposes, but no identified taxa from any site had more than one age category (e.g., neonate, subadult, adult, old adult) represented. Thus, MNI is not reported in tabular form here since the MNI for each taxon was one for each site (with the exception that there were two raccoons from 41BL239, two deer from 41CV41, Subarea A, and two cottontail rabbits from 41CV579).

Weathering represents damage to the faunal material from exposure to the elements. All specimens were recorded as being lightly weathered unless they show more advanced effects of exposure. When advanced stages of weathering such as fine line cracking or exfoliation were present, specimens were recorded as having marked weathering.

Specimens were recorded as being unbroken, angularly broken, or spirally broken. Angular fractures occur on some flat bones (e.g., cranium, parts of the pelvis and scapula) in mammals and on other bones such as turtle shells and fish cranial bones. When teeth were recovered as fragments, they were recorded as having angular fractures. Certain bones, such as the long bones of birds, mammals, and some bones of other classes can break in a spiral fashion if the bone is broken while it contains collagen (Johnson 1985). Angular fractures do not usually closely reflect the time, process or agent that caused the breakage, but spiral fractures usually occur perimortem or relatively soon after death. Collagen is lost with the passage of time, and the bones lose their ability to fracture spirally. Other processes, such as burning and boiling, will also remove collagen from bone.

One cause of spiral fracturing in bone samples is that humans broke open the bones of animals to remove the marrow or ground bones into small pieces for grease production. But the presence of spiral fractures does not indicate the agent involved, only that the breakage occurred around the time of death or relatively soon thereafter. Other processes such as trampling or carnivore gnawing can also produce spiral fractures. No evidence of these activities was noted. The one feature most indicative of human behavior in the breakage is

Table C.1. Taxa represented in faunal assemblages by site

Taxa	41BL192-A	41BL239	41BL349	41BL797	41BL902	41BL904	41BL912	41BL927	41BL931-B	41BL934	41BL935	41CV41-A	41CV405	41CV580-B	41CV579
Vertebrata	–	34	2	148	–	10	–	2	1	1	1	85	–	–	213
Osteichthyes (minnow/small perch-sized)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Anura (frog or toad)	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Testudinata (turtles)	–	–	1	1	–	–	–	–	–	–	–	1	–	–	20
Chrysemys sensu lato (Chrysemid turtles)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Trionyx sp. (soft shell turtle)	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
Colubridae (nonpoisonous snake)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Aves (pigeon-sized)	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–
Aves (vulture-sized)	–	2	–	1	–	1	–	–	–	–	–	–	–	–	–
cf. *Meleagris gallopavo* (cf. turkey)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Mammalia (mouse- to rabbit-sized)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Mammalia (rabbit- to canid-sized)	2	39	6	3	–	5	–	–	–	–	–	16	–	–	20
Mammalia (canid-sized)	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mammalia (canid- to deer-sized)	3	12	21	87	–	7*	–	–	–	–	–	158	–	–	86**
Mammalia (deer- to bison-sized)	–	–	2	–	–	–	–	3	2	2	9	–	–	–	–
Mammalia	3	–	–	–	–	–	1	–	–	–	1	–	–	–	–
Didelphis virginiana (opossum)	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dasypus novemcintus (armadillo)	–	–	–	–	–	–	–	–	–	–	–	–	7	1	–
Sylvilagus sp. (cottontail rabbit)	–	1	–	–	–	–	–	–	–	–	–	2	–	–	10
cf. *Sylvilagus* sp. (cf. cottontail rabbit)	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
Rodentia (rat-sized)	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–
Sciuridae (squirrel)	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Sigmodon sp. (cotton rat)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Neotoma sp. (wood-pack rat)	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
Carnivora (carnivore)	–	3	–	–	–	–	–	–	–	–	–	–	–	–	1

Table C.1, continued

Taxa	41BL192-A	41BL239	41BL349	41BL797	41BL902	41BL904	41BL912	41BL927	41BL931-B	41BL934	41BL935	41CV41-A	41CV405	41CV580-B	41CV579
Procyon lotor (raccoon)	–	19	–	–	–	1	–	–	–	–	–	–	–	–	–
cf. *Procyon lotor* (cf. raccoon)	–	4	–	–	–	–	–	–	–	–	–	–	–	–	–
Taxidea taxus (badger)	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–
cf. *Felis rufus* (cf. bobcat)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Artiodactyla (deer-sized)	1	–	2	4	–	2	–	1	–	–	–	11	–	–	12
cf. Artiodactyla (deer-sized)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Artiodactyla (bison-sized)	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–
Odocoileus sp. (deer)	1	–	1	–	–	–	–	–	–	–	–	5	–	–	9
Total	12	119	37	247	2	26	1	6	3	3	11	278	7	1	380

*Two refit fragments of an awl-like implement were found but are not included in this table.
**An awl-like implement was recovered but is not included in this table.

Table C.2. Taphonomy represented in the faunal assemblages

Taphonomy	41BL192-A	41BL239	41BL349	41BL797	41BL902	41BL904	41BL912	41BL927	41BL931-B	41BL934	41BL935	41CV41-A	41CV405	41CV580-B	41CV579
Light weathering	12	119	37	247	2	26	1	6	3	3	11	260	7	1	377
Marked weathering	–	–	–	–	–	–	–	–	–	–	–	18	–	–	3
Complete specimen	2	31	–	1	2	–	–	–	–	–	–	–	6	1	4
Angular break	4	87	15	188	–	19	1	4	1	–	11	193	1	–	285
Spiral break	6	1	22	58	–	7	–	2	2	3	–	85	–	–	91
Impact fracture	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–
Unburned	12	109	35	149	2	24	1	4	3	3	9	219	7	1	288
Charred	–	5	2	45	–	2	–	2	–	–	2	41	–	–	63
Calcined	–	5	–	53	–	–	–	–	–	–	–	18	–	–	29
Acid etching	5	87	25	–	–	25	–	–	3	3	–	30	–	–	1
Cut mark	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1

