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TEST EXCAVATIONS AT 41BL1214, BELL COUNTY, TEXAS: STATE HIGHWAY 95 BRIDGE REPLACEMENT AT THE LITTLE RIVER

by

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and

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AT THE LITTLE RIVER

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ABSTRACT

In February and March 2004, Prewitt and Associates, Inc. (PAI), performed archeological test excavations at site 41BL1214 to determine its eligibility for listing in the National Register of Historic Places. This investigation was conducted within the existing and proposed right of way of the State Highway 95 bridge project at the Little River in Bell County for the Texas Department of Transportation. The site is situated on a flood terrace on the south bank of the Little River. In all, 18 m^3 were excavated during testing. Excavations yielded artifacts, features, and other cultural materials associated with Late Archaic and Late Prehistoric components. Although the site is stratified, there appears to be no ready way to isolate the Late Archaic and Late Prehistoric components from one another, and thus the site has a limited capacity to yield important information. Based on this, it is recommended that the portion of 41BL1214 within the confines of the project area be judged not eligible for listing in the National Register of Historic Places or designation as a State Archeological Landmark. All artifacts, cultural materials, and records collected and generated by this project are curated at the Texas Archeological Research Laboratory (TARL), The University of Texas at Austin. Because the collected artifacts are from private property, they are curated in a non-held-in-trust status at TARL.

INTRODUCTION

Archeological testing of site 41BL1214 was conducted by Prewitt and Associates, Inc. (PAI), for the Texas Department of Transportation (TxDOT) Environmental Affairs Division, under Contract No. 573XXSA001 (Work Authorization No. 57316SA001) and Texas Antiquities Permit No. 3322 from the Texas Historical Commission. Fieldwork was initiated on February 5, 2004, and concluded March 11, 2004. Laboratory processing and interim report preparation took place March–May 2004. The work was done to assist TxDOT in complying with Section 106 of the National Historic Preservation Act and the Antiquities Code of Texas. At least part of the site is in the new right of way for the proposed replacement of the State Highway 95 bridge over the Little River in Bell County. Archeological investigations were restricted to the part of the site within the new right of way, but it is possible that intact cultural deposits associated with 41BL1214 extend beyond this area to the east. Much of the existing State Highway 95 right of way to the west is occupied by a 3–6-m-thick fill section and has been severely disturbed by bridge and road construction, but the area of new right of way to the east is situated along a relatively undisturbed pecan orchard and pasture.

Site 41BL1214 is in east-central Bell County approximately 1.5 km south of Academy-Little River, Texas (Figure 1). The site is situated at a maximum elevation of ca. 430 ft above sea level on a flood terrace along the south bank of the Little River overlooking the channel (Figure 2). The floodplain containing the site is occupied by a well-manicured pecan orchard and open pasture. The southern end of the site lies in an open agricultural field. The area is mapped as Holocene alluvium and Pleistocene-age alluvial terrace deposits (Bureau of Economic Geology 1981). The project was a direct result of the proposed plan to replace the State Highway 95 bridge over the Little River, which, with the acquisition of new right of way, will directly affect 41BL1214. As described below, 41BL1214 is a multicomponent prehistoric site contained in Holocene alluvium. Archeological testing through the excavation of 14 backhoe trenches and nine 1x1-m hand-dug units resulted in the recovery of a small artifact assemblage and eight cultural features.

ENVIRONMENTAL SETTING

Bell County straddles the boundary between two different physiographic units, the Grand and Blackland Prairies (Arbingast et al. 1973:6; Hayward et al. 1996). In the western half of the county, Lower Cretaceous rocks, principally limestones and subordinate basal and top sands, support soils, vegetation, and landforms typical of the Grand Prairie, and in the eastern half of the county where 41BL1214 is situated, Upper Cretaceous rocks, principally mudstones, marls, soft limestones, and chalk, support soils, vegetation, and landforms typical of the Blackland Prairie (Hayward et al. 1996). Most of Bell County is drained by the Little River, which forms at the confluence of the Lampasas and Leon Rivers.

Soils of the Blackland Prairie are primarily Mollisoils and Vertisols and belong to the Houston-Black-Heiden-Branyon (shaly or marly uplands), Austin-Stephen-Altoga (chalky uplands), and Trinity-Frio-Bosque (valley alluvium) soil associations (Huckabee et al. 1977). Before landscape alterations of the twentieth century, the Blackland Prairie supported a mix of tall grasses (Blair 1950:100). Arboreal species (e.g., hackberry [*Celis laevigata*] and elm [*Ulmus americana*]) were primarily limited to stream valleys, though there were scattered live oak (*Quercus virginiana*) motts in some upland localities (Huckabee et al. 1977:44). Fauna are typical of the Texan biotic province, which includes 49 species of mammals, 2 species of turtles, 16 species of lizards, 39 species of snakes, and 23 species of amphibians (Blair 1950:101–102).

The climate of Bell County is classified as humid subtropical with hot summers (Huckabee et al. 1977:72). Tropical maritime air controls the climate from spring to fall with little day-to-day variation in conditions during the summer months. In winter months, the intrusion of frequent polar air masses can drop temperatures to near or below freezing in a matter of hours. These cold spells are brief, and typically winter temperatures are mild. Mean daily maximum and minimum temperatures for January are 57°F and 36°F; mean daily temperatures for July are 96°F and 74°F (Natural Fibers Information Center 1987:48). Precipitation is fairly evenly distributed throughout the year, averaging

This Figure Contains Restricted Site Information

Please contact TxDOT, Environmental Affairs Divsion,
Archeological Studies Program for further information.

Figure 1. Project location map. (Section of USGS 7.5-minute quadrangle, Little River, Texas.)

Figure 2. Photograph of 41BL1214.

86.03 cm (33.87 inches) annually. Prevailing winds are from the south.

ARCHEOLOGICAL BACKGROUND

The prehistoric archeological record of the middle Little River valley traditionally has been viewed as part of the central Texas archeological region (e.g., Prewitt 1981, 1985; Suhm 1960). This region is recognized based on decades of investigations at various stratified sites throughout areas of the Edwards Plateau, Balcones Canyonlands, Lampasas Cut Plain, Llano Uplift, and the Blackland Prairie margin east and south of the Balcones Escarpment (see Collins [1995] for review). The Little River valley as it traverses the Blackland Prairie is on the eastern periphery of the central Texas archeological region, and the archeological and projectile point style sequences contain elements that suggest influences and contact to varying degrees over time with areas to the east and northeast (Collins 1995; Johnson and Goode 1994). Nearby large-scale projects, particularly 30 km to the south at Granger (formerly Laneport) Reservoir (Bond 1978; Eddy 1973; Hays 1982; Prewitt 1982) and data recovery projects ca. 50 km downstream from 41BL1214 at 41MM340 and 41MM341 (Gadus et al. 2003; Mahoney et al. 2003), yielded better understanding of the area's archeological record. Also important are archeological projects associated with Sandow Mine (in Lee and Milam Counties) just east of the Blackland Prairie-Post Oak Savanna boundary (Betancourt 1977; Carlson et al, 1983; Ippolito and Childs 1978; Rogers 1999; Rogers and Kotter 1995). To the west of the Blackland Prairie and Balcones fault zone but close to the current project area are other large-scale projects—primarily reservoir salvage projects—that have contributed to our understanding of the area's archeology. These include Stillhouse Hollow Reservoir (Sorrow et al. 1967), Belton Lake (Miller and Jelks 1952; Shafer et al., 1964), and Fort Hood (Abbott and Trierweiler 1995; Kleinbach et al. 1999; Mehalchick et al. 1999, 2000; Trierweiler 1994, 1996).

To better understand the record at 41BL1214, this section provides an overview of the Late Archaic and Late Prehistoric archeology of the Little River and adjacent drainages in the Blackland Prairie. The Late Archaic period dates from 4000 to 1300 B.P. (Johnson and Goode 1994:29), coinciding with ever-increasing mesic conditions that culminated around 3500–2500 B.P. (Bousman 1998; Nordt et al. 1994). Johnson and Goode (1994:29–35) divide the Late Archaic into two parts based on increased population densities and perceived evidence of Eastern Woodland ceremonial rituals and religious ideological influences. Collins (1995) divides the Late Archaic into more-discrete projectile point intervals. From earliest to most recent, they are Bulverde, Pedernales-Kinney, Lange-Williams-Marshall, Marcos-Montell-Castroville, Ensor-Frio-Fairland, and Darl. Earlier subsistence technology, including the use of rock ovens, hearths, and rock-filled pits, continued in the Late Archaic period in central Texas, resulting in the formation of burned rock middens in favored locales where rock sources were nearby and plentiful. The use of these types of features for processing and cooking plant foods suggests that this technology was part of a generalized foraging strategy. Or it is possible that it was part of an overall decrease in the importance of hunting, which Prewitt (1981:74) infers from the low frequency of projectile projects in relation to other tools in site assemblages. At times, however, during the Late Archaic, this generalized foraging strategy appears to have been marked by shifts to a specialized economy focused on bison hunting (Kibler and Scott 2000:125–137). Castroville, Montell, and Marcos dart points are elements of tool kits often associated with bison hunting (Collins 1968), as seen at the John Ischy site in Williamson County (Sorrow 1969) and the Evoe Terrace site in Bell County (Sorrow et al. 1967).

Site 41MM340, situated near the eastern boundary of the Blackland Prairie, contains a Late Archaic component dating mostly to ca. 3400 to 2400 B.P. (Mahoney et al. 2003). This site contained many hearth features represented by burned rock clusters and charcoal and burned clay concentrations. Subsistence data indicate that the hunters and gatherers who occupied the Little River valley at this time consumed a variety of fauna, including deer, bison, turtles, beaver, rabbits, raccoon, skunk, turkey, ducks, fish, and freshwater mussels. Botanical remains were not as abundant, although nutshell fragments indicate that hickory and pecan nuts were part of the diet. Most of the dart point styles at the site firmly tie the region to central Texas to the west at this time and include Darl, Ensor, Godley, Marcos, Marshall, and especially Pedernales. Some more-eastern types such as Gary, Kent, and Yarbrough also were present.

At Sandow Mine in Lee County, Late Archaic components were investigated at the Chesser (41LE59) and Walleye Creek (41LE57) sites (Rogers 1999; Rogers and Kotter 1995). These two sites yielded many burned rock features in association with Bulverde, Darl, Ensor, Fairland, Lange, Marcos, Marshall, and Pedernales style dart points. A single sandy paste sherd was recovered from the Chesser site, but it is unclear if it is associated with the Late Archaic or Late Prehistoric component of the site. Limited faunal and macrobotanical remains suggest that *Carya* nuts and deer were part of the Late Archaic diet.

At Granger Reservoir (San Gabriel River) to the south of 41BL1214, Bond (1978) and Eddy (1973) investigated sites yielding Late Archaic components. The Adamek site (41WM135) is along the margins of the floodplain and a higher terrace-valley wall. At the Adamek site, dart point styles included Castroville, Ensor, Fairland, Figueroa, Marcos, and Pedernales (Eddy 1973:185, 202). Cultural features consisted of informal scatters of burned rocks and more-formal burned rock hearths constructed on flat unprepared surfaces. The Late Archaic occupants of the site hunted and collected deer, fish, turtles, and freshwater mussels. The tool assemblage was dominated by bifaces, in various stages of manufacture or reduction, and utilized flakes (Eddy 1973:218). A few unifacial scraping tools were part of the assemblage, but simple flake tools appeared to be most often used for scraping tasks. The presence of exhausted cores and corticate flakes at the Adamek site reflect its proximity to a lithic source (Tertiary gravels) (Eddy 1973:247, 251). The Dobias-Vitek site (41WM118) is in the middle of the San Gabriel floodplain, more or less equidistant from the channel and outer floodplain margin. The Dobias-Vitek site yielded a few Darl points and four sand-tempered pot sherds. Pottery typically is not part of the later Late Archaic assemblage of the central Texas region west of the Blackland Prairie, and Eddy (1973:132–133) suggests that the sherds at Dobias-Vitek may relate, presumably through trade, to a similar sandy paste ware used in southeast Texas during this time period. Cultural features encountered consisted of informal charcoal and burned rock scatters and charcoal-stained sediments, as well as a large basin-shaped burned rock features and storage(?) pits (Eddy 1973:60–72). Faunal remains included fish, turtles, rodents, deer, bison, and freshwater mussels. A generalized tool kit of bifacial and flake tools dominated the assemblage. The tools along with the waste debris suggest that the production of bifaces was prevalent at the site, but the few cores and corticate flakes present suggest that the primary reduction of cobbles and cores took place elsewhere, presumably at the lithic source (Eddy 1973:127–128). Eddy (1973) found that the Late Archaic occupants of both sites, although situated in different settings within the San Gabriel River valley, carried out similar strategies for obtaining resources using a similar and very generalized technology, and that this pattern of exploitation endured basically unchanged for centuries.

