ARCHAEOLOGICAL INVESTIGATIONS AT THE WILDCAT CREEK SITE (9OC169): A LATE LAMAR OCCUPATION IN THE OCONEE RIVER FLOODPLAIN

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INTRODUCTION

Archaeological site 9Oc169, the Wildcat Creek site, was primarily a late Lamar period occupation in southeastern Oconee County, Georgia. The site is located at the confluence of the Oconee River and Wildcat Creek, 3 kilometers downstream from Barnett Shoals Dam (Figure 1). Site 9OC169 is characterized as multicomponent with cultural deposits dating to the Early and Middle Woodland periods, and the late Dyar/early Bell phases. The full extent of the site remains undetermined although the Lamar habitation is most likely small and restricted to a naturally formed levee in the floodplain. The Early and Middle Woodland components may be more extensive given the pattern of site reoccupation during these periods, but the size of the levee fragment may restrict these also.

The Wildcat Creek site was initially discovered by Jerald Ledbetter of Southeastern Archeological Services about 1987 (Figures 2 and 3). He subsequently brought this discovery to the attention of Mark Williams of the LAMAR Institute. Williams, in turn, presented the idea of systematically investigating and documenting the site as a project by members of the Northeast Georgia Chapter of the Society for Georgia Archaeology, under the field supervision of a senior undergraduate in the Department of Anthropology. Thus engendered, archaeological investigations occurred during the months of January through May 1988 by members of the local amateur society. The actual fieldwork was conducted on weekends by volunteers and directed by Tom Pluckhahn. The project's objectives were to produce an accurate contour map of the site, to assess the integrity of cultural deposits, and to refine the chronological placement by recovering a representative sample of artifacts. This report documents the archaeological investigation of the Wildcat Creek site. It has taken a long time to materialize, but shows what can be done when too many people are involved in such a small project.

This version of the report was lightly edited by Mark Williams in March of 2011.

THE LAMAR PERIOD IN THE OCONEE RIVER VALLEY

The Lamar period is a Late Mississippian cultural manifestation that encompassed the entire state of Georgia and vast areas of neighboring states. Dating from around A.D. 1350 to 1670, it was a time of shared ceramic styles and perhaps sociological and ideological beliefs. In the Oconee River valley, the Lamar period is divided into four phases: Duvall at A.D. 1375-1450, Iron Horse at A.D. 1450-1520, Dyar at A.D. 1520-1580, and Bell at A.D. 1580-1670 (Williams 1988:121; Williams and Shapiro 1990:61-63). Various ceramic stylistic trends are evident during the period. The frequency of Lamar Complicated Stamped vessels decreases, with virtually no complicated stamped pottery in Bell phase assemblages. Lamar Incised vessels exhibit a decrease in the width of incised lines over time, while the number of line elements per vessel increases. A distinctive type of incised decoration, Morgan Incised, occurs on pottery during the Duvall and Iron Horse phases. Vessel rim modification also changes throughout the early and late Lamar. During the Duvall and Iron Horse phases, vessels had cane punctate and narrow folded pinched rims. By the Dyar phase, cane punctate rims had disappeared and wide folded pinched or notched rims were in vogue. During the Bell phase, a T- shaped rim form that may exhibit incising was present.

For a more in depth review of the spatial and temporal aspects of the Lamar period, we refer the reader to Williams and Shapiro (1990). In addition, Elliott and Boyko (1989:4-5) present a concise but informative review of Lamar archaeology in the Oconee River valley.