Table C.3. Taxa represented in the faunal assemblages by site and feature

Taxa	41BL349, Feature 1	41BL349, Feature 2	41BL797, Feature 1	41BL931-B, Feature 1	41BL935, Feature 1	41CV41-A, Feature 2	41CV41-A, Feature 6	41CV579, Feature 1	41CV579, Feature 2
Vertebrata	–	2	131	1	1	18	11	117	73
Osteichthyes (minnow- to small perch-sized)	–	–	–	–	–	–	–	1	–
Testudinata (turtles)	–	1	1	–	–	–	–	18	2
Chrysemys sensu lato (Chrysemid turtles)	–	–	–	–	–	–	–	1	–
Trionyx sp. (soft-shell turtle)	–	–	1	–	–	–	–	–	–
Aves (vulture-sized)	–	–	1	–	–	–	–	–	–
cf. *Meleagris gallopavo* (cf. turkey)	–	–	–	–	–	–	–	1	–
Mammalia (mouse- to rabbit-sized)	–	–	–	–	–	–	–	–	1
Mammalia (rabbit- to canid-sized)	4	2	3	–	–	9	–	18	–
Mammalia (canid- to deer-sized)	4	17	72	2	9	37	–	62	11
Mammalia (deer- to bison-sized)	–	2	–	–	1	–	–	–	–
Sylvilagus sp. (cottontail rabbit)	–	–	–	–	–	2	–	7	3
cf. *Sylvilagus* sp. (cf. Cottontail rabbit)	–	1	–	–	–	–	–	–	–
Rodentia (rat-sized)	–	–	1	–	–	–	–	–	–
Sigmodon sp. (cotton rat)	–	–	–	–	–	–	–	1	–
Neotoma sp. (wood-pack rat)	–	–	1	–	–	–	–	–	–
Carnivora (carnivore)	–	–	–	–	–	–	–	1	–
cf. *Felis rufus* (cf. bobcat)	–	–	–	–	–	–	–	1	–
Artiodactyla (deer-sized)	1	1	3	–	–	–	–	7	1
cf. *Artiodactyla* (deer-sized)	–	–	–	–	–	–	–	1	–
Colubridae (nonpoisonous snake)	–	–	–	–	–	–	–	1	–
Odocoileus sp. (deer)	–	1	–	–	–	1	–	6	3
Taxidea taxus (badger)	1	–	–	–	–	–	–	–	–
Total	9	27	214	3	11	67	11	243	94

the point of impact where a specimen was struck with a hard object. This creates a cone of percussion, a breakage scar, on the bone that can be identified.

Burning was recorded as being either in the form of charring or calcination. Charring results when combustible material such as bone is partially burned. This usually results in a blackening or a browning of the bone. Calcination occurs when the bone is nearly totally combusted. When this happens, the bone usually turns white, sometimes taking on a light blue and porcelain texture. The bone may also turn chalky, which represents the last potential stage of preserved burned bone before burning breaks it down completely.

Another destructive process noted was that of gnawing. The only form of gnawing observed was rodent gnawing on three specimens from three sites. Rodent gnawing is recognized by a series of parallel U-shaped grooves on the bone surface, often occurring on the edges or protuberences of bones. Acid etching may have removed evidence of rodent gnawing at some sites.

Acid-etching also affected the condition of the faunal assemblages. In some cases, dendritic patterns on the bones' surfaces indicated that rootlets caused the etching. More commonly, evidence of acid-etching was in the form of pitting that ranged from just a few random spots on an individual bone to pitting over the entire surface of the bone that significantly altered the surface and thus limited specific identification. This was the case for many specimens recovered from 41BL239. Several metapodials were recovered that appeared to be the approximate size of raccoon (note that several raccoon elements were recovered from this site), but the obliterated bone surfaces precluded diagnostic identification, and the bones were simply identified as rabbit- to canid-sized mammals.

In the comments field, observations were recorded that none of the previous categories covered adequately. When bone fragments could be re-fit, the number of pieces making up the refit were noted and the bone was tallied as a single specimen. The one pathological specimen recovered from 41BL239, a small- to medium-sized mammal third metatarsal, was noted as having reactive bone buildup.

Three modified bone specimens are classified and described as artifacts and are not included in the faunal counts presented herein. From 41BL904, the distal or tip end of a bone awl-like implement was recovered from Level 1, and the proximal or base end of this implement was recovered from Level 2. Another awl-like implement was recovered from Level 17 of 41CV579.

SITE DISCUSSIONS

Other than taxa representation and taphonomy information presented in Tables C.1 and C.2, little can be said about the small faunal compositions of 41BL192-A; 41BL902; 41BL904; 41BL912; 41BL927; 41BL931-B; 41BL934; 41BL935; 41CV405; or 41CV580-B.

The assemblage recovered from 41BL239, although small, is quite interesting. Most specimens were from smaller taxa, the most notable being raccoons. None of the raccoon elements showed spiral fracturing or burning that might indicate humans were responsible for the assemblage accumulation, and only 1 specimen was spirally fractured and 10 exhibited burning. Also of interest is that the raccoons, as the best represented identified taxon, are represented by an unusual set of elements. Cranial, dental, mandibular, sternal, and lower limb elements make up the assemblage. Missing are the upper limbs (humerus and femur), pelvis, vertebral elements, ribs, and scapulae. Most of this assemblage showed acid-etching, and it may be that some of the more-delicate elements were lost through this process. But the pelvis, humerus, and femur elements should not have been lost. The reason for the disparity in element representation is unknown.

Only 37 specimens were recovered from 41BL349, of which 9 were recovered from Feature 1 and 27 from Feature 2. Of these specimens, most were from medium-sized or larger mammals. Fifty-nine percent (n = 22) also were spirally fractured, and 1 specimen was identified with an impact fracture that indicates intentional breakage by humans. A femur fragment from a canid- to deer-sized mammal also exhibited a possible cut mark, but acid-etching precluded a positive identification.

The recovered assemblage from 41BL797 was mostly composed of specimens from canid- to deer-sized animals, although flotation added a considerable number of unidentifiable (recorded as Vertebrata) fragments. This happened with each site where flotation was

employed (41CV41, Subarea A and 41CV579). Of the 247 specimens recovered from 41BL797, 214 (87 percent) came from Feature 1, a burned rock midden. Comparing feature and nonfeature areas revealed that 11 (33 percent) of the 33 specimens recovered from nonfeature areas were spirally broken, and 47 (22 percent) of 214 from Feature 1 were spirally fractured. Of the burned bone, 16 (48 percent) of the 33 specimens recovered from nonfeature areas were burned, and 82 (38 percent) of the 214 specimens in Feature 1 were burned. Though it may appear from these statistics that there was potentially more culturally modified material recovered from nonfeature areas, this is misleading given that no comparable flotation samples were taken from nonfeature areas.

Excavations at 41CV41, Subarea A also included feature and nonfeature areas, but more material was recovered from the nonfeature areas than from feature areas. Of the 278 specimens recovered, 200 were nonfeature and 78 were from Features 2 (n = 67) and 6 (n = 11). Most of the specimens recovered from Feature 2 were from canid- to deer-sized taxa, but none of the remains recovered from Feature 6 could be identified beyond Vertebrata. Comparing feature and nonfeature areas revealed that 59 (30 percent) of the 200 nonfeature specimens were spirally fractured, as were 24 (36 percent) of the 67 from Feature 2, and only 2 (18 percent) of the 11 from Feature 6. As for burning, 33 (17 percent) of 200 were burned from the nonfeature areas, 24 (36 percent) of the 67 from Feature 2, and only 1 (9 percent) of the 11 from Feature 6.