At the Hoxie Bridge site (41WM130), a site occupying a natural levee adjoining the San Gabriel River, Bond (1978) found a Late Archaic component similar to those at the Adamek and Dobias-Vitek sites. The Late Archaic component at the Hoxie Bridge site yielded Fairland, Ensor, and Darl points. The latest Late Archaic occupation, characterized by Darl points, represented the most intense occupation (Bond 1978:230). The faunal remains, artifacts, and other cultural materials suggested that subsistence behavior and the technologies used to exploit resources remained constant throughout the Late Archaic (Bond 1978:231). The remains of deer and mussel shells primarily represented the faunal resources exploited. Botanical remains—and, in particular, probable plant processing tools—were scarce. Features included many pits and basins with a bottom layer of burned rocks and oxidized sediments delineating the features' parameters. Initial-stage cobble and core reduction took place at the site with a nearby gravel bar supplying knappable chert. Lithic reduction was geared toward producing bifacial tools. The tool kits were rather generalized, largely comprising bifacial tools and utilized flakes. Like the Late Archaic components at the Adamek and Dobias-Vitek sites, the Late Archaic hunters and gatherers at the Hoxie Bridge site appear to have repeatedly occupied the locale, exploiting a range of resources within the immediate vicinity using a generalized suite of tools and features. A similar Late Archaic picture can be observed at the Bessie Kruze site (41WM13) along Brushy Creek, a tributary of the San Gabriel (Johnson 2000). The site yielded Castroville, Marcos, Marshall, and Pederales dart points, as well as small burned rock-lined pits probably used for cooking geophytes and the remains of deer and freshwater mussels. Chert was locally available from gravel bars and used to make tools, primarily bifacial forms. Johnson (2000) noted that the site area was within a self-sufficient region for its human occupants.

Also along the San Gabriel River, but west of the Blackland Prairie on the margins of the Edwards Plateau, the John Ischy site (41WM49) yielded similar assemblages depicting a stable generalized foraging strategy throughout the Late Archaic (Sorrow 1969). Here the assemblages vary only with stylistic changes in projectile point types, primarily Bulverde, Castroville, Marcos, Marshall, and Pedernales. The cultural assemblages differ from those of contemporary sites on the Blackland Prairie, however, because the John Ischy site contained large accumulations of burned rocks, spent hearth and probable boiling stones, a material not widely available on the Blackland Prairie, save for stream channels with large gravel bed loads. Also in the same region but situated on the Lampasas River (ca. 48 km upstream of 41BL1214), the Evoe Terrace site (41BL104) contained a series of stacked Late Archaic occupations represented by Bulverde, Castroville, Darl, Ensor, Fairland, Marcos, Marshall, Montell, and Pedernales dart points (Sorrow et al. 1967). The site contained several burned rock features (small hearths) and a more extensive zone of burned rocks (midden) in the upper levels. Tool assemblages consisted primarily of bifaces and utilized flake tools, with smaller numbers of unifacial tools. Faunal remains included deer, bison, antelope, turkey, rabbits, turtles, and freshwater mussels. Deer remains and mussel shells occurred throughout the various occupations, but bison remains were largely limited to Late Archaic occupations associated with Pedernales and later dart points. Like other Late Archaic sites in the area, the projectile point styles suggest the locale was favored by hunters and gatherers and used repeatedly over many centuries.

By the Late Prehistoric period (ca. 1300–450 B.P.), hunters and gatherers occupying the Blackland Prairie in and around the Little River valley were using the bow and arrow and making or trading for pottery. 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 late part of the Late Prehistoric period (Prewitt 1981:74). Eddy (1973:167), however, suggested that hunting became more efficient through use of the bow and arrow, as revealed by the number and variety of fauna recovered from Late Prehistoric components. Regardless, Eddy (1973:370) found that Late Archaic and Late Prehistoric sites at Granger Reservoir displayed "a strong cultural and behavioral persistence regardless of environmental situation or temporal age." Prewitt (1982:100) made a similar observation based on the consistency of feature types and tool assemblages, suggesting that a "stable food-collecting culture" existed in the area during Late Archaic and early Late Prehistoric times.

The Late Prehistoric period generally is associated with the Austin and Toyah phases (Jelks 1962; Prewitt 1981:82–84), although Story (1990:364) has suggested that the Late Prehistoric of the Blackland Prairie region is more complex than the Austin-Toyah phase dichotomy. She sees evidence of an intermediate horizon characterized by Alba arrow points and early Caddoan pottery, which may be evidence of Caddoan groups living year round or seasonally in the area, or local groups interacting with Caddoan peoples through trade and social gatherings. Austin and Toyah phase horizon markers (Scallorn-Edwards [Austin] and Perdiz [Toyah] arrow points) are distributed across most of the state. The introduction of Scallorn and Edwards arrow points into central Texas is often marked by evidence of violence and conflict—many excavated burials contain these point tips in contexts indicating they were the cause of death (Prewitt 1981:83). The Loeve-Fox site (41WM230) at Granger Reservoir contained a large cemetery with Austin phase human remains that displayed signs of aggression (Prewitt 1982:42). The cemetery presumably marks a group of people with an intimate knowledge of the area and its resources establishing favored locales for repeated use over time.

Around 1000–750 B.P., slightly more-xeric climatic conditions returned to the region (Toomey et al. 1993). Huebner (1991) argues that this resulted in an increase in grass cover and decrease in arboreal cover and that this change in vegetation allowed higher densities of grass-eating bison. Using this vast resource, Toyah-phase peoples were equipped with Perdiz point-tipped arrows, end scrapers, four-beveled-edge knives, and plain bone-tempered ceramics. The technology and subsistence strategies of the Toyah phase represent a different tradition from the preceding Austin phase, a concept noted by Bond (1978:231) with the recovery of bison remains from the Toyah component at Hoxie Bridge. Contact with Caddoan groups to the east and northeast is represented by the presence of Caddoan ceramics in site assemblages, particularly in the eastern peripheral areas of central Texas (e.g., Pertulla et al. 2003; Stephenson 1970).

The Late Prehistoric component at 41MM341, downstream from 41BL1214, yielded Alba, Scallorn, and a few Perdiz arrow points (Gadus et al. 2003). Features consisted of basin-shaped burned rock hearths; pits with burned clay, charcoal, and ash; and mussel shell lenses. A few ceramic vessel sherds also were recovered, including untempered sandy paste sherds and bone-tempered sherds. Projectile points were more common than grinding or plant processing tools, which were scarce, suggesting that the occupants of the site focused on hunting game for subsistence. Debitage and cores indicate that nearby stone sources were tapped, and tool production was another major site activity. Similar Late Prehistoric assemblages were recovered from the Chesser and Walleye Creek sites at Sandow Mine (Rogers 1999; Rogers and Kotter 1995). But these Late Prehistoric components appear to represent more-limited use of these locales by hunting and gathering peoples. The artifact assemblages included small numbers of Alba, Cuney, Perdiz, and Scallorn arrow points, and ceramics were scarce to absent.

At Granger Reservoir, the Loeve site (41WM133) yielded Scallorn and Perdiz points, bone-tempered pottery (cf. Leon Plain), and Caddoan-like potsherds (Eddy 1973). The Dobias-Vitek site also yielded bone-tempered pottery and Scallorn and Perdiz arrow points. The recovery of stick- and twig-impressed daub at the site suggests that shelters were present

(Eddy 1973:157). The Loeve-Fox site had a substantial Austin phase component, including the aforementioned cemetery (Prewitt 1982). Features included basin-shaped and flat hearths of burned rocks, ash pits, and burned clay concentrations. One interesting item from the Loeve-Fox cemetery was a conch shell pendant. The presence of this object suggests trade with or access to Gulf coastal peoples or resources, and its association with the remains of one individual suggests that the group occupying the site and using the cemetery possessed a degree of social hierarchy.

Other sites on the Blackland Prairie but south of the Little River drainage basin with substantial Austin and Toyah phase components include the Mustang Branch site (41HY209) and the Toyah Bluff site (41TV441) (Karbula 2003; Ricklis and Collins 1994). Artifacts, features, and other materials associated with the Austin phase at the Mustang Branch site indicate a generalized foraging life style (Ricklis and Collins 1994). Save for the addition of the bow and arrow, the Austin phase way of life mimicked earlier Late Archaic life ways, but the Toyah phase component at the site appeared to represent a more-specialized subsistence strategy, the hunting and processing of large ungulates (i.e., deer, antelope, and bison). Contrasting to this is the Toyah Bluff site, a site yielding an assemblage of Austin and Toyah features, including burned rock-filled pits or ovens used for cooking plant foods such as lily family bulbs (Karbula 2003).

PREVIOUS INVESTIGATIONS

Personnel from Prewitt and Associates, Inc., recorded 41BL1214 during an intensive survey of new right of way for the State Highway 95 bridge replacement over the Little River in 2003 (Griffith 2003). Cultural materials were recorded in six of nine trenches excavated north to south across the floodplain containing the site (Figure 3). In addition, two shovel tests were excavated to 1-m depths inside the site boundary but yielded no cultural materials. The site was recorded as a low-density cultural material scatter consisting of freshwater mussel shells, chert flakes, charcoal, scattered burned rocks, and four possible features between 40 and 200 cm below the ground surface. No dense accumulation of any artifact type was noted during the survey. Most of the cultural materials were observed in the back dirt from trench excavations. Charcoal flecks and chunks, however, were abundant in each trench profile containing cultural materials. Coupled with the site's geomorphic context, this suggested that 41BL1214 had the potential to yield discrete archeological assemblages or components with materials suitable for radiocarbon dating. The site was recommended for testing to investigate its archeological potential and its potential to be listed in the National Register of Historic Places (National Register) and designated as a State Archeological Landmark. The Texas Department of Transportation and the Texas Historical Commission concurred with the recommendation.

METHODS

Test Excavations

Test excavations consisted of locating and reopening Backhoe Trenches 4–9 from the 2003 survey and excavating five new trenches, ten 1x1-m units from 40 to 200–220 cm below the ground surface, and four 1x1-m units from the ground surface down to 40 cm. A total of 16.4 m^3 of sediment was manually excavated from between 40 and 220 cm below the ground surface, and 1.6 m^3 of sediment was manually excavated from the upper 40 cm of the site. Placement of all units was predicated on locating cultural materials observed in various backhoe trenches. With the exception of Test Unit (TU) 6, all units were placed by backhoe trenches deemed best for sampling the cultural deposits. All materials removed were screened through 1/4-inch-mesh hardware cloth. Because clayey sediments were prevalent at the site, a strict water-screening regimen was adhered to for the duration of the project. Screening entailed placing excavated sediments into buckets tagged with provenience information, soaking the material with a mixture of water and baking soda, and finally rinsing the sediments through 1/4-inch-mesh screens. A water-holding sump was excavated just outside the northern boundary of the site. Excavation of most of the test units was terminated at 200 cm below the ground surface, but for Test Units 1 and 2, the presence of intact cultural features dictated that excavation continue to a depth of 220 cm.