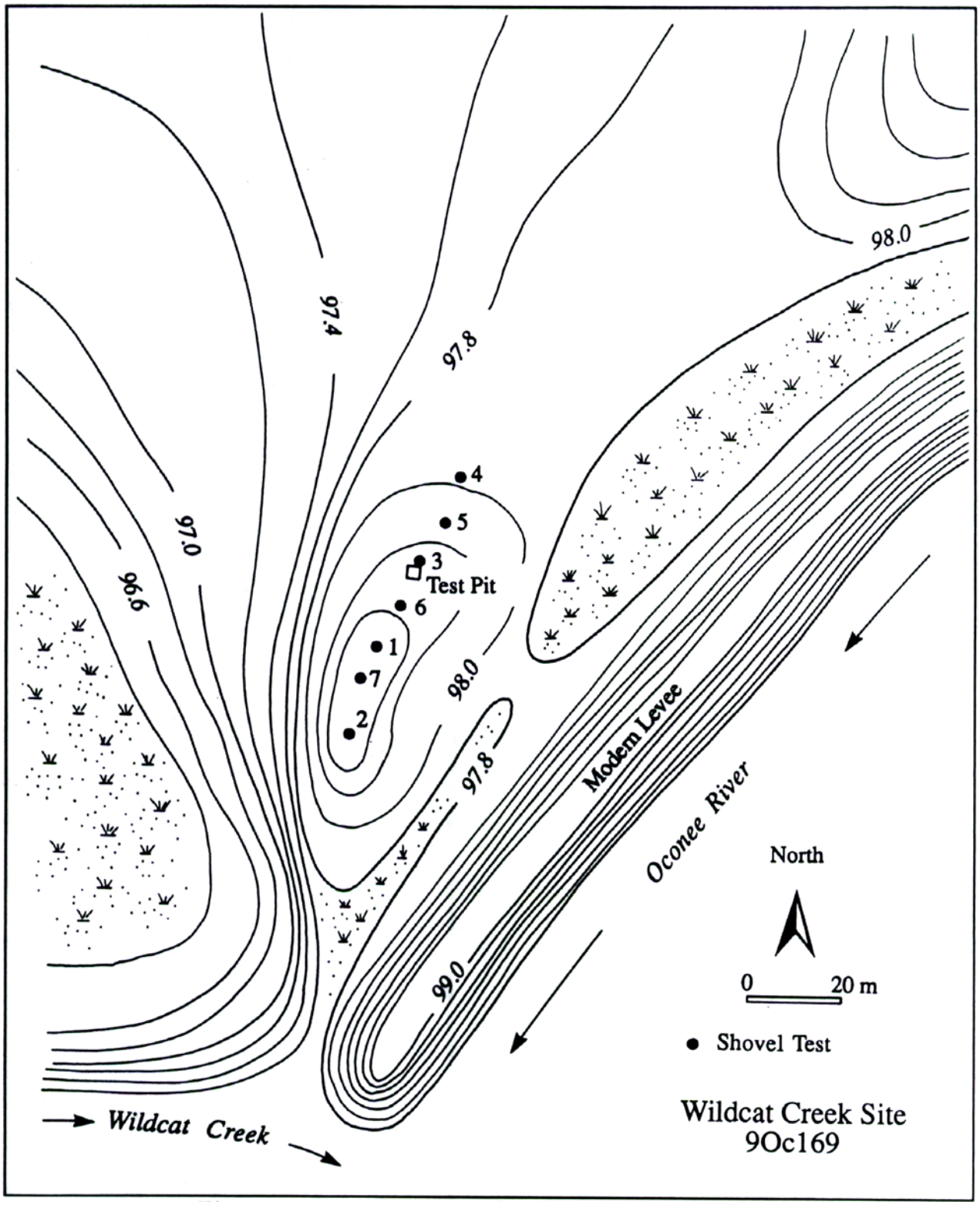
98.0
97.4
97.8
97.0
96.6
4
5
3
Test Pit
6
1
7
2
98.0
97.8
Modern Levee
Oconee River
North
0
20 m
Shovel Test
99.0
Wildcat Creek
Wildcat Creek Site
9Oc169

Figure 1.