The largest assemblage analyzed was that of 41CV579, with 380 specimens (43 from nonfeature areas, 243 from Feature 1, and 94 from Feature 2). Feature 1 had a relatively diverse set of taxa represented, including fish, turtle, cottontail rabbit, cotton rat, cf. bobcat, and deer. Feature 2 also had cottontail rabbit remains, turtle, and deer. In terms of taphonomy, nonfeature areas had no complete specimens, 27 (56 percent) with angular fractures, 19 (44 percent) with spiral fractures, and 8 (17 percent) burned specimens. Feature 1 had 1 unbroken specimen, 175 (72 percent) with angular fractures, 67 (28 percent) with spiral fractures, and 59 (24 percent) burned specimens. The only positively identified cut mark from this analysis came from the cf. bobcat ulna recovered from Feature 1. An awl-like implement also was recovered from this feature (see Chapter 6). Feature 2 had 3 (3 percent) unbroken specimens, 86 (91 percent) with angular fractures, 5 (5 percent) with spiral fractures, and 28 (30 percent) burned specimens.

SUMMARY AND DISCUSSION

Analysis of the vertebrate remains from these 15 sites was largely descriptive, with little interpretation of human behavior. Given the primarily small samples, interpretation beyond simple descriptive statistics would be speculative. Although the faunas from each site were recovered with other artifactual materials that indicate humans as an agent in their accumulation, the only definitive evidence came from impact fractures, modified bone implements, and the cut bobcat ulna. Spiral breakage and burning were potentially the result of human interaction. Natural accumulations also appear possible. The raccoon remains from 41BL239 may be noncultural, along with the armadillo remains from 41CV405 and 41CV580-B that indicate historic and possibly noncultural accumulations. The two bison-sized artiodactyl incisors from 41BL902 appeared to be recent and are likely to be historic and therefore would be from cattle. Sites with larger accumulations were represented by taxa typical to the region that would be expected to have been exploited for food such as fish, turtles, birds, rodents, rabbits, and deer and deer-sized artiodactyls.

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APPENDIX D: Macrobotanical Analysis of Soil Flotation Samples

Phil Dering
Paleoethnobotanical Laboratory
Texas A&M University

This appendix presents results of the macrobotanical analysis of flotation samples (totaling 410.2 liters) recovered during test excavations of eight archeological sites at Fort Hood. Two of the flotation samples were combined for analysis (F-7 and F-8 from 41CV1553), so that 40 flotation samples were included in the analysis. In addition to the flotation samples, 12 macroplant samples separated for radiocarbon analysis were submitted for wood identification.

Five of the sites are in Coryell County—41CV41-A, 41CV579, 41CV1443-A, 41CV1553, and 41CV1555—and were tested for National Register eligibility (see Chapter 5). Sites 41BL797, 41BL929 (B and D), and 41BL934 are in Bell County and were investigated through geomorphic reconnaissance and limited testing (see Chapter 4). Analysis was conducted to determine the archeobotanical data potential at each of the sites in the study. The botanical assemblage from each site will be described, and then the results will be used to determine what can be learned about prehistoric land use in the region.

LABORATORY METHODS AND DEFINITION OF TAXONOMIC CATEGORIES

Flotation samples are samples of archeological sediment that have been floated in water to separate lighter charred plant remains from material, or clays/silts that can be suspended in water and rinsed out of the sample. Personnel from Prewitt and Associates floated the sediment samples.

Standard archeobotanical laboratory procedures were followed during analysis. The samples were first opened and dried in an herbarium dryer. Each sample was then sorted through a series of four nested geological screens with mesh sizes of 4-mm, 2-mm, 1-mm, and 0.450-mm. The material caught on each of the sieve levels and the pan was scanned for floral parts, fruits, and seeds. The carbonized macrobotanical samples that were submitted for identification were sorted and identified. All carbonized wood was identified by using the snap technique, examining them at 8X to 45X magnifications with a hand lens or a binocular dissecting microscope, and comparing them to samples in the herbarium at the Texas A&M University Archaeobotanical Laboratory. Charred seeds and fruit and nut fragments were counted. Identifications were made using reference collections at Texas A&M University. Carbonized wood was treated in the same manner.

The anatomy of some woods is so similar that it is difficult to identify to the genus level. In other cases, genera within a plant family are usually distinguishable, but some archeological material is too fragmented or deteriorated to allow identification to the genus level. For these reasons some taxa are combined into wood types; all identifications in the type category represent identifications to the taxon level indicated by the name of the type. The following wood types or categories are used in this report:

Juniper-Bald Cypress Wood Type (*Juniperus* sp. and *Taxodium distichum*): Both of these trees are members of the plant family Cupressaceae, and their wood is indistinguishable under low magnification cross sections. Material from Fort Hood is most likely juniper.

Elm Family Wood Type (Ulmaceae): Includes many species of hackberry and elm. These are distinguishable if the specimen is large and well preserved.

Willow-Cottonwood Wood Type (Salicaceae): Includes members of the Salicaceae—willow and cottonwood—which are difficult to distinguish.

Rose Family Wood Type (Rosaceae): Includes hawthorns, wild plums, and wild peaches. Small fragments of the wood is usually very difficult to distinguish.

Indeterminate Hardwood: Refers to any woody seed-bearing plant (i.e., not a cone-bearing tree such as pine, cypress, or juniper).

Because poor preservation was encountered at most open sites, only carbonized plant remains were considered for inclusion in the archeological assemblage. Some uncarbonized plant material was noted to aid in understanding the post-depositional formation processes occurring at the sites. The uncarbonized

material was not included in any quantification of macrobotanical remains.

The heavy fraction of each sample was scanned for charred material, which was then separated for identification. For quantification purposes, carbonized material from the heavy fraction was combined with material from the light fraction.

RESULTS OF THE MACROBOTANICAL ANALYSIS

Archeobotanical Assemblage

Nutshell, bulb fragments, seed fragments, and wood were identified in the samples (Table D.1). The flotation samples yielded 15 different plant taxa or wood types. Of the 41 samples analyzed, 28 (68.3 percent) yielded identifiable plant remains. Carbonized plant material was extremely abundant in some samples, especially from 41CV1553.

A total of 2,282 wood, nutshell, seed, and bulb fragments weighing 208.1 g was recovered from the samples. Wood made up most of the material—2,225 fragments weighing 202.9 g. One seed fragment identified as black locust, and acorn, hickory, and walnut shell fragments were encountered in the samples. Five unidentified bulb fragments were identified from 41BL797 and 41CV1553.

Oak and juniper types, the most frequent and abundant of the 13 wood types (along with indeterminate hardwood) identified (Table D.2), dominated wood remains from the macroplant and flotation samples. Pecan and walnut wood represented a riparian component.

Nutshell fragments, measuring 2–1.2 mm, were recovered from six of the eight sites in the analysis. Hickory nut was most common, occurring in six of the samples, and pecan and walnut occurred in two samples each. Hickory nut was identified from 41BL797, 41CV579, 41CV1443-A, 41CV1553, and 41CV1555; pecan shell was identified from 41CV41-A and 41CV1553 and walnut from 41CV1553.

Table D.3 represents identification of the 12 macroplant samples. Table D.4 presents results of the flotation sample analysis. The following discussion examines the data potential of each site for recovery of botanical materials and subsistence information. Although the small sample size limits the inferences that can be made regarding geographic or temporal variation, some statements regarding subsistence can be made. The botanical remains identified for each site are discussed below.