The presence of a recently planted agricultural field forced the 2003 survey investigations

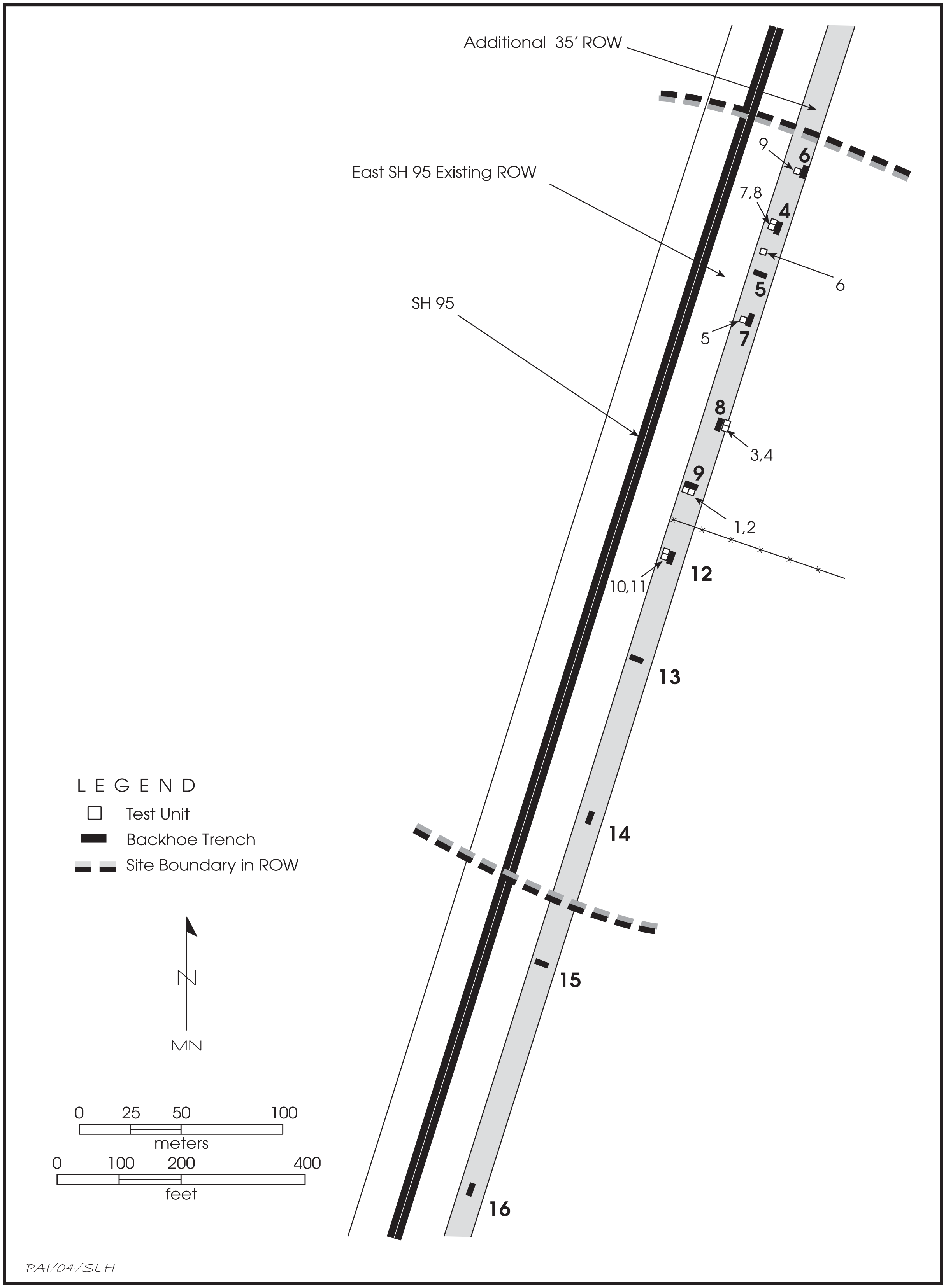

Figure 3. Site map, 41BL1214.

to terminate at the southern end of the pecan orchard, which prevented the survey crew from establishing the southern site boundary. Five more trenches, therefore, were placed along the southern end of the project area during the current phase of work. The first three trenches excavated (BTs 12–14) yielded small amounts of cultural materials, and the two southernmost trenches (BTs 15 and 16) revealed channel deposits containing no cultural materials. Back dirt from trenches was not screened, but it was visually examined for cultural materials.

All trench excavations were monitored by the project archeologist or geomorphologist, and each trench wall was inspected for cultural materials. Soil stratigraphy was recorded and described for select trenches and test units by the project geomorphologist (see Appendix A).

All cultural materials recovered from 1/4-inch-mesh screening of test unit and level soils were bagged in the field and then returned to the Austin office. All relevant provenience data was labeled on each bag before it left the field. All artifact counts by test unit and level were recorded in the field to assist in tracking artifact frequencies and distributions across the site. All numbered features were recorded using a standard feature form. The final step of field work consisted of electronic mapping of both topographic features and the positions of all test units and trenches.

Laboratory Analysis

Lab analysis took place during March 2004 at the PAI offices and was conducted by Jonathan S. Grant and Rob Thrift. Analysis entailed washing, identifying, and cataloging all cultural materials recovered from 41BL1214. The final laboratory step was flotation of all sediments removed from cultural features and collection of all identified pieces of cultural material. Samples were processed using the Flote-Tech flotation system, which provides a multimodal method of separating materials into heavy and light fractions. For each sample, the heavy fraction was scanned to recover artifacts. All light-fraction samples were sent to Leslie Bush, Ph.D., for macrobotanical identifications, and the results are presented in Appendix B.

Artifact Analysis

The prehistoric materials recovered during the archeological testing of 41BL1214 include chipped and ground stone tools, debitage and cores, burned rocks, burned chert, and faunal remains. The chipped stone tools include projectile points and edge-modified flakes. Burned rocks include limestone cobbles, tabular slabs, and angular fragments, which were associated with rock-lined fire pits. Burned chert includes fragments of fire-cracked chert chunks not associated with chipped stone tool production. Both burned rocks and burned chert fragments were counted and weighed but not collected.

Faunal remains consist of freshwater mussels and vertebrates. Freshwater mussel shell umbos were counted but not identified by taxon. Vertebrate faunal materials were also counted, but because the sample was fragmentary, few were assigned to taxon.

Because the amount of cultural material was limited, detailed analysis was conducted only on the debitage and chipped stone tools. Recorded debitage attributes consist of flake type, dorsal cortex percentage, and maximum dimension. The different flake types are complete flakes, which have striking platforms and hinged or feathered terminations; proximal fragments, which have striking platforms but lack hinged or feathered terminations; chips, consisting of only medial or distal flake fragments without striking platforms; and chunks, angular debris that lack flake attributes altogether. For chipped stone tools, such as projectile points, metrics were recorded where applicable.

The materials recovered are described below in Description of Cultural Materials. Their distributions and how they relate to the capacity of the site to yield important information are discussed in Feature and Artifact Distributions and Assessment and Recommendations.

SEDIMENTS AND STRATIGRAPHY

Site 41BL1214 is situated on a broad, nearly level flood terrace that stands ca. 6–7 m above the Little River channel. Mollisols of the Frio and Bosque soil series are mapped on the surface of the flood terrace (Huckabee et al. 1977). The upper ca. 2 m of the deposits below this constructional surface were observed by examining backhoe trench and test unit profiles. Detailed descriptions of select soil stratigraphic profiles can be found in Appendix A. The observed deposits consist of late Holocene (based on the degree of pedogenic development) overbank and channel fill facies, though the channel fill facies are rare.

The overbank facies consist of very dark grayish brown (10YR 3/2) to dark grayish brown (10YR 4/2) to brown (10YR 5/3) silty clay loams, silty clays, clay loams, and clays and were observed in almost all of the backhoe trench and test unit profiles examined. These overbank deposits are imprinted with an Ap-Bw-Bk soil profile. The profiles of Test Units 7 and 8 are typical of the modified overbank facies. The Ap horizon (0–34 cm) is a very dark grayish brown (10YR 3/2) silty clay loam with a moderate medium granular structure. A gradual smooth lower boundary separates the Ap horizon from the underlying Bw horizon (34–116 cm), which is a dark grayish brown (10YR 4/2) silty clay. It exhibits a weak medium prismatic structure that breaks to a moderate medium blocky angular structure. Its lower boundary is also gradual and smooth. The Bk horizon (116–200+ cm) is a brown (10YR 5/3) silty clay with carbonate filaments (5 percent) and displays a weak medium prismatic structure that breaks to a moderate medium blocky angular structure. Judging by the soil profile and degree of alteration, it appears that the overbank facies aggraded rapidly and without pause. These deposits encapsulate all of the cultural materials observed at the site. They lack internal stratigraphy or buried soils that would help separate the cultural materials into components or analytical units that would be needed for interpreting the archeological remains fully.

A channel fill facies was observed in Backhoe Trench 15, several tens of meters south of the site. The profile consists of modified sandy clays and sandy clay loams overlying muddy sandy gravels and slightly gravelly sands. The profile displays an Ap-Bw-B-C-Cox profile. The Ap horizon (0–36 cm) is a dark grayish brown (10YR 4/2) sandy clay with weak fine blocky subangular structure and a 1 percent gravel content. The Bw horizon (36–70 cm) is a brown (10YR 4/3) sandy clay loam with a 2 percent gravel content, and the B horizon (70–163 cm) is a brown (7.5YR 5/4) sandy clay loam with a 5 percent gravel content. The C horizon (163–192 cm) is a dark yellowish brown (10YR 4/4) muddy sandy gravel, and the underlying Cox horizon (192–208+ cm) is a brownish yellow (10YR 6/8) slightly gravelly sand.

RADIOCARBON DATES

Nine charcoal samples were collected from seven features. Seven of these samples, from five features, were sent to the University of Georgia's Center for Isotope Studies for radiocarbon analysis (Table 1). Feature 2, situated between 110 and 123 cm, yielded the youngest corrected radiocarbon age at 1210±40 B.P. The remaining samples from Features 5–8, all located between 183 and 220 cm, yielded a cluster of radiocarbon ages ranging from 1730±40 to 1870±40 B.P., except for the sample from Feature 7, which yielded a radiocarbon age of 1240±40 B.P. This anomaly is probably the result of intrusive organic material from the cultural deposits above, suggesting some mixing of the deposits. Based on the radiocarbon dates and the depths of the features, it would appear that 41BL1214 contains Late Prehistoric materials generally overlying Late Archaic materials. As discussed below under Feature and Artifact Distributions and Assessment and Recommendations, though, the materials representing these periods of occupation cannot be separated from one another consistently, and this compromises the capacity of 41BL1214 to yield important information. The anomalously young date from Feature 7 suggests that mixing may be one reason that components cannot be isolated.

DESCRIPTION OF CULTURAL MATERIALS

Cultural materials collected from 41BL1214 during test excavations consist of chipped stone and ground stone tools, lithic debitage and cores, burned rocks, burned chert, burned clay, mussel shells, animal bones, and charcoal (Table 2). Mussel shell is the most abundant artifact type, with 300 specimens. Lithic debitage is second, with 204 pieces. Burned chert was also abundant at the site, accounting for 154 pieces. Bone is one of the least-represented artifact categories with only 56 specimens, most of which are unidentifiable fragmentary specimens. Chipped stone tools consist of 2 projectile points and 3

Table 1. Radiocarbon dates from features

UGA Lab No.	Feature	Depth (cm)	^{13}C Corrected Age	Two-sigma calibrated date range
13455	2	120	1210±40	A.D. 680–900 and A.D. 920–960
13456	5	196	1760±40	A.D. 130–390
13457	5	197	1730±40	A.D. 220–420
13458	6	210	1840±40	A.D. 70–260 and A.D. 300–320
13459	6	215	1800±40	A.D. 120–350
13460	7	192	1240±40	A.D. 680–890
13461	8	190	1870±40	A.D. 60–250

edge-modified flakes. Two fragmentary ground stone tools and 2 cores were also recovered. Burned clay was scattered across the site, totaling ca. 20.3 g. Burned rocks were common, with 18.9 kg coming from non-feature contexts and 73 kg from features. Snail (*Rabdotus* sp.) shells were abundant throughout all levels, as were other unidentified land and aquatic snail shells. Flotation of feature matrix from the features increased the counts for several of the artifact categories (Table 3). Lithic debitage recovery was greatly increased by 582 pieces, but burned chert was increased only by 28 pieces. Forty-eight pieces of bone were also recovered from feature matrix flotation. These materials are described below. How they and their distributions relate to the capacity of 41BL1214 to contribute important information is discussed under Feature and Artifact Distributions and Assessment and Recommendations.

Chipped Stone Tools

Chipped stone tools consist of two projectile points and three edge-modified flakes. A single Scallorn point with a broken base was recovered from Test Unit 1 between 100 and 110 cm below the ground surface (Figure 4). The Scallorn point measures 41.5 mm in length and 13.0 mm and 14.0 mm in maximum width and thickness. The shoulders are strong, and the stem is expanding. A portion of the base is broken, but the base has not been modified. Both blade edges are serrated. The material is dark gray with light brownish gray banding. The second projectile point, a basal fragment, was recovered from Test Unit 4 between 160 and 170 cm below the surface. The material is a medium-grained tan to brown chert. There is a single notch on one side of the base. No other diagnostic features are present on this point, but it is probable that the specimen represents an Ensor dart point.

Three edge-modified flakes were recovered from Test Units 4, 5, and 7. They were recovered from 120–130 cm, 140–150 cm, and 150–160 cm below the ground surface. All three specimens exhibit intentional modification from use. Only one of the specimens exhibits dorsal cortex. It is difficult to tell what these tools were used for, but they were probably for expedient tasks.

Debitage and Cores

A total of 204 pieces of unmodified debitage were recovered. Of those, 77 percent (n = 157) are chips, 5 percent (n = 10) are chunks, 10 percent (n = 20) are complete flakes, and 8 percent (n = 17) are proximal flake fragments. Cortex is present on 34 pieces of the debitage. Most of the unmodified debitage (99 percent) has little or no cortex. There is no dorsal cortex present on 170 pieces. Thirty-two pieces have less than 50 percent, and only 2 pieces have more than 50 percent cortex. Many complete flakes almost entirely lack cortex (60 percent have none, 15 percent have < 50 percent). In terms of size, 82 percent are between 11 and 30 mm. Most of the chips (n = 142) fall between 11 and 30 mm. Complete flakes are equally distributed between 11 and 40 mm. Most of the chunks (n = 8) are between 11 and 20 mm. Proximal flakes fall mostly between 11 and 20 mm. In general, 88 percent of the unmodified debitage are less than 30 mm in size, and 62 percent are 20 mm or less. Only 6 pieces of the unmodified debitage show thermal alterations.