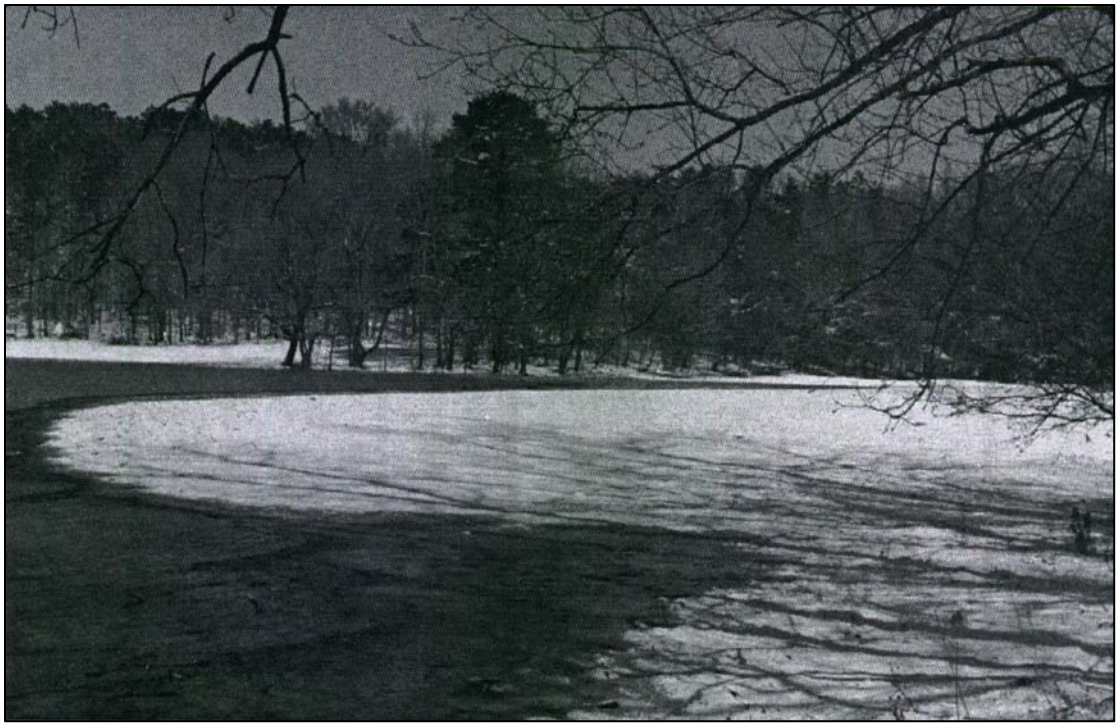

Figure 2.

Figure 3.

ENVIRONMENTAL SETTING

The Wildcat Creek site is located in the Midland division of the Georgia Lower Piedmont Province (Wharton 1978:8-10) along the eastern side of the Oconee River and directly north of Wildcat Creek. Specifically, the site is located on a relict levee within the floodplain and is presently in pasture. The project area lies within the loamy soils of the Congaree series, which consists of moderately well drained or well drained soils formed in alluvium. It should be noted that Congaree soils are not mapped separately in Oconee County, but rather in an undifferentiated unit with Alluvial land. These soils are found on level to nearly level bottomlands along major streams and are subject to periodic flooding. In profile, Congaree soils range from a reddish-brown loamy sand near the surface to a yellowish-red micaceous sandy clay loam as deep as 1.5 meters below surface (BS). The entire soil matrix is highly acidic. Congaree soils are suitable for farming and originally supported bottomland hardwood forests, consisting of yellow poplar, elm, oak, hickory, maple, and elder (Robertson 1968:11; Wharton 1978:34).

Archaeological excavation at Wildcat Creek revealed prehistoric cultural deposits buried under an alluvial deposit of almost 70 centimeters of red sandy clay. This depositional soil layer is of modern origin and as one Southeastern archaeologist so aptly wrote "it is of no interest archaeologically" (Williams 1984:25). At Scull Shoals (9Ge4), a floodplain site located about 6 kilometers south of 9Oc169, Williams (1984:25; 1988:4) found the village midden covered by 0.5 to 1.5 meters of recent red clay alluvium. A similar situation is described by DePratter (1983:33) for floodplain sites in the Wallace Reservoir Survey area, which extends from 15 to 50 kilometers south of 9Oc169, where archaeological deposits were buried beneath 0.5 to 3.0 meters or more of alluvium. Further examples of this process were demonstrated by O'Steen and Reed (1986) for the Barnett Shoals area just upstream.