41BL797

Four flotation samples totaling 27.75 liters and one macroplant sample were examined from this site. The macrobotanical assemblage consisted of hickory nut shell fragments, one seed fragment, one bulb fragment, and five wood types. The single seed fragment was identified as black locust. Botanical data indicate that both nut processing and the preparation of root foods (bulbs) occurred at the site. The results of the analysis indicate that the site has a high potential to yield botanical data.

Table D.1. Plant taxa identified in the samples

Taxon	Common	Part
Carya illinoensis	Pecan	nutshell, wood
Carya sp.	Hickory	nutshell, wood
Celtis sp.	Hackberry	wood
Fraxinus sp.	Ash	wood
Ilex sp.	Holly family wood type	wood
indeterminate		bulb
indeterminate hardwood	indeterminate hardwood	wood
Juglans sp.	Walnut	nutshell, wood
Juniperus sp.	Juniper	wood
Quercus sp.	Oak	wood, acorn
Rhus sp.	Sumac	wood
Robinia pseudo-acacia	Black Locust	wood, seed fragment
Rosaceae	Rose family wood type	wood
Salicaceae	Willow family wood type	wood
Salix sp.	Willow	wood
Ulmus sp.	Elm, cf. American Elm	wood

Table D.2. Wood frequencies from the samples

Taxon	Common	Frequency (%)
Carya illinoensis	Pecan	2.5
Celtis sp.	Hackberry	5.0
Fraxinus sp.	Ash	2.5
Ilex sp.	Holly	2.5
indeterminate	unknown hardwood	7.5
Juglans nigra	Walnut	2.5
Juniperus sp.	Cedar, Juniper	20.0
Quercus sp.	Oak	42.5
Rhus sp.	Sumac	10.0
Robinia pseudo-acacia	Black Locust	2.5
Salicaceae	Willow family	7.5
Ulmus sp.	Elm, cf. American Elm	2.0

41BL929 and 41BL934

Four flotation samples and three macroplant samples were examined from 41BL929 and 41BL934. The three flotation samples from 41BL929 totaled 128 liters; plant material consisted of three juniper charcoal fragments and four indeterminate charcoal wood fragments. The single flotation sample from 41BL934 did not contain identifiable charred plant material. The data potential for these two sites is low.

41CV41-A

Nine flotation samples (totaling 131.8 liters) and two macroplant samples were examined from 41CV41-A. The macrobotanical assemblage consisted of pecan shell fragments, oak wood, and willow family wood. Seven of the nine samples contained no identifiable plant material. Based on the samples examined for this analysis, the potential for recovering significant botanical data from 41CV41-A is low.

41CV579

One macroplant sample and eight flotation samples totaling 172.5 liters were examined from 41CV579. The macrobotanical assemblage consisted of hickory nut shell fragments and oak wood. Four of the eight samples contained no identifiable plant material, and a fifth sample contained only indeterminate wood charcoal fragments. Analysis suggests that the site has a low botanical data potential.

41CV1443-A

One macroplant sample and two flotation samples totaling 54.75 liters were examined from this site. The macrobotanical assemblage consisted of hickory nut shell fragments, oak wood, and juniper wood. Although it is difficult to determine based on two samples, the fact that both samples were productive suggests that the site may have a moderate potential to yield macrobotanical data.

41CV1553

Three macroplant samples and nine flotation samples totaling 208.16 liters were examined from 41CV1553 (F-7 and F-8 were combined). The macrobotanical assemblage consisted of pecan, walnut, and hickory nut shell fragments, acorn fragments, unidentified bulb fragments, and 10 wood types. The data indicate that multiple plant processing activities were occurring at the site, and hickory nut processing most likely occurred here. The presence of pecan, acorn, and walnut shell fragments present a strong argument for fall occupation of the site. This does not mean, however, that the site was occupied exclusively in the fall.

The recovery of bulb fragments from Features 3 and 6 suggest that features at the site were used to bake plant bulbs. Although bulb fragments from archeological sites in Williamson County have been identified as *Camassia scilloides* (eastern camas), these bulbs do not match specimens in the current reference collection. Efforts are being made to expand the reference collection to identify these and other unknowns recently noted in other archeological assemblages.

The botanical assemblage from the flotation samples also contained 10 wood types totaling almost 2,000 fragments. The abundance and diversity of the charred plant material indicate that this site has a high potential for generating botanical data.

Table D.3. Wood identifications from samples submitted for radiocarbon analysis

Site	PAI Project	Sample	Weight (g)	Context	Identfiication	Count	Weight (g)
41BL797	98030-1	C-5	1.9	Rockshelter, Feature 1, Test Unit 1, 80–90 cm	*Quercus* sp.	5	1.9
41BL929-B	98030-5	F-3	0.2	Feature 1, Test Unit 7, 13–30 cm	*Quercus* sp.	15	0.2
41BL934	98030-2	C-7	0.7	Rockshelter A, Test Unit 1, 40–50 cm	*Juniperus* sp.	4	0.1
					Quercus sp.	11	0.4
41BL934	98030-3	C-8	2.4	Rockshelter B, Test Unit 3, 28 cm	*Carya* sp.	6	2.3
41CV41-A	99003-1	C-1	0.8	Feature 2, Test Unit 2, 10–20 cm	*Quercus* sp.	5	0.8
41CV41-A	99003-6	F-6	0.9	Feature 1, Test Unit 1, 114–128 cm	indeterminate	25	0.8
41CV579	99003-7	C-9	0.3	Test Unit 6, 227 cm	*Quercus* sp.	7	0.3
41CV1443-A	99003-12	C-6	0.8	Feature 2, Test Unit 3, 154 cm	Salicaceae	13	0.8
41CV1553	99003-13	C-5	15.6	Feature 3, Test Unit 4, 14 cm	*Quercus* sp.	20	14.1
41CV1553	99003-14	C-6	0.8	Feature 4, Test Unit 5, 50 cm	*Quercus* sp.	14	0.9
41CV1553	99003-15	C-10	1.7	Feature 6, Test Unit 5, 41 cm	*Quercus* sp.	20	1.6
41CV1555	99003-16	C-3	0.6	Feature 3, Test Unit 2, 36 cm	*Quercus* sp.	6	0.6