Two cores were recovered from Test Unit 7

Table 2. Summary of cultural materials from non-feature contexts at 41BL1214

Test Unit and Depth (cm)	Debitage	Mussel Shells	Chipped Stone Tools	Cores	Ground Stones	Edge-modified Flakes	Bones	Burned Chert	Burned Rocks (kg)	Burned Clay (g)
Test Unit 1										
40–50										
50–60										
60–70		1								
70–80		1								
80–90										
90–100							1			
100–110		1	1				1			
110–120										
120–130										
130–140	2								0.25	
140–150										
150–160		1							0.25	
160–170								3	0.20	
170–180	2	1					1	9	1.00	
180–190	1	4						25	0.50	8.3
190–200									0.10	
200–210		2							0.10	
210–220		1							0.20	
Subtotal	5	12	1	0	0	0	3	37	2.60	8.3
Test Unit 2										
40–50										
50–60										
60–70										
70–80										
80–90		1								
90–100		3								
100–110										
110–120									0.25	
120–130	1								0.25	
130–140										
140–150										
150–160									0.20	
160–170									0.20	
170–180		1							0.25	
180–190		1							0.80	
190–200										
200–210							5		0.10	
210–220		2							0.20	
Subtotal	1	8	0	0	0	0	5	0	2.25	0
Test Unit 3										
40–50										
50–60									0.30	

Table 2, continued

Test Unit and Depth (cm)	Debitage	Mussel Shells	Chipped Stone Tools	Cores	Ground Stones	Edge-modified Flakes	Bones	Burned Chert	Burned Rocks (kg)	Burned Clay (g)
60–70										
70–80	1	1							0.25	
80–90		2							0.25	
90–100		2							0.25	
100–110								1	0.25	
110–120									0.25	
120–130								2		
130–140									0.10	
140–150										
150–160	10	3						25	0.20	0.9
160–170	2							4	0.10	
170–180	1							1	0.60	
180–190									0.20	
190–200		2							0.10	
200–210										
210–220										
Subtotal	15	10	0	0	0	0	0	33	2.85	0.9
Test Unit 4										
40–50		1								
50–60								1		
60–70		1								
70–80	1									1.2
80–90	1	2						1	0.25	
90–100		1							0.25	
100–110	1	1					1		0.25	2.3
110–120	2						1		0.80	
120–130		1							0.10	
130–140								5	0.10	
140–150		1						2	0.20	
150–160	8	1				1		12	0.60	6.0
160–170	2		1				1	2	0.50	
170–180		1								
180–190		2					1	1	0.30	
190–200	2	2							0.25	
200–210										
210–220										
Subtotal	17	14	1	0	0	1	4	24	3.60	9.5
Test Unit 5										
40–50										
50–60										
60–70	1									
70–80	2	1								
80–90	1							4		
90–100									0.25	

Table 2, continued

Test Unit and Depth (cm)	Debitage	Mussel Shells	Chipped Stone Tools	Cores	Ground Stones	Edge-modified Flakes	Bones	Burned Chert	Burned Rocks (kg)	Burned Clay (g)
100–110									0.15	
110–120	6	1			1					
120–130	16	7				1	5	5	0.40	
130–140	2								0.25	
140–150	3	6						1	0.20	
150–160	4	8						5	0.25	
160–170		5						1	0.25	
170–180									0.20	
180–190		4						1	0.10	
190–200		3							0.40	
Subtotal	35	35	0	0	1	1	5	17	2.45	0
Test Unit 7										
0–10										
10–20										
20–30							1			
30–40							8			
40–50		1								
50–60							4		0.20	
60–70	1	8					1			
70–80	2	4							0.10	0.6
80–90	7	1		1				1		
90–100	28							1	0.25	
100–110	36							2		
110–120	8							2	0.20	
120–130		2								
130–140									0.10	
140–150	1					1			0.80	
150–160		1								
160–170		1					2		0.10	
170–180		2							0.10	
180–190										
190–200										
Subtotal	83	20	0	1	0	1	16	6	1.85	0.6
Test Unit 8										
0–10		1								
10–20										
20–30										
30–40										
40–50							5	3		
50–60		3						1		
60–70		8							0.10	1.0
70–80		5						2	0.10	
80–90	4	1						4		

Table 2, continued

Test Unit and Depth (cm)	Debitage	Mussel Shells	Chipped Stone Tools	Cores	Ground Stones	Edge-modified Flakes	Bones	Burned Chert	Burned Rocks (kg)	Burned Clay (g)
90–100	20	2						5	0.10	
100–110	14							1		
110–120									0.50	
120–130		4								
130–140					1				0.60	
140–150		5								
150–160									0.25	
160–170		2					4			
170–180	1									
180–190	1									
190–200							7			
Subtotal	40	31	0	0	1	0	16	16	1.65	1.0
Test Unit 9										
0–10										
10–20							4			
20–30	1									
30–40	1						1			
40–50	3									
50–60	2									
60–70		7								
70–80	2	19						3		
80–90		1					1			
90–100		2								
100–110	1	2								
110–120										
120–130										
130–140		1		1						
140–150										
150–160										
160–170										
170–180										
180–190										
190–200		2								
Subtotal	10	34	0	1	0	0	6	3	0.00	0
Test Unit 10										
40–50										
50–60							1			
60–70										
70–80		1							0.10	
80–90										
90–100										
100–110										
110–120		1								

Table 2, continued

Test Unit and Depth (cm)	Debitage	Mussel Shells	Chipped Stone Tools	Cores	Ground Stones	Edge-modified Flakes	Bones	Burned Chert	Burned Rocks (kg)	Burned Clay (g)
120–130		3							0.10	
130–140		22							0.10	
140–150		11								
150–160		4						2		
160–170		1							0.10	
170–180										
180–190		1								
190–200		5							0.40	
Subtotal	0	49	0	0	0	0	1	2	0.80	0
Test Unit 11										
40–50										
50–60										
60–70										
70–80									0.10	
80–90										
90–100		3								
100–110		2						4	0.10	
110–120		3								
120–130		5								
130–140		17								
140–150		27							0.10	
150–160		10							0.10	
160–170		6						12	0.40	
170–180		1								
180–190		8								
190–200										
Subtotal	0	82	0	0	0	0	0	16	0.80	0
Total	206	295	2	2	2	3	56	154	18.85	20.3

(80–90 cm below the ground surface) and Test Unit 9 (120–130 cm below the ground surface). One of the specimens is complete and exhibits several flake scars. The other specimen is smaller and shows moderately abraded cortex. The smaller core exhibits evidence of bashing or crushing on one edge.

Other Cultural Materials

Other cultural materials recovered are burned rocks, burned chert, ground stone tools, mussel shells, burned clay lumps, floral remains, and vertebrate faunal remains. Feature excavations yielded 64 burned rocks weighing ca. 7.3 kg, and 18.9 kg of burned rocks were found scattered throughout the site deposits in non-feature contexts. Mussel shell umbos were the most abundant material (n = 300) recovered during the excavation, and bone was the least abundant (n = 56). Although highly fragmented, the small vertebrate faunal assemblage appears to represent mostly small to medium-sized mammals. Burned chert was lightly scattered throughout the site (n = 154). Two pieces of ground stone were recovered during the excavation; one is a

Table 3. Heavy fraction artifact recovery from feature matrix

Feature	Test Unit (TU) and Depth (cm)	Debitage	Mussel Shells	Burned Clay (g)	Burned Chert	Burned Rocks	Bones	Charcoal (g)
1	TU 3, 78–81	–	–	–	–	–	2	0.1
2	TU 3 and 4, 110–123	–	–	65.8	–	–	12	0.1
3	TU 3, 150–160	32	–	–	–	–	13	0.2
4	TU 2, 167–183	81	–	2.0	–	–	7	0.3
5	TU 1, 189–206	220	3	17.6	26	14	9	0.4
6	TU 1 and 2, 209–220	81	–	–	2	–	2	0.1
7	TU 5, 183–196	159	–	–	–	–	4	0.1
8	TU 5, 189–191	9	1	0.6	–	–	–	0.1

small fragment, the second is a complete mano. The material of the first is a large-grained sandstone, and the second is a finer-grained material and shows wear on one face.

Macrobotanical Remains

Excluded from the descriptions above are macrobotanical remains recovered by flotation from Features 1–8. As presented in Appendix B, these remains consist of 133 wood fragments, 17 unidentifiable bulb fragments, 1 hickory or walnut nutshell fragment, and 15 seeds and seed fragments. Most of the identifiable wood charcoal is of the elm family, with oak being second in frequency. The taxa represented are consistent with the setting of the site on the Little River floodplain. The single fragment of nutshell suggests that processing of hardwood nuts was not a prominent activity at 41BL1214 because nutshells tend to preserve well in archeological contexts. Most of the identifiable seeds are bedstraw, with 2 probably being knotweed or bulrush and 1 being an unidentified grass. The combined macrobotanical evidence suggests occupation during the late spring or early summer, but the interpretive utility of the sample is limited by the fact that most of the remains came from just one context (Feature 5). The samples from the other features generally are too small for reliable interpretations.

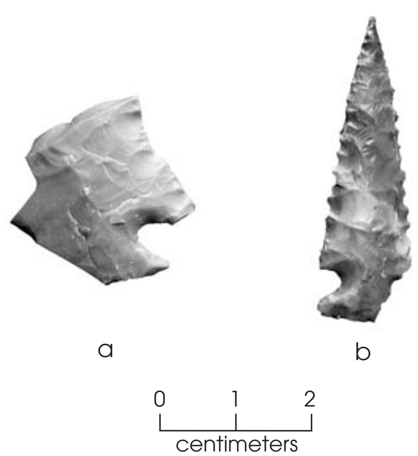

Figure 4. Projectile points from 41BL1214. (a) possible Ensor; (b) Scallorn.

Cultural Features

Eight features were exposed and excavated during testing at 41BL1214. Three of these were encountered between 81 and 160 cm below the ground surface, and the other five were between 183 and 220 cm below the surface. Nine charcoal samples were collected from Features 2–8, and feature matrix was collected in bulk from all features for flotation.

Feature 1 was in Test Unit 3 between 78 and 81 cm below the ground surface. It consisted of two burned rocks associated with a 7x10-cm soil stain. An attempt to cross section this feature was unsuccessful because the stain was shallow. Two large roots running north-south to the east of the feature in combination with the paucity of burned rocks near the soil stain suggest that the feature may be severely disturbed. Two pieces of bone were collected from the feature matrix during flotation.

Feature 2 was located in Test Units 3 and 4 between 110 and 123 cm below the ground surface. It consisted of a shallow basin-shaped pit containing burned sediment. It was ca. 25 cm in diameter and contained caliche, root casts, charcoal, and a small amount of bone. Several large fragments of wood charcoal were recovered from the feature during excavation. Flotation yielded 65.8 g of burned clay and 12 bone fragments.

Feature 3 was encountered in Test Unit 3 between 152 and 158 cm below the ground surface. It consisted of a scatter of 10 burned rocks positioned primarily in the central, east, and west portions of the unit. Most of the rocks were less than 5 cm long, and no discernible pattern was recognized. Burned sediment was observed throughout the level containing this feature. A single piece of charcoal was collected from the southern half of the feature. Flotation of feature matrix yielded 32 pieces of debitage; 13 bones; and elm, oak, and willow wood charcoal.

Feature 4 was located in Test Unit 2 between 167 and 183 cm below the ground surface. It consisted of a cluster of 33 burned rocks with no discernible pattern. All of the rocks were rounded pebbles and cobbles, of which approximately half displayed fire-fractured edges. Charcoal flecks were abundant throughout the levels containing the feature. Only a few chunks of burned clay were observed during the excavation. Artifacts recovered from flotation consist of 81 pieces of debitage, 2.0 g of burned clay, and 7 bone fragments. Flotation also recovered elm, oak, and walnut wood charcoal, as well as a bulb fragment.

Feature 5 was discovered in Test Unit 1 between 189 and 206 cm below the ground surface (Figure 5). It consisted of an 88x98-cm circular pit positioned in the southern and western portions of the test unit. It contained a dark sediment with moderately abundant burned clay, charcoal flecks and chunks, and small to medium-sized burned rocks. The matrix also contained a moderate amount of fluvial gravels. Only a few mussel shells and lithic debitage were observed during excavation. Artifacts recovered from flotation consist of 220 pieces of debitage, 3 mussel shells, 17.6 g of burned clay, 26 pieces of burned chert, 9 bone fragments, and 14 burned rocks. Flotation also recovered elm, oak, hackberry, ash, pecan, and yaupon wood charcoal. Sixteen charred bulb fragments also were recovered.