These sedimentary deposits are the result of poor farming practices and erosion in the southeastern Piedmont during the nineteenth and twentieth centuries. As vast tracts of land in the Georgia Piedmont were cleared of protective vegetation and subjected to yearly plowing, extensive erosion occurred in upland areas, with subsequent sedimentation in stream valleys. The extent of alluvial deposition was dependent upon various hydric and topographic factors, but few areas of the Piedmont floodplains escaped the impact of this culturally accelerated sedimentation (DePratter 1983:33; Trimble 1974). As Williams (1984:25) points out, this alluvium serves to protect the midden deposits from much damage. It may be moot protection however. The damage to archaeological deposits from intensive previous historic plowing and river overflow scouring may have been too extensive. The relevance of these impacts to deposits at Wildcat Creek is considered in the discussion of ceramics and lithics.

FIELD METHODS

Fieldwork was initiated with topographic mapping of the project area. This was accomplished using an engineer's transit and metric stadia rod to determine surface contours. A transit station was established on what appeared to be the highest elevation of the levee remnant. From this point, a large pine in a grove of hardwoods, at 105 meters and 350 degrees, served as the site datum. A nail was driven into the pine and the vertical datum was set arbitrarily at 100.00 meters. From the transit station vantage, elevations were recorded at varying distances along lines shot at 45 degrees, and at judgmental points in the floodplain as well as along the levee and riverbank to include important landscape features. In this way, the data for 85 points were

obtained toward the production of a contour site map (Figure 1). The major natural topographic feature at Wildcat Creek is a prominent rise in the floodplain, actually an old levee fragment, about 70 meters long and 30 meters wide and oriented in a northeastern to southwestern direction. Forming just to the west of the levee, and running to the south, is an erosional gully that empties into Wildcat Creek. Informed from previous reconnaissance that the site was probably entirely located on the old levee, we concentrated all our work in this area.

We initiated site testing by digging seven posthole tests at 10 meter intervals lengthwise across the levee (Figure 1). The purpose of this testing was to determine the optimum location for a 2 by 2 meter excavation unit. These tests were all positive with widely varying artifact densities as shown in Tables 1, 2, and 3. Although Posthole Test 6 yielded the greatest number of artifacts, including Lamar sherds and one piece of daub, we decided to lay out Test Unit 1 just south of Posthole Test 3 because of a midden layer detected at a depth of about 70 centimeters. We presumed that the midden would yield an adequate sample of diagnostic artifacts and contain cultural features.

Test Unit 1, a 2 by 2 meter unit, was oriented in cardinal directions and excavated to culturally sterile soil at 155 centimeters below the surface (Figures 4-6). Various judgmental methods were employed to facilitate the excavation process while at the same time ensuring maximum artifact recovery. Level A, which consisted of sandy clay alluvium devoid of artifacts, was excavated to a depth of 50 centimeters. The soil was not screened but instead shoveled out of the test unit as quickly as possible (e.g, Williams 1984:23). Screening began near the bottom interface of this material. Level B (50 to 65 centimeters below surface), which also consisted of clay alluvium, was dug as a 15 centimeter layer so that the test unit base would be just above the midden. Levels C through K (65 to 155 centimeters below surface), were excavated in arbitrary 10 centimeter levels. All soil from Levels B through K was passed though either 1/8 inch or 1/4 inch wire mesh and the artifacts were collected and bagged by provenience. In Levels B through D (50 to 85 centimeters below surface), all soil from the southeastern quadrant was passed through 1/8 inch mesh to sample for small cultural material in the midden. The remaining soil in these levels was screened through 1/4 inch mesh. All soil from Level E (85 to 95 centimeters below surface) was screened through 1/4 inch mesh.