Table D.4. Flotation sample counts and weights

Site	Sample	Provenience	Context	Liters	Identification	Part	Count	Weight (g)
41BL797	F-1	TU 1, 50–60 cm	Feature 1, Southwest quad	5.50	*Carya* sp.	nutshell	1	0.1
					Robinia pseudo-acacia	seed	1	<0.1
					indeterminate	bulb	1	0.1
					Quercus sp.	wood	24	3.2
	F-2	TU 1, 60–70 cm	Feature 1, Southwest quad	8.50	*Carya* sp.	nutshell	4	0.6
					Quercus sp.	wood	22	2.4
	F-3	TU 1, 70–80 cm	Feature 1, Southwest quad	6.50	*Juniperus* sp.	wood	8	1.2
	F-4	TU 1, 80–90 cm	Feature 1, Southwest quad	7.25	*Juniperus* sp.	wood	4	0.3
					Quercus sp.	wood	9	0.4
41BL929-B	F-3	TU 7, 13–30 cm	Feature 1	120.25	*Juniperus* sp.	wood	3	0.2
41BL929-D	F-1	TU 5, 28–34 cm	Feature 2	5.50	flecks			
	F-2	TU 5, 76–87 cm	Feature 3	2.25	indeterminate	wood	4	0.1
41BL934	F-1	TU 2, 20–28 cm	Sediment stain	1.75	flecks			
41CV41-A	F-1	TU 2, 20–30 cm	Feature 2, Southwest quad	14.50	*Carya illinoensis*	nutshell	2	0.1
					Quercus sp.	wood	12	0.2
	F-2	TU 2, 30–40 cm	Feature 2, Southwest quad	13.25	charcoal flecks			
	F-3	TU 3, 58–62 cm	Feature 3, South half	7.25	charcoal flecks			
	F-4	TU 1, 77–100 cm	Feature 4	14.25	no charred plant material			
	F-5	TU 4, 90–100 cm	Feature 5	45.00	charcoal flecks			
	F-6	TU 1, 114–128 cm	Feature 1	4.00	Salicaceae	wood	22	1.8
	F-7	TU 4, 95–105 cm	Feature 5	19.25	flecks			
	F-8	TU 6, 30–35 cm	Northwest quad	6.75	flecks			
	F-9	TU 6, 34–49 cm	Feature 6	7.50	flecks			
41CV579	F-1	TU 5, 150–160 cm	Feature 1	25.75	flecks			
	F-2	TU 6, 177–193 cm	Feature 1, West half	24.25	indeterminate	wood	3	0.1
	F-3	TU 6, 172–198 cm	Feature 1, Layer 1, East half	31.75	no charred plant material			
	F-4	TU 5, 170–176 cm	Feature 2	6.25	flecks			
	F-5	TU 6, 184–203 cm	Feature 1, Layer 2, East half	14.25	indeterminate	wood	12	0.1
	F-6	TU 6, 188–205 cm	Feature 1, Layer 3, East half	26.00	no charred plant material			
	F-7	TU 5, 174–188 cm	Feature 2	43.00	*Carya* sp.	nutshell	3	0.3
					Quercus sp.	wood	4	0.1
	F-8	TU 6, 226–229 cm	Burned clay and charcoal	1.25	flecks			

Table D.4, continued

Site	Sample	Provenience	Context	Liters	Identification	Part	Count	Weight (g)
41CV1443-A	F-1	TU 4, 130–138 cm	Feature 1	12.00	*Carya* sp.	nutshell	4	0.5
					Quercus sp.	wood	4	0.2
	F-2	TUs 2 + 3, 127–166 cm	Feature 2	42.75	*Juniperus* sp.	wood	3	0.2
41CV1553	F-1	TU 2, 20–30 cm	Feature 1	30.00	flecks			
	F-2	TU 3, 20–30 cm	Feature 1, Northwest quad	15.25	*Quercus* sp.	wood	7	0.2
	F-3	TU 4, 10–16 cm	Feature 3	6.25	*Quercus* sp.	wood	15	0.4
	F-4	TU 4, 16–25 cm	Feature 3, East half	28.75	*Juglans nigra*	nutshell	3	0.2
					Carya sp.	nutshell	2	0.3
					Quercus sp.	wood	439	55.7
					Juniperus sp.	wood	18	1.3
					Juglans nigra	wood	4	0.5
					Ilex sp.	wood	6	0.2
					Rhus sp.	wood	15	2.1
					Ulmus sp.	wood	42	6.3
	F-5	TU 4, 10–25 cm	Feature 3, West half	38.25	*Juglans nigra*	nutshell	5	0.3
					Carya illinoensis	nutshell	7	0.5
					Quercus sp.	acorn	4	0.2
					indeterminate	bulb	2	0.2
					Quercus sp.	wood	1247	82.1
					Juniperus sp.	wood	41	17.6
					Carya illinoensis	wood	3	0.2
					Fraxinus sp	wood	8	0.4
					Rhus sp.	wood	12	4.2
					Ulmus sp.	wood	13	2.6
	F-6	TU 6, 30–40 cm	Feature 5	11.50	flecks			
	F-7/F8	TU 5, 21–68	Feature 4	63.25	*Quercus* sp.	wood	47	4.1
					Celtis sp.	wood	7	0.3
					Robinia pseudo-acacia	wood	4	0.2
					Juniperus sp.	wood	3	0.1
					Rhus sp.	wood	4	0.2
	F-9	TU 5, 28–47 cm	Feature 6	4.66	*Quercus* sp.	wood	42	2.5
					Ulmus sp.	wood	5	0.4
	F-10	TU 5, 28.5–40 cm	Feature 6	10.25	indeterminate	bulb	3	0.2
					Quercus sp.	wood	7	0.2

Table D.4, continued

Site	Sample	Provenience	Context	Liters	Identification	Part	Count	Weight (g)
41CV1555	F-1	TU 1, 10–15 cm	Feature 2	9.00	*Quercus* sp.	wood	27	2.1
					Juniperus sp.	wood	5	0.2
	F-2	TU 1, 10–26 cm	Feature 2	8.50	*Carya* sp.	nutshell	2	0.3
					Quercus sp.	wood	5	0.3
					Celtis sp.	wood	3	0.2
	F-3	TU 2, 22–28 cm	Feature 3	10.25	*Quercus* sp.	wood	4	0.1
					Salicaceae	wood	3	0.2
	F-4	TU 2, 22–37 cm	Feature 3	16.75	*Quercus* sp.	acorn	4	0.2
					Quercus sp.	wood	38	4.2
					Salicaceae	wood	14	3.1
					Rhus sp.	wood	4	0.2

41CV1555

Four flotation samples totaling 44.5 liters and one macroplant sample were examined from 41CV1555. The macrobotanical assemblage consisted of acorn fragments, hickory nut shell fragments, and five wood types. The data indicate that multiple plant processing activities were occurring at the site and that hickory nut processing most likely occurred here. It is also possible that acorns were gathered and processed. The botanical assemblage from this site suggests that 41CV1555 has a high data potential.

Discussion and Recommendations

The purpose of this analysis was to indicate what potential each site has for recovering botanical remains and subsistence data. A secondary goal was to comment on prehistoric plant use based on the preliminary data presented herein.

Results of these samples indicate that three sites—41BL797, 41CV1553, and 41CV1555—have very high potential to generate new information about plant use and plant distribution. Site 41CV1443-A has moderate potential, and the other four sites—41BL929 (B and D), 41BL934, 41CV41-A, and 41CV579—have very low potential for providing botanical data.

Wood charcoal was the most abundant material noted in the samples. Although the wood assemblage indicates primarily the use of a riparian corridor setting, including stream terraces or valley flanks, there was abundant evidence of juniper in samples from 41CV1553. This is most likely because of local topographic differences and associated local variation in plant distribution.

The data indicate that nut and acorn processing were probably quite common and that data from these activities are recoverable from many sites in the region. Acorn fragments are not commonly recovered from these sites, but concerted flotation analysis has a relatively short history at Fort Hood. It is evident that not only acorns but also hickory nuts and walnuts were collected and processed in a manner like that described throughout the eastern half of North America (Talalay et al. 1984).