Feature 6 was detected in Test Units 1 and 2 between 209 and 220 cm below the ground surface (Figure 6). It consisted of a ca. 40-cm-diameter basin-shaped pit. The matrix contained a dark grayish silty clay with common fine mottles of brown silty clay and moderately abun-

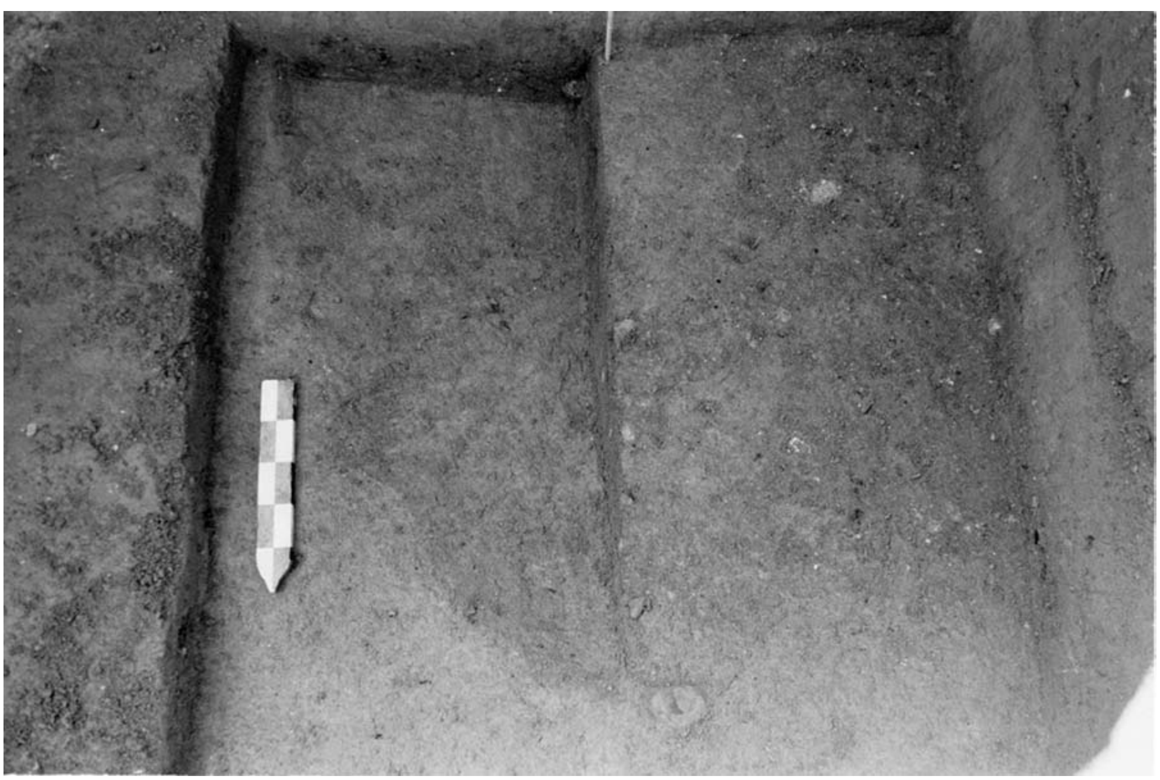

Figure 5. Photograph of Feature 5.

dant charcoal flecking. Nine medium-sized (5–9 cm) burned rocks were revealed within the feature matrix during excavation. Six of the rocks were rounded limestone cobbles, and the other three were fractured metamorphic conglomerates containing small fluvial gravels. These gravels were prevalent throughout the level containing this feature. Artifacts recovered from flotation consist of 81 pieces of debitage, 2 pieces of burned chert, and 2 bone fragments.

Features 7 and 8 were encountered in Test Unit 5 and were possibly parts of the same feature. Feature 7 was situated between 183 and 196 cm below the ground surface. The feature consisted of a 60x92-cm mottled brown silty clay stain with charcoal flecking. Six burned rocks were scattered throughout the feature, one of which was fractured in situ at the northwest edge of the feature. Artifacts recovered from flotation consist of 159 pieces of debitage and 4 bone fragments. Flotation also recovered elm and oak wood charcoal. Feature 8 immediately adjoined Feature 7 between 189 and 191 cm below the ground surface. It was difficult to discern if this feature was a separate distinct feature or a smear extending from Feature 7. It consisted of a 37x40-cm very shallow circular stain containing charcoal flecking, a few chunks of burned clay, and several large chunks of charcoal. Two burned rocks probably associated with this feature were located in the southwest corner of the test unit. Artifacts recovered from flotation from Feature 8 consist of 9 pieces of debitage, 1 mussel shell, and 0.6 g of burned clay. Elm wood charcoal was also recovered.

FEATURE AND ARTIFACT DISTRIBUTIONS

Cultural materials recovered from the 1/4-inch-mesh screens were generally sparse across the site, though recovery from flotation shows that some materials—particularly lithic debitage, bone, and burned clay—are commonly associated with features. The distributions of the artifact types and cultural materials recovered from the 1/4-inch screens are presented in Table 2. Most of the cultural materials were within Test Units 3–5 and 7–9 in the northern part of the site, with Test Units 5, 7, and 8 producing the highest numbers of lithic artifacts. Test Units 1 and 2 yielded far fewer pieces of debitage and mussel shells, and Test Units 10 and 11 yielded numerous mussel shells but far fewer bones and

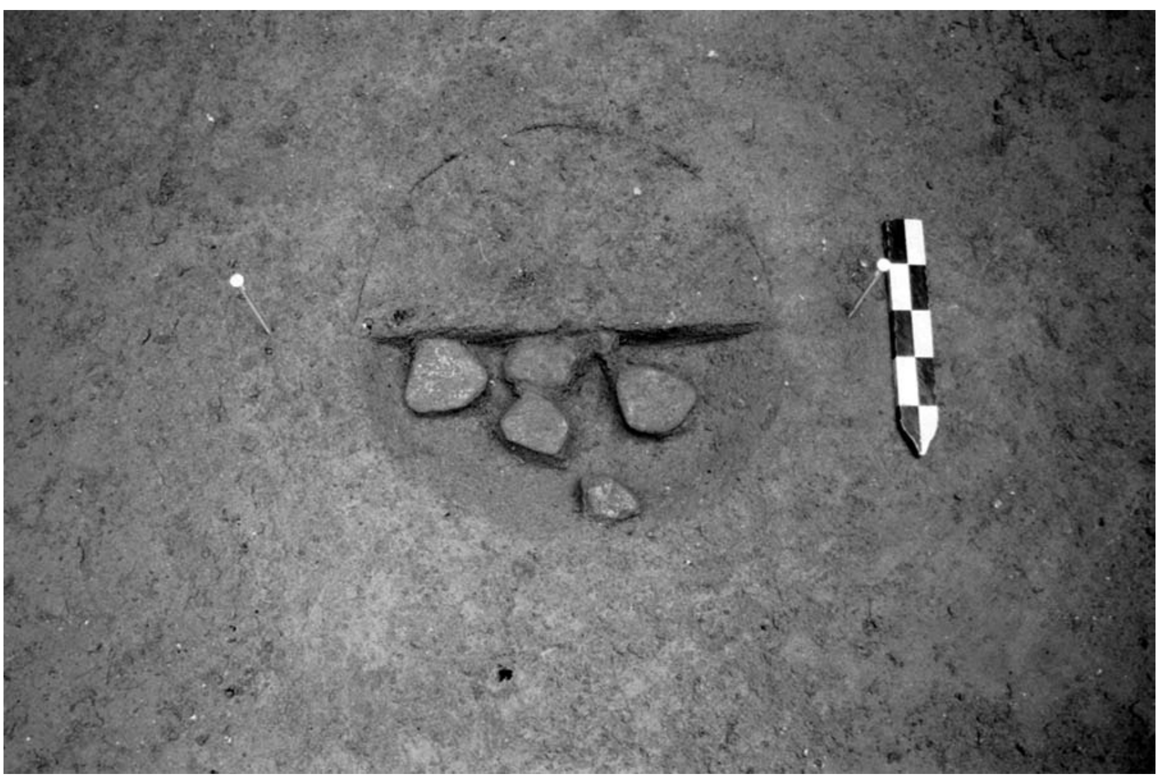

Figure 6. Photograph of Feature 6.

no debitage or burned clay. Test Unit 6, which was excavated only from the surface to a depth of 40 cm, yielded no cultural materials at all. The distribution of the cultural features partly matches those of the rest of the cultural materials, with five (Features 1–3, 7, and 8) being in Test Units 3, 4, and 7. The other three (Features 1–3) were in Test Units 1 and 2 where artifacts were especially sparse.

Most of the features were in the lower part of the cultural deposit, with Features 5–8 concentrated at 183–220 cm. Feature 4 was a bit higher at 167–183 cm, and Feature 3 was higher still at 152–158 cm. Only Features 1 and 2 were in the upper deposits at 78–81 and 110–123 cm, respectively. Based on the features, most of the radiocarbon dates, and the few diagnostic artifacts, it would appear that upper and lower components could be defined for the site. Five of the six radiocarbon dates from Features 5–8 cluster between 1730±40 and 1870±40 B.P. and indicate Late Archaic occupations (the sixth date, from Feature 7, was much younger and apparently reflects intrusive materials from above). These dates are consistent with the possible Ensor dart point fragment found at 160–170 cm. The single upper feature that was dated (Feature 2) was about 500 years more recent (1210±40 B.P.) and relates to a Late Prehistoric period occupation. This radiocarbon age correlates well temporally with the recovery of a Scallorn arrow point at 100–110 cm.

The vertical distributions of the rest of the cultural materials do not sort out so neatly, though, and thus it appears that components or analytical units useful for interpreting the site cannot be isolated. The graphs in Figure 7 illustrate this. For example, lithic artifacts were present at 20–200 cm, peaking mostly at 90–110 cm (i.e., at a depth where no features were found). Lithics were extremely sparse in the lower deposits where most of the features were. This distribution is driven by the unmodified debitage, since other lithic artifacts are so few (the three edge-modified flakes are from 120–160 cm; the two ground stones are from 120–140 cm; the two cores are from 80–90 and 120–130 cm; and the single arrow and dart points are from 100–110 and 160–170 cm, respectively). The scattered non-feature burned rocks more closely match the distribution of the features, occurring at 50–220 cm with a primary peak at 150–190 cm (though not graphed because it is so sparse, burned clay has a similar distribution, with relatively high densities at 150–160 and 180–190 cm). In contrast, the distribution of the mussel shells does not correlate well with those of the lithics or the burned rocks. Mussel shells were present at 40–220 cm (excluding a single fragment found at 0–10 cm), with a primary peak at 130–160 cm and a secondary peak at 60–80 cm. Finally, animal bones show yet another distributional pattern, being relatively common in the upper 60 cm of the site. It is reasonable to conclude that some of these bones are from the recent past, given the periodic inundation of the flood terrace surface in historic times, the presence of a single pig tooth and a few possible chicken bones in the upper levels, and the recovery of a single ammunition casing within the upper 60 cm.

Based on the combined evidence, it is clear that 41BL1214 contains the remains of Late Prehistoric occupations generally overlying the remains of Late Archaic occupations. The vertical distributions of the various kinds of remains do not pattern in a way that makes it possible to easily sort these occupations from one another, though. This is why no analysis units are defined for this study.