Only the northeastern quadrant of the test unit was excavated in Levels F through K (95 to 155 centimeters below surface) due to the decreased quantity of recovered artifacts, the instability of the profiles, and to expedite the excavation. All soil from these levels was screened through 1/4 inch mesh. We ended the excavation after Level K because the soil was culturally sterile.

The base of each 10 centimeter level was examined for intrusive features, which were mapped and excavated when encountered. Upon completion of Test Unit 1, the eastern profile was recorded by a scale drawing and photographs, after which the test unit was backfilled. Most of the artifact assemblage is curated at the Department of Anthropology, University of Georgia, although some was permanently lost when the first author was accosted on a dead-end street in west Athens one lonely night in early 1993.

Figure 4.

Figure 5.

Figure 6.

SOIL STRATA

The eastern profile was deemed representative of the natural and cultural soil matrix observed in the test unit and was thus selected for recording. This profile consisted of six discrete soil strata as illustrated in Figure 7. Stratum A, a red sandy clay layer of modern alluvium, extended to about 70 centimeters below the surface. Stratum B consisted of two zones that extended to a maximum of 16 centimeters below Stratum A. Zone I was an 8 centimeter layer of dark brown sandy loam. Zone II consisted of a layer of brown sandy loam extending from 2 to 8 centimeters below the base Zone I. Underlying this was Stratum C, a 20 to 24 centimeter layer of mottled yellow-brown sandy clay silt. Stratum D consisted of yellowish-red-brown sandy clay silt that extended from 30 to 34 centimeters below Stratum C. The final soil layer, Stratum E, was a zone of light brown sandy clay silt that extended into the base of the test unit.

It is important to note that Zones I and II of Stratum B, at 70 to 86 centimeters below the surface, were culturally derived, representing layers of prehistoric human occupation, or midden. The dark brown to brown soil color characterizing the midden was a result of decomposed organic material deposited during human residence. These zones also contained the majority of artifacts recovered in the test unit.