Charred storage root fragments identified as bulbs have also been noted from 41CV988, situated within the boundaries of Fort Hood (Dering 1999a). In fact, there is a growing list of archeological sites from which charred bulb remains have been identified. These now include the Wilson-Leonard site (41WM235), Horn Rockshelter (41BQ47), the Jonas Terrace site (41ME29), Rice's Crossing (41WM815), and Blockhouse Creek (41WM632) (Dering 1996, 1997, 1999a, and 1999b). Interestingly, the earliest discovery of charred bulbs from an archeological site was made in Bosque County at Horn Rockshelter (Watt 1978).

Roots contain secondary metabolites and food stored in chemicals that render plants indigestible to most predators (Johns 1990). One of the best methods for making roots edible is to cook them for long periods using heated rock. Thus, the combination of charred plant material and burned rock features suggests that the two are connected functionally, with the charred plant remains representing accidental charring during cooking. Recovery of bulb fragments from so many sites in the region likely reveals a major function of heating features that contain large quantities of rock. The presence of bulbs recovered from large burned rock features most likely is a result of cooking plant root foods, not of baking sotol (*Dasylirion texanum*) or acorns. Not all roots, however, require extended cooking periods, and it is quite possible that charred root remains will be noted in a variety of feature types as recovery and identification methods improve. Identification of the bulbs, which apparently are attributable to more than one or two genera, will require the assembly of an extensive reference collection that has been prepared and photographed using scanning electron microscopy. The author is assembling the reference material, and preliminary results are expected by Fall 2000.

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APPENDIX E: Provenience Data for All Artifacts Recovered from National Register Testing

Table E.1. Provenience data for all artifacts recovered

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41BL0192-A	1	2	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	2
41BL0349	1	1	01	0–10	1	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	8
41BL0349	1	1	11	100–110	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	84	–	–	–	–	–	–	–	–	85
41BL0349	1	1	02	10–20	1	–	–	–	–	3	3	–	–	–	–	–	–	–	–	2	–	47	–	–	–	–	–	–	–	–	55
41BL0349	1	1	12	110–120	2	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	87	–	–	–	–	–	–	–	–	89
41BL0349	1	1	13	120–130	2	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	71	–	–	–	–	–	–	–	–	72
41BL0349	1	1	14	130–140	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	35	–	–	–	–	–	–	–	–	37
41BL0349	1	1	15	140–150	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	20	–	–	–	–	–	–	–	–	20
41BL0349	1	1		142	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41BL0349	1	1	16	150–160	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	16	–	–	–	–	–	–	–	–	17
41BL0349	1	1	17	160–170	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15	–	–	–	–	–	–	–	–	15
41BL0349	1	1		170–184	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	15	–	–	–	–	–	–	–	–	16
41BL0349	1	1	03	20–30	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	96	–	–	–	–	–	–	–	–	97
41BL0349	1	1	04	30–40	1	–	1	–	–	2	–	–	–	–	1	–	–	–	–	1	–	145	–	–	–	–	–	–	–	–	150
41BL0349	1	1	05	40–50	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	103	–	–	–	–	–	–	–	–	103
41BL0349	1	1	06	50–60	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	77	–	–	–	–	–	–	–	–	78
41BL0349	1	1	07	60–70	2	–	2	–	–	–	–	–	–	–	–	–	–	–	–	2	–	37	–	–	–	–	–	–	–	–	41
41BL0349	1	1	08	70–80	2	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	70	–	–	–	–	–	–	–	–	72
41BL0349	1	1		78	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41BL0349	1	1	09	80–90	2	–	3	–	–	–	–	–	–	–	1	–	–	–	–	1	–	48	–	–	–	–	–	–	–	–	53
41BL0349	1	1	10	90–100	2	–	2	–	–	–	–	–	–	–	1	1	–	–	–	2	–	74	–	–	–	–	–	–	–	–	80
41BL0349	1	2	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41BL0349	1	2	02	10–20	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	22	–	–	–	–	–	–	–	–	24
41BL0349	1	2	03	20–30	1	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	46	–	–	–	–	–	–	–	–	48
41BL0349	1	2	04	30–40	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	24	–	–	–	–	–	–	–	–	26
41BL0349	1	2	05	40–50	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	25	–	–	–	–	–	–	–	–	26
41BL0349	1	3	02	10–20	1	–	2	–	1	2	–	–	1	–	–	–	–	–	–	–	–	109	1	–	–	–	–	–	–	–	116
41BL0349	1	3	03	20–30	1	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	107	–	–	–	–	–	–	–	–	109

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41BL0349	1	3		29	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41BL0349	1	3	04	30–40	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	73	–	–	–	–	–	–	–	–	75
41BL0349	1	3	05	40–50	1	–	2	1	–	1	–	–	–	–	–	–	–	–	–	3	–	37	–	–	–	–	–	–	–	–	44
41BL0349	1	3	06	50–60	1	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	54	–	–	–	–	–	–	–	–	56
41BL0349	1	3	07	60–70	2	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	32	–	–	–	–	–	–	–	–	33
41BL0349	1	3	08	70–80	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	71	–	–	–	–	–	–	–	–	72
41BL0349	1	3		78	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41BL0349	1	3	09	80–90	2	–	–	–	–	1	–	–	–	–	1	–	–	–	–	1	–	55	–	–	–	–	–	–	–	–	58
41BL0349	1	3	10	90–100	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	63	–	–	–	–	–	–	–	–	64
41BL0349	1	3	11	100–110	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	31	–	–	–	–	–	–	–	–	31
41BL0349	1	3	12	110–120	2	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	11	–	–	–	–	–	–	–	–	12
41CV0041-A	1	4	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11	–	–	–	–	–	–	–	–	11
41CV0041-A	1	4	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	28	–	–	–	–	–	–	–	–	28
41CV0041-A	1	4	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV0041-A	1	4	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9	–	–	–	–	–	–	–	–	9
41CV0041-A	1	4	05	40–50		–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
41CV0041-A	1	4	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0041-A	1	6	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	28	–	–	–	–	–	–	–	–	28
41CV0041-A	1	6	11	100–110		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15	–	–	–	–	–	–	–	–	15
41CV0041-A	1	6	02	10–20		1	1	–	1	1	–	–	–	–	–	–	–	–	–	1	–	70	–	–	–	–	–	–	–	–	75
41CV0041-A	1	6	12	110–120		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3	–	–	–	–	–	–	–	–	4
41CV0041-A	1	6		19		–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
41CV0041-A	1	6	03	20–30		–	–	–	1	1	–	–	–	–	–	–	–	–	–	1	–	78	–	–	–	–	–	–	–	–	81
41CV0041-A	1	6		30–35		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	–	–	–	–	–	7
41CV0041-A	1	6	04	30–40		–	–	–	–	–	2	–	–	–	1	–	–	–	–	1	–	52	–	–	–	–	–	–	–	–	56
41CV0041-A	1	6		34–49	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV0041-A	1	6	05	40–50		–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	7
41CV0041-A	1	6	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	4	–	–	–	–	–	–	–	–	5