ASSESSMENT AND RECOMMENDATIONS

In certain situations, sites such as 41BL1214 with intact features and sparse scatters of artifacts buried in Holocene alluvium might yield important information. These kinds of sites are under-represented in the archeological literature because they are hard to interpret and thus infrequently excavated. But there is no denying that they are important parts of the archeological record, representing suites of activities that may be unlike those represented at more-intensively occupied, and more-often-excavated, campsites. As such, understanding these apparently less-intensively used sites is critical to full reconstructions of Native American settlement systems. As noted, these kinds of sites are hard to deal with, however, because one of the main data sets archeologists typically use to interpret a site, namely artifacts, is so depauperate. The presence of other kinds of data sets can offset this shortcoming, and 41BL1214 has some of these, including preserved features, macrobotanical remains (although they are preserved

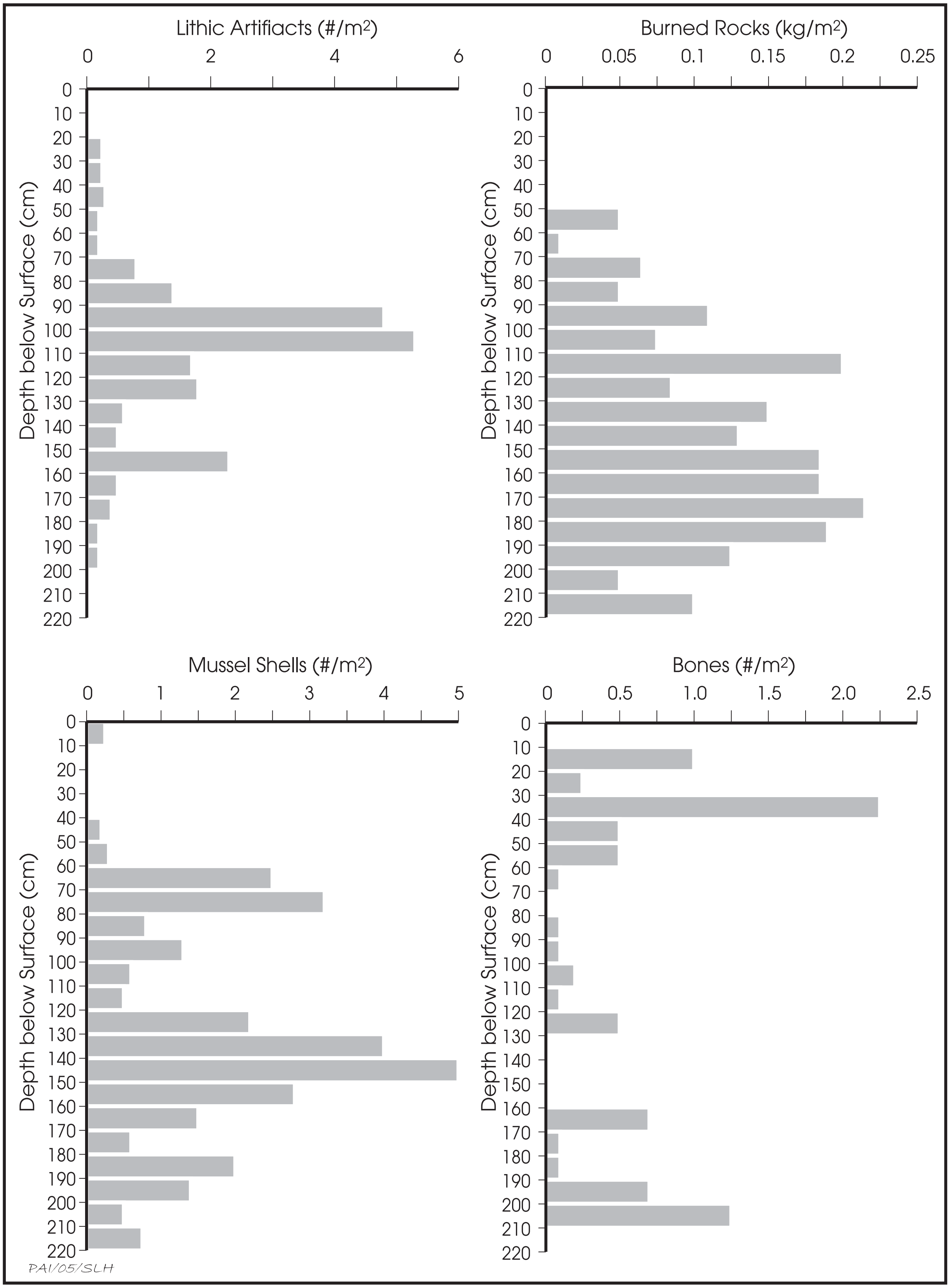

Figure 7. Graphs showing vertical distributions of selected classes of cultural materials at 41BL1214.

only in limited contexts), and faunal remains (although they are highly fragmented and not all prehistoric).

A critical characteristic that a multicomponent site such as 41BL1214 must have to be considered important, though, is some means by which components can be separated from one another. Lacking this, it would be impossible to reconstruct, among other things, the ranges of activities performed at the site during the various periods of occupation and thus to learn much about how Native Americans used this stretch of the Little River valley during the Late Archaic and Late Prehistoric periods. Analysis of the testing data indicates that the two components at 41BL1214 cannot be consistently and confidently isolated, and thus the site is considered to have a limited capacity to contribute important information and to be ineligible for listing in the National Register and designation as a State Archeological Landmark.

This assessment hinges on three things. First, the Late Prehistoric and Late Archaic cultural materials at 41BL1214 are scattered through 200 cm of alluvium. Second, there are no stratigraphic breaks in this alluvium that would allow segregation of the cultural materials into components or analytical units (see Sediments and Stratigraphy). Third, there are no consistent patterns in the vertical distributions of the various kinds of cultural remains that would allow isolation of components or analytical units, such as multimodal distributions with different kinds of remains peaking at similar depths (see Figure 7 for graphs demonstrating this). Because it is ineligible for National Register listing and State Archeological Landmark designation, no further work is recommended at 41BL1214 before replacement of the State Highway 95 bridge.

All artifacts were generated through a state-sponsored project but collected from private property with the permission of the landowner. All artifacts and other cultural materials collected and all records generated by this project are curated at the Texas Archeological Research Laboratory, The University of Texas at Austin. Because the collected artifacts are from private property, they are curated in a non-held-in-trust status.

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APPENDIX A: Soil Stratigraphic Profiles

Karl W. Kibler

Test Units 1 and 2 (south wall)

0–34 cm	Dark grayish brown (10YR 4/2) silty clay loam, firm, moderate medium granular structure, common roots and rootlets, common worm and insect burrow casts, gradual smooth lower boundary, Ap horizon.
34–135 cm	Dark grayish brown (10YR 4/2) silty clay loam, firm, weak medium prismatic breaking to moderate medium blocky angular structure, common roots and rootlets, common worm and insect burrow casts, gradual smooth lower boundary, Bw horizon.
135–220+ cm	Grayish brown (10YR 5/2) silty clay, firm, weak medium prismatic breaking to moderate medium blocky angular structure, 2 percent carbonate filaments, lower boundary not observed, Bk horizon.

Test Units 3 and 4 (east wall)

0–33 cm	Dark grayish brown (10YR 4/2) silty clay loam, firm, moderate medium granular structure, common roots and rootlets, common worm and insect burrow casts, gradual smooth lower boundary, Ap horizon.
33–107 cm	Dark grayish brown (10YR 4/2) silty clay, firm, weak medium prismatic breaking to moderate medium blocky angular structure, few roots and rootlets, few worm and insect burrow casts, gradual smooth lower boundary, Bw horizon.
107–200+ cm	Brown (10YR 5/3) silty clay, friable, weak medium prismatic breaking to moderate medium blocky angular structure, 2 percent carbonate filaments, lower boundary not observed, Bk horizon.

Test Units 7 and 8 (west wall)

0–34 cm	Very dark grayish brown (10YR 3/2) silty clay loam, firm, moderate medium granular structure, common roots and rootlets, few worm and insect burrow casts, gradual smooth lower boundary, Ap horizon.
34–116 cm	Dark grayish brown (10YR 4/2) silty clay, firm, weak medium prismatic breaking to moderate medium blocky angular structure, few roots and rootlets, few worm and insect burrow casts, gradual smooth lower boundary, Bw horizon.
116–200+ cm	Brown (10YR 5/3) silty clay, friable, weak medium prismatic breaking to moderate medium blocky angular structure, 5 percent carbonate filaments, few roots and rootlets, few worm and insect burrow casts, lower boundary not observed, Bk horizon.

Backhoe Trench 4 (east wall)

0–47 cm	Very dark grayish brown (10YR 3/2) silty clay loam, very firm, moderate medium granular structure, common roots and rootlets, gradual smooth lower boundary, Ap horizon.
47–108 cm	Dark grayish brown (10YR 4/2) silty clay loam, firm, weak medium prismatic breaking to moderate medium blocky angular structure, common worm and insect burrow casts, clear smooth lower boundary, Bw horizon.

108–208+ cm	Brown (10YR 5/3) silty clay, firm, moderate medium blocky angular structure, 2 percent carbonate filaments, lower boundary not observed, Bk horizon.

Backhoe Trench 7 (west wall)

0–39 cm	Dark grayish brown (10YR 4/2) silty clay loam, firm, moderate medium to coarse granular structure, common roots and rootlets, few insect and worm burrow casts, gradual smooth lower boundary, Ap horizon.
39–92 cm	Dark grayish brown (10YR 4/2) clay loam, firm, weak medium prismatic breaking to moderate medium blocky angular structure, few roots and rootlets, few worm and insect burrow casts, clear smooth lower boundary, Bw horizon.
92–181+ cm	Brown (10YR 4/3) silty clay loam, firm, weak medium prismatic breaking to moderate medium blocky angular structure, 2–5 percent carbonate filaments, few rootlets, few insect and worm burrow casts, lower boundary not observed, Bk horizon.

Backhoe Trench 12 (east wall)

0–42 cm	Dark grayish brown (10YR 4/2) silty clay loam, firm, moderate medium granular structure, common roots and rootlets, gradual smooth lower boundary, Ap horizon.
42–90 cm	Dark grayish brown (10YR 4/2) clay loam, firm, weak medium prismatic breaking to moderate medium blocky angular structure, few rootlets, clear smooth lower boundary, Bw horizon.
90–171+ cm	Brown (10YR 4/3) clay loam, firm, weak medium prismatic breaking to moderate medium blocky angular structure, 2–5 percent carbonate filaments, few rootlets, few freshwater mussel shells, lower boundary not observed, Bk horizon.

Backhoe Trench 14 (east wall)

0–59 cm	Dark gray (10YR 4/1) clay loam, firm, weak fine blocky subangular structure, common distinct medium (10YR 4/3) mottles, common rootlets, few insect and wormburrow casts, gradual smooth lower boundary, Ap horizon.
59–130 cm	Dark grayish brown (10YR 4/2) clay loam, firm, weak medium prismatic breaking to moderate medium blocky angular structure, few rootlets, clear smooth lower boundary, Bw horizon.
130–165+ cm	Dark grayish brown (10YR 4/2) clay, very firm, moderate medium blocky angular structure, 1 percent gravel (dispersed, granule-sized, subangular), 5 percent carbonate filaments, lower boundary not observed, Bk horizon.

Backhoe Trench 15 (south wall)

0–36 cm	Dark grayish brown (10YR 4/2) sandy clay, friable, weak fine blocky subangular structure, 1 percent gravel (dispersed, granule-sized, rounded), common roots and rootlets, few insect and worm burrow casts, clear smooth lower boundary, Ap horizon.
36–70 cm	Brown (10YR 4/3), sandy clay loam, friable, weak medium prismatic breaking to moderate medium blocky angular structure, 2 percent gravel (dispersed, granule-

sized, rounded), common rootlets, few insect and worm burrow casts, clear smooth lower boundary, Bw horizon.

70–163 cm Brown (7.5YR 5/4), sandy clay loam, friable, weak medium prismatic breaking to moderate medium blocky angular structure, 5 percent gravel (dispersed, granule-sized, rounded), few rootlets, abrupt smooth lower boundary, B horizon.

163–192 cm Dark yellowish brown (10YR 4/4), muddy sandy gravel, friable, structureless, 50 percent gravel (granule- to pebble-sized, rounded), abrupt smooth lower boundary, C horizon.

192–208+ cm Brownish yellow (10YR 6/8), slightly gravelly sand, very friable, structureless, 2 percent gravel (granule- to pebble-sized, rounded), lower boundary not observed, Cox horizon.

APPENDIX B: Site 41BL1214 Macrobotanical Remains

Leslie L. Bush, Ph.D., R.P.A.

INTRODUCTION

Site 41BL1214 is a multicomponent Late Archaic and Late Prehistoric period site in Bell County, Texas, situated on the floodplain south of the Little River at the State Highway 95 bridge. Subsurface deposits at the site were identified in 2003 in association with bridge replacement planned by the Texas Department of Transportation (TxDOT). The site was further tested in 2004. These later tests produced the flotation samples that are reported here.

Material remains from the site are most commonly burned rocks and mussel shells. Most burned rocks seem to have been subject only to limited firing episodes. No diagnostic artifacts were recovered in the initial survey, but later testing produced one Scallorn point and a fragment of an Archaic point. Radiocarbon dates indicate at least two occupations, one dating to roughly the third or fourth century C.E. and one probably in the eighth or ninth century.

CLIMATE AND VEGETATION

Bell County today receives an average of 33.8 inches (858 mm) of precipitation and averages 260 frost-free days (Natural Fibers Information Center 1987:47). Two vegetational zones divide modern Bell County roughly in half, with the eastern half covered by the Blackland Prairie and the western half by the Lampasas Cut Plain. Site 41BL1214, in the eastern portion of the county, lies in the Blackland Prairie, but to what extent can this modern vegetational zone be used for understanding the plants (and attendant animal resources) available to occupants of the site during the first millennium?