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41CV0041-A	1	6	07	60–70		–	–	–	–	–	–	–	–	–	–	–		–	–	–	–	8	–	–	–	–	–	–	–	–	8
41CV0041-A	1	6	08	70–80		–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	17	–	–	–	–	–	–	–	–	19
41CV0041-A	1	6	09	80–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	34	–	–	–	–	–	–	–	–	34
41CV0041-A	1	6	10	90–100		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	25	–	–	–	–	–	–	–	–	25
41CV0041-A	2	1	03	20–30		–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	29	–	–	–	–	–	–	–	–	30
41CV0041-A	2	1	04	30–40		–	–	–	–	1	–	–	–	1	–	–	–	–	–	2	–	27	–	–	–	–	–	–	–	–	31
41CV0041-A	2	1	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	36	–	–	–	–	–	–	–	–	41
41CV0041-A	2	1	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	–	14	–	–	–	–	–	–	–	–	21
41CV0041-A	2	1	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	11	–	–	–	–	–	–	–	–	16
41CV0041-A	2	1	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	8	–	–	–	–	–	–	–	–	11
41CV0041-A	2	1		77–100	4	–	–	–	2	–	–	–	–	–	–	–	–	–	1	5	–	3	–	–	–	–	–	–	–	–	11
41CV0041-A	2	1	09	80–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	10	–	–	–	–	–	–	–	–	11
41CV0041-A	2	1	10	90–100		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV0041-A	2	1	15	140–150		–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41CV0041-A	2	3	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0041-A	2	3	02	10–20		–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	59	–	–	–	–	–	–	–	–	60
41CV0041-A	2	3	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	54	–	–	–	–	–	–	–	–	56
41CV0041-A	2	3	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	14	–	–	–	–	–	–	–	–	14
41CV0041-A	2	3	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	13	–	–	–	–	–	–	–	–	15
41CV0041-A	2	3	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0041-A	2	3		58–62	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0041-A	2	3		58–68	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0041-A	2	3	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0041-A	2	3	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0041-A	2	3	09	80–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0041-A	2	5	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0041-A	2	5	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	11	–	–	–	–	–	–	–	–	13
41CV0041-A	2	5	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	58	–	–	–	–	–	–	–	–	62

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41CV0041-A	2	5	04	30–40		–	2	–	–	1	–	–	–	–	–	–	–	–	–	–	–	165	–	–	–	–	–	–	–	–	168
41CV0041-A	2	5	05	40–50		–	–	–	–	2	–	–	1	–	–	–	–	–	–	3	–	988	–	–	–	–	–	–	–	–	994
41CV0041-A	2	5		41		–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41CV0041-A	2	5		48		–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41CV0041-A	2	5	06	50–60		–	–	–	–	1	–	–	–	–	–	–	–	–	–	2	1	341	–	–	–	–	–	–	–	–	345
41CV0041-A	2	5		60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
41CV0041-A	2	5	07	60–70		–	–	–	–	–	–	–	–	–	1	–	–	–	–	6	–	307	–	–	–	–	–	–	–	–	314
41CV0041-A	2	5	08	70–80		–	4	–	–	–	1	–	–	–	1	1	–	–	1	12	–	198	–	–	–	–	–	–	–	–	218
41CV0041-A	2	5	09	80–90		–	2	–	1	2	–	–	–	–	2	–	–	–	–	1	–	108	–	–	–	–	–	–	–	–	116
41CV0041-A	2	5	10	90–100		–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	23	–	–	–	–	–	–	–	–	24
41CV0041-A	3	2	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	73	–	–	–	–	–	–	–	–	74
41CV0041-A	3	2	02	10–20	2	–	1	–	2	3	3	–	–	–	2	–	1	2	–	38	–	427	–	–	–	–	–	–	–	7	486
41CV0041-A	3	2	03	20–30	2	–	–	–	–	–	–	–	–	–	1	–	–	–	2	5	1	202	–	–	–	–	–	–	–	1	212
41CV0041-A	3	2	04	30–40	2	–	–	–	–	2	–	–	–	–	–	–	–	2	–	4	1	214	–	–	–	–	–	–	–	–	224
41CV0041-A	3	2	05	40–50	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	115	–	–	1	–	–	–	–	–	117
41CV0041-A	3	2	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	–	–	–	–	–	–	–	–	10
41CV0041-A	3	2	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV0041-A	3	2	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0094-A	1	4	01	0–10		–	–	–	–	–	–	–	–	–	1	–	–	–	–	2	–	12	–	–	–	–	–	–	–	–	15
41CV0094-A	1	4	02	10–20		–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	6	–	–	–	–	–	–	–	–	7
41CV0094-A	1	4	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3	–	–	–	–	–	–	–	–	4
41CV0094-A	1	4	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0094-A	1	4	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
41CV0094-A	1	5	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	–	–	–	–	–	–	–	–	10
41CV0094-A	1	5	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0094-A	1	5	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0579	1	1	12	110-120		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0579	1	1	14	130–140		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41CV0579	1	1	15	140–150		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	–	–	–	–	–	7
41CV0579	1	1	16	150–160		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	10	–	–	–	–	–	–	–	–	12
41CV0579	1	1	17	160–170		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0579	1	1	18	170–180		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0579	1	1	19	180–190		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0579	1	1	20	190–200		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0579	1	2	14	130–140		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0579	1	2	15	140–150		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV0579	1	2	16	150–160		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV0579	1	2	17	160–170		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8	–	–	–	–	–	–	–	–	8
41CV0579	1	2	18	170–180		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV0579	1	2	19	180–190		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV0579	1	2	20	190–200		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	–	–	–	–	–	7
41CV0579	2	5	16	150–160	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	16	–	–	–	–	–	–	–	–	18
41CV0579	2	5	17	160–170	1	–	–	–	1	3	1	–	–	–	–	–	–	–	–	2	–	56	–	–	–	–	–	–	1	–	64
41CV0579	2	5		169–188	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV0579	2	5	18	170–180	1	–	–	–	–	–	1	–	–	–	1	1	–	–	1	4	–	53	–	–	–	–	–	–	–	–	61
41CV0579	2	5		179–188	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	17	–	–	–	–	–	–	–	–	17
41CV0579	2	5	19	180–190	1	–	1	1	1	1	1	–	–	–	–	–	–	–	–	4	–	71	–	–	–	–	–	–	–	–	80
41CV0579	2	5	20	190–200	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	2	–	32	–	–	–	–	–	–	–	–	35
41CV0579	2	6	18	170–180		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0579	2	6		172–198	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV0579	2	6		177–193	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV0579	2	6		177–200	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	13	–	–	–	–	–	–	–	–	14
41CV0579	2	6	19	180–190		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	2
41CV0579	2	6		184–203	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	–	–	–	–	–	–	–	–	10
41CV0579	2	6		188–205	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0579	3	5	21	200–210		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	15	–	–	–	–	–	–	–	–	16