Weakly Bog, situated in what is now the Post Oak Savannah vegetational region to the east of Bell County, provides some of the best data for vegetational reconstruction in the region during the last 3,000 years. Pollen profiles from this bog indicate oak and later oak-hickory woodlands, suggesting that modern plant communities generally provide good analogs for central Texas plant communities during the last 3,000 years. There have been some fluctuations in rainfall or temperature, however. Most notably, these changes would have altered the location of the woodland-prairie edge (Bousman 1998:204). Britt Bousman notes two spikes in grass pollen percentages in the Weakly deposits that occur at roughly 500 and 1500 B.P. (Bousman 1998:207, 216). The latter spike would have corresponded to the earlier occupation at the site. Conditions during this period may have been drier or perhaps warmer than current conditions indicate, and the vegetational transition between the Blackland Prairie and the Lampasas Cut Plain may have been farther to the east (and therefore closer to the site). Therefore, the Blackland Prairie can provide a good analog for conditions during site occupation, with the provision that actual conditions may have been somewhat drier than is usual today, especially during the earlier occupation.

SETTING

Blackland Prairie

The most common prairie grasses in presettlement times would have been little bluestem (*Schizachyrium* Nees), Indiangrass (*Sorghastrum* Nash), and big bluestem (*Andropogon* L.), which dominate over most of the Blackland Prairies. Community types vary in localized areas primarily because of differences in soil (Diggs et al. 1999:40). There are wooded areas in the prairies in scattered upland areas and near larger rivers and streams. Wildfires tended to make smaller tributaries treeless in pre-settlement times. R. T. Hill listed some common trees in his 1901 description of the Blacklands in general:

> The surfaces of the prairies are ordinarily clad with thick mantles of grass, liberally sprinkled with many-colored flowers, broken here and there by low growths of mesquite trees, or in exceptional places by 'mottes' or clumps of live oaks on uplands, pecan, bois d'arc, walnut and oaks in the streams bottoms; juniper and sumac where stony slopes exist, and post oak and black-jack in the sandy belts (Diggs et al. 1999:34).

Specifically on the escarpment, near the modern border between the Blacklands and the Lampasas Cut Plain, Diggs and colleagues list these species as characteristic trees (1999:40): *Celtis laevigata* Willd. (hackberry, also called sugarberry), *Diospyros texana* Scheele (Texas persimmon), *Forestiera pubescen*s Nutt.

(elbowbush, also called stretchberry), *Fraxinus texensis* (Gray) Sarg. (Texas ash), *Ilex decidua* Walt. (deciduous holly, also called possumhaw), *Juniperus ashei* Buchh. (Ashe juniper), *Juniperus virginiana* L. (redcedar, also called juniper), *Ptelea trifoliata* L. (hoptree), *Quercus buckleyi* Nixon & Dorr (Buckley oak, also called Texas red oak), *Quercus fusiformis* Small (plateau live oak), *Quercus sinuata* Walt. (bastard oak), and *Ulmus crassifolia* Nutt. (cedar elm). During drier times, these plants may have extended their range to the east and therefore closer to the site.

Plateau Resources

The Lampasas Cut Plain, whether treated as part of the Edwards Plateau (Diamond et al. 1987) or the prairies (Diggs et al. 1999), supports a diverse vegetation. In the east, it tends to resemble the Blackland Prairie, and to the west, the Edwards Plateau proper. Topography also plays a role in the diversity of vegetation communities, with areas of soil between larger divides supporting prairie-like communities and slopes and uplands sometimes providing "a distinctly desert-like microclimate" (Diggs et al. 1999:53). Many plants of the Edwards Plateau reach the northeasternmost extent of their range in this area (Diggs et al. 1999:54). Typical grasses of the Edwards Plateau include the bluestems and Indiangrass common on the Blackland Prairies but also switchgrass (*Panicum virgatum* L.), gramas (*Bouteloua* Lag.), wildrye (*Elymus* L.), curly mesquite (*Hilaria* Kunth) and buffalograss (*Buchloe dactyloides* [Nutt.] Engelm.) (Thomas 1962:12) Woody species include live oak (*Quercus fusiformis* Small), bastard oak (*Quercus sinuata* Walt.), junipers (*Juniperus* L.), and mesquite (*Prosopis glandulosa* Torr.) (Thomas 1962:12).

Riparian Forest

In addition to prairie and upland resources, the Little River and its floodplain would have offered prehistoric peoples another ecological zone to exploit. Rivers and riparian forests provide uniform habitats in which similar plant communities may be found, even when the river valley cuts across very different ecological zones (Lee 1945). Not surprisingly, plants of riparian zones tend to tolerate flooding and other disturbances better than their upland counterparts. As in rainforests, a great many species may share the canopy in a floodplain forest, and "dominance is absent or poorly defined" (Lee 1945:163). Robert Ricklis and Michael Collins (relying on Carr 1967?) list oak, walnut, hackberry, sumac, bald cypress, and cottonwood as the dominant arboreal vegetation in the larger stream valleys of the Blackland Prairie (Ricklis and Collins 1994:33). In the upper Trinity River Basin, one drainage system to the northeast of the Little River, important woody species in the floodplain include elm, hackberry, and ash (Nixon et al. 1990:102).

METHODS

During investigations at 41BL1214, nine flotation samples were collected from eight feature contexts for macrobotanical analysis. Samples were processed at Prewitt and Associates, Inc., in a Flote-Tech flotation machine with bottom mesh openings of 1.0 mm (Dausman 1989; Hunter and Gassner 1998; Rossen 1999). The silty clay soils on the site allowed for good separation of botanical material into the light fractions. The few materials that remained were removed from the heavy fractions by hand and added to the light fractions in this analysis. Botanical samples were sorted in the author's laboratory in Austin. Each flotation sample was weighed on an electronic balance with a sensitivity of 0.01 g before being size-sorted through a stack of geologic mesh with openings of 2, 1.4, and 0.71 mm. Materials in the > 2-mm size fraction were completely sorted, and all carbonized botanical remains were counted, weighed, recorded, and labeled. The number of wood charcoal fragments from one sample (F-6, Feature 5) was estimated based on the weight of 50 randomly selected fragments. Materials other than carbonized botanical remains in the > 2-mm size fraction were weighed, recorded, and labeled but not counted. All materials in the > 2-mm size fraction other than carbonized plants, gastropods, bone, and thin chert fragments are referred to as "contamination" on laboratory forms. Materials that fell through the 2-mm mesh, referred to as "residue," were examined under a stereoscopic microscope at 7–45x magnification for charred botanical remains other than nutshell, wood charcoal, and bulb fragments. All plant material removed from the residue was counted, weighed, and labeled. The presence of uncharred taxa in the residue was also recorded on laboratory forms, but these materials were not usually removed from residue.

For samples that yielded fewer than 20 wood charcoal fragments larger than 2 mm, identification was attempted for all fragments. For the four samples in which more than 20 fragments were present, wood charcoal fragments were selected at random from those larger than 2 mm, with large and small fragments chosen alternately. Because Feature 6 contained no wood charcoal fragments larger than 2 mm, identification was attempted (with little success) on three fragments less than 2 mm. Fragments were snapped to reveal a transverse section and examined under a stereoscopic microscope at 28–180x magnification. When necessary, tangential or radial sections were examined for ray seriation, presence of spiral thickenings, types and sizes of intervessel pitting, and other minute characteristics that can be seen only at the higher magnifications of this range (Hoadley 1990).

Botanical materials were identified to the lowest possible taxonomic level by comparison to materials in the author's comparative collection and through the use of standard reference works (e.g., Davis 1993; Hoadley 1990; Martin and Barkley 1961; Musil 1963; Panshin and deZeeuw 1980; Schopmeyer 1974). In some cases, botanical remains could be identified to the level of the species through positive identification or elimination of other members of the genus (e.g., *Quercus fusiformis* Small). Most commonly botanical materials were identified to the level of genus, but sometimes only family identification was possible. Botanical nomenclature and common names follow the PLANTS national database (United States Department of Agriculture, Natural Resources Conservation Service 2002) except in the cases in which the common name in local or archeological use differs significantly from the common name given in the database.

RESULTS

Macrobotanical remains recovered are given in Tables 4–6. Uncarbonized remains are shown in Table 4. Table 5 details carbonized remains by count, and Table 6, by weight.

Uncarbonized Remains

Most uncarbonized remains at the site appear in the form of rootlets and are included with the "contamination" in Table 6. Several taxa of uncarbonized seeds and other plant parts were also recovered and recorded by presence or absence; hackberry seeds were also counted and weighed (see Table 4). Uncarbonized seeds are common on most archeological sites, but they usually represent seeds of modern plants that have made their way into the soil either through their own dispersal mechanisms or by faunalturbation, floralturbation, or argilliturbation (Bryant 1985:51–52; Miksicek 1987:231–232). In all except the driest areas of North America, uncarbonized plant material on

Table 4. Uncarbonized macrobotanical remains from 41BL1214, presence or absence

Feature	1	2	3	4	5	5	6	7	8	
Sample No.	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	Total
Liters processed	0.25	10.5	6	15	35	82	12.5	34	21.5	216.75
Hackberry seeds >2 mm (*Celtis* L.)		4 (0.10 g			7 (0.11 g)	6 (0.12 g)	1 (0.2 g)			18 (0.35 g)
Hackberry seeds <2 mm (*Celtis* L.)		X			X	X	X	X		
Grass family (Poaceae)		X				X				
Daisy family (Asteraceae)		X								
Black-eyed Susan (*Rudbeckia hirta* L.)					X					
Rootlets	X	X	X	X	X	X	X	X	X	

Notes: X denotes presence.

Material above 2 mm is presented in weights and counts.

Table 5. Carbonized macrobotanical remains from 41BL1214, raw counts

Feature	1	2	3	4	5	5	6	7	8	
Sample No.	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	Total
Liters processed	0.25	10.50	6.00	15.00	35.00	82.00	12.50	34.00	21.50	216.75
Wood charcoal (total)	1	34	14	10	70	337	*	36	4	506
Elm (*Ulmus* L.)			1	6	4	15		3	4	33
Elm family (Ulmaceae)		13			2	2		2		19
Oak, white group (*Quercus* L. subgenus	1		6	2	2			6		17
Oak, white or groups (*Quercus* L.) live			2			2		11		15
Hackberry (*Celtis laevigata* Willd.)		10				1				11
Live oak (*Quercus fusiformis* Small)					1	6				7
Willow family			2		1					3
Ash/elbowbush (*Fraxinus* L./*Forestiera* Poir.)					1	2				3
Pecan (*Carya* Nutt.)						2				2
Walnut (*Juglans* L.)				2						2
Yaupon (*Ilex* L.)						2				2
Oak (*Quercus* L.)						1				1
Unknown(semi-ring-porous)					1					1
Diffuse-porous			2		4					6
Ring-porous			1	1	7					9
Unidentifiable					1		(2)	1		2
Hardwood							(1)			0
Bulb fragments				1	6	10				17
Nutshell										
Hickory/walnut family (Juglandaceae)						1				1
Seeds										
Bedstraw (*Galium* L.)				1	2	7				10
Unidentifiable					1			1		2
Trigonous seed (prob. *Scirpus* L. or *Polygonum* L.)		1				1				2
Grass family (Poaceae)					1					1
Unidentifiable						2				2

* Present <2 mm

open-air sites can be assumed to be of modern origin unless compelling evidence suggests otherwise (Lopinot and Brussell 1982; Miksicek 1987:231). Site 41BL1214 has offered no such evidence, and only carbonized plant remains are believed to be ancient.