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41CV0579	3	5	22	210–220		–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	3	–	–	–	–	–	–	–	–	3
41CV0579	3	5	23	220–230		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3	–	–	–	–	–	–	–	–	4
41CV0579	3	6		205–210		–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	8	–	–	–	–	–	–	–	–	8
41CV0579	3	6	22	210–220		–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	2	–	–	–	–	–	–	–	–	2
41CV0579	3	6	23	220–230		–	–	–	2	–	–	–	–	–	–	–	–	–	–	1	–	7	–	–	–	–	–	–	–	–	10
41CV0579	3	6	24	230–240		–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	5	–	–	–	–	–	–	–	–	5
41CV0579	3	6	25	240–250		–	1	–	–	–	–	–	–	–	–	–	–	–	–	2	–	6	–	–	–	–	–	–	–	–	9
41CV0579	3	6	26	250–260		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV0579	3	6	27	260–270		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0579	3	6	28	270–280		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
41CV0579	3	6	29	280–290		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0579	3	6	30	290–300		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	2
41CV0579	3	6	31	300–310		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	4	–	–	–	–	–	–	–	–	5
41CV0579	3	6	32	310–320		–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41CV0668-B	1	1	05	40–50		–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
41CV0668-B	1	1	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11	–	–	–	–	–	–	–	–	11
41CV0668-B	1	1	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	17	–	–	–	–	–	–	–	–	17
41CV0956-B	1	1	09	80–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0956-B	1	1	10	90–100		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0956-B	1	1	11	100–110		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0956-B	1	1	13	120–130		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	2	–	–	–	–	–	–	–	–	3
41CV0956-B	1	1	14	130–140		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
41CV0668-B	1	2	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0668-B	1	2	04	30–40		–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41CV0956-B	1	2	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
41CV0668-B	1	2	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0668-B	1	2	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV0956-B	1	2	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	4	–	–	–	–	–	–	–	–	5

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41CV0956-B	1	2	09	80–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	26	–	–	–	–	–	–	–	–	28
41CV0956-B	1	2	10	90–100		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV0956-B	1	2	11	100–110		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV0956-B	1	3	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	2
41CV0956-B	1	3	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–		–	2	–	–	–	–	–	–	–	–	2
41CV0956-B	1	3	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	2
41CV0956-B	1	3	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
41CV0956-B	1	3	09	80–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV0956-B	1	3	10	90–100		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV0956-B	1	3	11	100–110		–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	14	–	–	–	–	–	–	–	–	16
41CV0956-B	1	3	12	110–120		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	1	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	1	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	1		53		–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41CV1441	1	1	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	2		85–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	2	10	90–100		–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
41CV1441	1	2	11	100–110		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1441	1	2	13	120–130		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1441	1	3	05	40–50		–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
41CV1441	1	3	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
41CV1441	1	3	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	–	–	–	–	–	7
41CV1441	1	3	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1441	1	3	09	80–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1441	1	3	14	130–140		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	3	16	150–160		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	4	02	10–20		1	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	2	–	–	–	–	–	–	–	–	6
41CV1441	1	4	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41CV1441	1	4	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
41CV1441	1	4	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1441	1	4	06	50–60		–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	5
41CV1441	1	4	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	5	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1441	1	5	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1441	1	6	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	16	–	–	–	–	–	–	–	–	16
41CV1441	1	6	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	11	–	–	–	–	–	–	–	–	12
41CV1441	1	6	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	16	–	–	–	–	–	–	–	–	17
41CV1441	1	6	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV1441	1	6	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	6
41CV1441	1	6	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV1443-A	2	2	15	140–150		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3	–	–	–	–	–	–	–	–	4
41CV1443-A	2	2	17	160–170		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1443-A	2	2/3		127–166	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1443-A	2	3	13	120–130		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1443-A	2	3	22	210–220		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1443-A	2	4	16	150–160		–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
						–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
41CV1553	1	1	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	5	–	–	–	–	–	–	–	–	6
41CV1553	1	1	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3	–	–	–	–	–	–	–	–	4
41CV1553	1	4		15	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
41CV1553	2	2	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1553	2	2	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1553	2	2	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
41CV1553	2	3	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1553	2	3	02			1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15	–	–	–	–	–	–	–	–	16
41CV1553	2	5	02	10–20	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	1	–	–	–	–	–	–	3

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41CV1553	2	5		18	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
41CV1553	2	5	03	20–30	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
41CV1553	2	5		28–47	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1553	3	6	02	10–20		–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
41CV1553	3	6	03	20–30		–	1	–	–	2	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	5
41CV1553	3	6	04	30–40	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV1553	3	6	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
41CV1555	1	5	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1555	1	6	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1555	2	1	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1555	2	1		10–15	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1555	2	1	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
41CV1555	2	2	01	0–10		1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	5
41CV1555	2	2		22–37	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1555	2	2	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1555	2	3	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
41CV1555	2	3	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	1	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	1	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	1	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	2	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	2	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	2	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1556-B	1	2	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	2	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	2	08	70–80		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
41CV1556-B	1	2	09	80–90		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1556-B	1	3	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2

Table E.1, continued

Site	Analysis Unit	Test Unit	Level	Elevation (cm)	Feature	Arrow point	Dart point	Perforator	Early- to middle-stage biface	Late-stage to finished biface	Miscellaneous biface	End scraper	Side scraper	End-side scraper	Miscellaneous uniface	Spoke shave	Graver	Core tool	Multifunctional tool	Edge-modified flake	Core	Unmodified flake	Metate	Indeterminate ground stone fragment	Mano-hammerstone	Hammerstone	Nutting stone	Other stone artifact	Modified bone	Ceramic sherds	Total
41CV1556-B	1	3	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
41CV1556-B	1	3	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
41CV1556-B	1	3	04	30–40		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	4
41CV1556-B	1	3	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	3	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	4	01	0–10		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
41CV1556-B	1	4	02	10–20		–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	4
41CV1556-B	1	4	03	20–30		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV1556-B	1	4	04	30–40		–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9	–	–	–	–	–	–	–	–	10
41CV1556-B	1	4	05	40–50		–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	7	–	–	–	–	–	–	–	–	8
41CV1556-B	1	4	06	50–60		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	–	–	–	–	–	7
41CV1556-B	1	4	07	60–70		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	5
41CV1556-B	1	5	01	0–10		–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	8	–	–	–	–	–	–	–	–	9
41CV1556-B	1	5	02	10–20		–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	13	–	–	–	–	–	–	–	–	16
41CV1556-B	1	5		17		–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
41CV1556-B	1	5	03	20–30	9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	54	–	–	–	–	–	–	–	–	54
41CV1556-B	1	5		23	9	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
41CV1556-B	1	5	04	30–40	9	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	47	–	–	–	–	–	–	–	–	48
41CV1556-B	1	5		40–47	9	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	3
41CV1556-B	1	5	05	40–50		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	25	–	–	–	–	–	–	–	–	25
Total						5	43	4	17	44	17	2	2	1	15	4	3	6	8	187	9	6,729	1	1	1	1	1	1	1	8	7,111