Other than rootlets, uncarbonized taxa at 41BL1214 consist of the seeds of hackberry, grasses, and plants of the daisy family (Asteraceae). Members of the latter two groups are usually weedy plants that colonize disturbed areas such as that near the State Highway 95 bridge. Hackberry is a common tree of stream bottoms and slopes, as well as rocky hillsides. It is a likely inhabitant of the site area in both modern and prehistoric times. The hard seeds of hackberry trees contain high amounts of calcium carbonate, making them more decay-resistant than many other plant parts, including most seeds (Munson 1984). Despite the depths at

Table 6. Carbonized macrobotanical remains from 41BL1214, raw weights in grams

Feature	1	2	3	4	5	5	6	7	8	
Sample No.	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	Total
Sample weight	0.20	6.52	3.98	19.83	36.96	91.87	12.32	21.74	1.18	194.60
Contamination weight	0.07	0.40	0.25	0.71	2.18	5.02	0.63	1.49	0.11	10.86
Residue weight	0.10	3.48	2.02	11.55	18.56	55.20	6.29	8.57	0.81	106.58
Gastropods	0.02	2.01	1.49	7.21	15.56	29.17	5.38	11.32	0.24	72.40
Bone						<0.01#				<0.01
Lithics						0.06				0.06
Wood charcoal (total)	0.01	0.63	0.19	0.06	0.53	2.17	*	0.31	0.01	3.91
Hackberry (*Celtis* L.)		0.39				0.02				0.41
Elm (*Ulmus* L.)			0.01	0.02	0.03	0.21		0.03	0.01	0.31
Oak, white group (*Quercus* L. subgenus *Quercus*)	0.01		0.15	0.01	0.04			0.14		0.35
Elm family (Ulmaceae)		0.19			0.02	0.03		0.01		0.25
Yaupon (*Ilex* L.)						0.08				0.08
Oak, white or live groups (*Quercus* L.)			0.01			0.05		0.05		0.11
Pecan (*Carya* Nutt.)						0.03				0.03
Walnut (*Juglans* L.)				0.02						0.02
Willow family (Salicaceae)			0.01		0.01					0.02
Oak, live (*Quercus fusiformis* Small)					0.02	0.18				0.20
Oak (*Quercus* L.)						0.01				0.01
Ash/elbowbush (*Fraxinus* L./ *Forestiera* Poir.)					0.01	0.03				0.04
Unknown (semi-ring-porous)					0.01					0.01
Diffuse-porous			0.01		0.08					0.09
Unidentifiable					0.01		(<0.01)	0.04		0.05
Ring-porous			0.01	0.01	0.05					0.07
Hardwood							(<0.01)			0.00
Bulb fragments				0.01	0.06	0.06				0.13
Nutshell										
Hickory/walnut family						<0.01				–
Seeds										
Bedstraw (*Galium* L.)				<0.01	<0.01	<0.01				–
Unidentifiable					<0.01			<0.01		–

Table 6, continued

Feature	1	2	3	4	5	5	6	7	8	
Sample No.	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	Total
Trigonous (prob. *Scirpus* L. or *Polygonum* L.)		<0.01				<0.01				–
Grass family (Poaceae)					<0.01					–
Unidentifiable material						0.01				0.01

* Present <2 mm

includes small tooth

which they were recovered, the uncarbonized plant remains appear to represent modern seed rain and not ancient plants. They are therefore omitted from further discussion of the macrobotanical remains.

Carbonized Remains

Wood Charcoal

From the nine flotation samples available, 133 wood fragments were examined for identification, and 116 of these were identifiable to the level of botanical family, genus, or species. Members of the elm family accounted for more than half the identifiable specimens, with 63 fragments assigned to this family. True elms (*Ulmus* spp.; n = 19) were more common than hackberry (*Celtis laevigata*; n = 11). Because 10 of the 11 identifiable hackberry specimens came from Feature 2, the 33 specimens that were identifiable only to family level in other features are probably elm rather than hackberry. All of the four species of *Ulmus* found in north-central Texas are known to grow in lowlands such as stream bottoms, but two of the species may also be found in upland areas (Diggs et. al 1999). Hackberry (*Celtis laevigata*), which includes three varieties in this region, tolerates a great many environments, including rocky hillsides, slopes, and stream bottoms (Diggs et. al 1999).

After elms and hackberry, oaks were the next most common wood type, with 40 fragments identified. Seventeen of these were identifiable as white oaks, and seven as live oak. Diggs and colleagues (1999) recognize seven species of white oak in north-central Texas. Six of the species prefer lowland settings, but the most-common species of white oak in the area (*Quercus stellata* Wangenh., post oak) is most often found on sandy ground, especially in upland settings. In this region, live oak is almost exclusively a tree of xeric habitats. Here, the author follows Harold Beaty (1978) and Diggs and colleagues (1999) in limiting live oak (*Q. virginiana* P. Mill.) to counties near the Gulf Coast. Live oaks in north-central Texas are assigned to plateau live oak, *Q. fusiformis* Small. All seven specimens of plateau live oak at 41BL1214 were found in Feature 5. Other wood types found include, in descending order of abundance, willow family, ash-elbowbush, walnut, pecan, and yaupon. These trees are often associated with streams, but some species also grow in upland areas.

The wood charcoal recovered is consistent with the site's floodplain setting, with most wood charcoal likely coming from areas associated with stream bottoms. Live oak is an exception, indicating that upland areas were also occasionally exploited for wood. All examples of live oak charcoal come from Feature 5, which produced the largest carbonized plant assemblage from the site, so the apparent lack of upland wood resources in most other features may be because the sample size is smaller

Bulbs

Seventeen bulb fragments weighing 0.13 g were recovered from the site. All but one of the fragments come from Feature 5. The other is from Feature 4. Three fragments from Feature 5 are illustrated in Figure 8. As indicated by a comparison of the counts and weights of the remains, the bulb fragments are extremely small, and no further identification is possible. Table 7

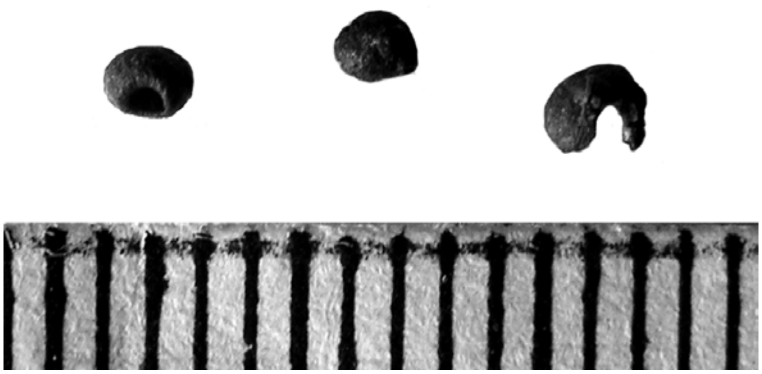

Figure 8. Some bulb fragments from 41BL1214, Feature 5, F-6. Scale in millimeters.

represented on archaeological sites relative to other macrobotanical remains because it is a durable waste product that is often exposed to fire (Munson et al. 1971:427). The dearth of nutshell at 41BL1214 indicates little or no use of nut resources at the site, a finding that may be related to the season of site occupation.

shows common bulbs that Harold Beaty (1978) listed as present in central and western Bell County. Most of these plants prefer prairies or open woodland habitats.

Nutshell

One nutshell fragment weighing less than one-hundredth of a gram was recovered from Feature 5. This fragment is from the septum of a hickory or walnut achene and cannot be identified to genus. Nutshell is believed to be over-

Seeds

Fifteen seeds or seed fragments were recovered from the eight features examined. Two were unidentifiable, 2 more are probably knotweed or bulrush because of their trigonous shape, and a fifth is a grass seed. The remaining 10 seeds are bedstraw (*Galium* L., also called cleavers). Three bedstraw seeds from Feature 5 are illustrated in Figure 9. Bedstraw fruits are burs, and their presence on archaeological sites is usually interpreted as an accidental inclusion or as a result of the disposal of a nuisance plant by fire. Jack Rossen, however, argues that "[t]he extremely widespread archaeological recovery of this plant casts some doubt on the summary dismissal of its usefulness." (1992:194).

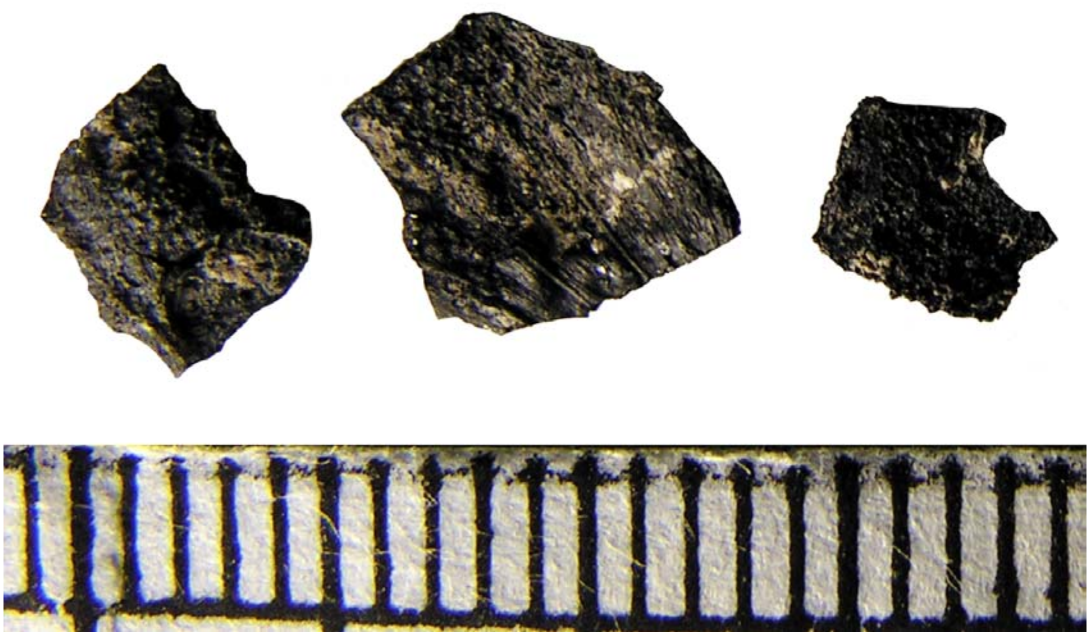

Figure 9. Some bedstraw seeds from 41BL1214, Feature 5, F-6. Scale in millimeters.

Table 7. Some common bulbs in Bell County, Texas (from Beaty 1978)

Common Name	Botanical Name
Nuttall's deathcamas	*Zigadenus nuttalli* (Gray) S. Wats.
Meadow garlic	*Allium canadense* L.
Drummond's onion	*Allium drummondii* Regel.
Crowpoison	*Nothoscordum bivalve* (L.) Britt.
White fawnlily (dogstooth violet)	*Erythronium albidum* Nutt.
Rainlily	*Cooperia pedunculata* Herb.
Drummond's woodsorrel	*Oxalis drummondii* Gray

Daniel Moerman's survey of ethnographic and historical uses of plants by 291 Native North American groups indicates many medicinal uses of bedstraw, especially those related to curing (e.g., for intestinal complaints, kidney trouble, poison ivy, rheumatism). When the plant part used is recorded, whole plants are often specified (Moerman 1998:241–242). Non-medicinal uses of bedstraw include its use as a hair wash by members of some northwestern tribes (Gill 1983 and Gunther 1973 in Moerman 1998:242). Moerman found no known food uses of bedstraw among Native people, but Europeans and Euro-Americans have used the roasted seeds to make coffee-like beverages (Diggs et al. 1999:964). As its common English name implies, Europeans also used the plant for bedding material (Niering and Olmstead 1979:764).

Whatever its use to ancient people at 41BL1214, bedstraw is useful to archaeologists as an indicator of site occupation. The plant quickly dries and becomes fragile, so it is unlikely to have been stored for any length of time. Beaty indicates that the two most common species of *Galium* in Bell county are *G. aparine* L. and *G. virgatum* Nutt. These two species flower in the spring (March through May) and fruit in the late spring and early summer (mostly April through June) (Diggs et al. 1999:964). The lack of nutshell at the site is consistent with a seasonal occupation at this time. On the whole, site flora therefore suggest a late spring or early summer season of site occupation.

DISCUSSION

Based on depth and most of the radiocarbon ages, Features 4–8 appear to be older than Features 1–3. As a group, the deeper features yielded a wide variety of wood charcoal, 17 bulb fragments, a nutshell fragment, bedstraw and grass seeds, and some unidentifiable carbonized material. Most of this variety, however, comes from Feature 5. Other features yielded very few macrobotanical remains, making comparison between them difficult.

Features 1–3 are notable mostly for their scarcity of remains. Of the 16.7 liters of matrix processed from the three features, only one seed (unidentifiable and unidentifiable, trigonous) and three classes of wood charcoal (elms, oaks, and willow) were recovered. No bulbs, no nutshell, and no identifiable seeds were recovered from these features. In this respect, Features 1–3 are very much like Features 4, 6, 7, and 8. Feature 2, however, does differ strongly from all other features in one respect. Only a single class of wood charcoal (elm family, probably all hackberry) was recovered from this feature. The 23 wood charcoal fragments examined should be sufficient to represent the feature's wood charcoal assemblage, so the lack of variety is unlikely to be because of sample size (as it may be in the case of Feature 8, which also produced only elm wood but was represented by only 4 fragments).

SUMMARY

Analysis of the macrobotanical remains from 41BL1214 shows a diverse wood charcoal assemblage that is consistent with exploitation of vegetation near the site during the time of occupation. Remains of potential food plants were also recovered, most notably bulb fragments. The bedstraw seeds recovered may have been present as the remains of medicinal plants or possibly nuisance burs. Sample sizes are too small from most features to make reliable comparisons between them, however.

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