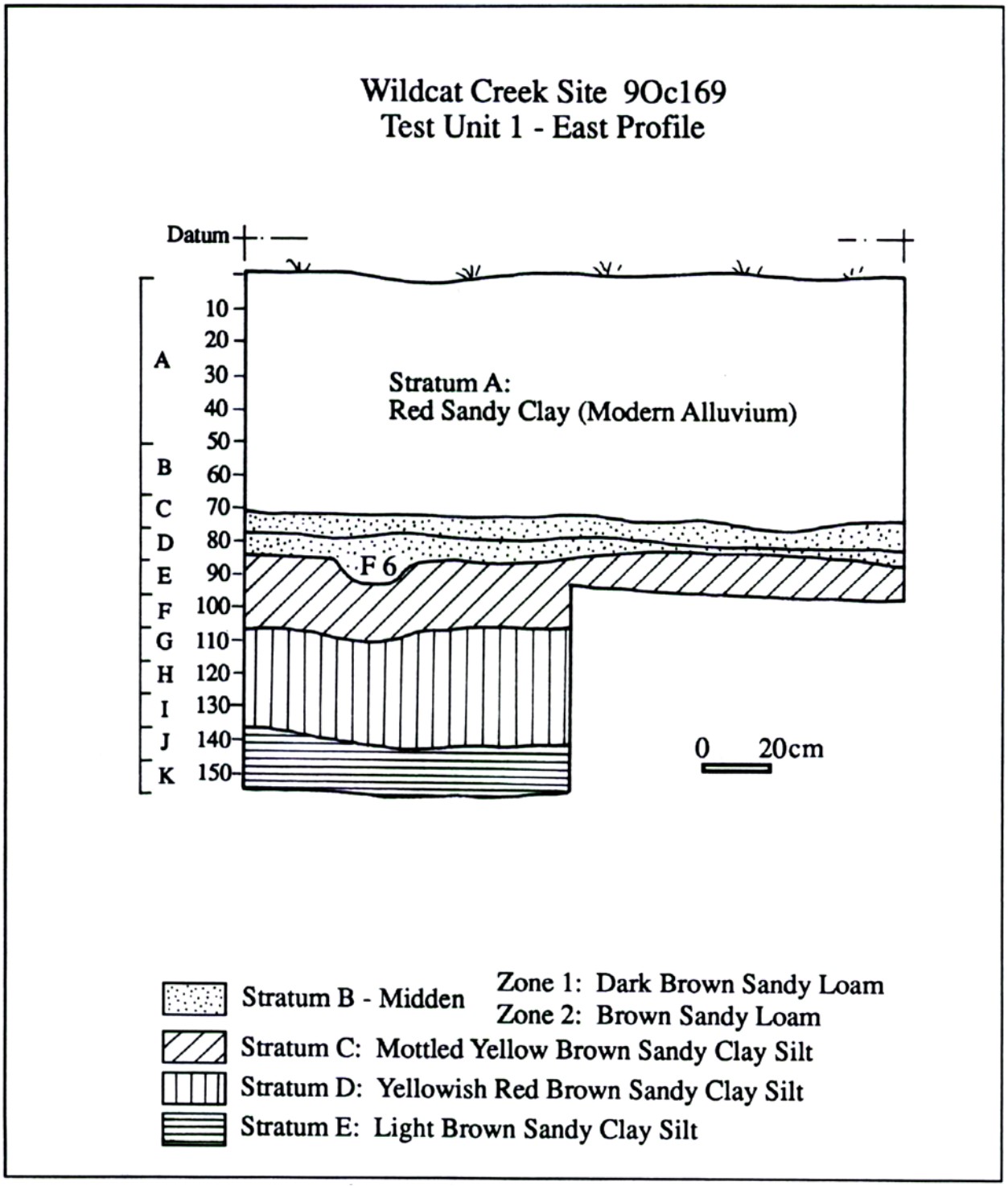
Wildcat Creek Site 9Oc169
Test Unit 1 - East Profile
Datum
A
B
C
D
E
F
G
H
I
J
K
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Stratum A:
Red Sandy Clay (Modern Alluvium)
F 6
0 20cm
Stratum B - Midden
Zone 1: Dark Brown Sandy Loam
Zone 2: Brown Sandy Loam
Stratum C: Mottled Yellow Brown Sandy Clay Silt
Stratum D: Yellowish Red Brown Sandy Clay Silt
Stratum E: Light Brown Sandy Clay Silt

Figure 7.

FEATURE DESCRIPTIONS

Six features were recorded during the excavation, five of which we interpret as post molds. At the base of Level E (95 centimeters below the surface), we encountered five brown circular soil stains in the surrounding mottled yellow brown sand of Stratum C. Four of these features, illustrated in Figures 8-9, were most likely related to the architecture of a Lamar period structure. However, with such a limited area exposed, no recognizable post mold pattern was discerned. All of the features were excavated and their contents are inventoried in Tables 1, 2, and 3. The following descriptions contain the location and dimensions of all six features.

Feature 1, the largest of the soil stains, extended 18 centimeters from under the southern profile and was about 120 centimeters from the western profile. It was 24 centimeters in diameter with a depth of 2 to 3 centimeters and a flat bottom. Feature 2 was located 75 centimeters from the southern profile and 120 centimeters from the western profile. It had a diameter of 13 centimeters and extended 3 centimeters in depth with a flat bottom. The fill contained one Lamar Plain sherd. Feature 3 was 144 centimeters from the southern profile and 40 centimeters from the western profile. It was 10 centimeters in diameter with maximum depth of 14 centimeters and a flat bottom. The fill contained one Lamar Complicated Stamped sherd. Feature 4 was located 75 centimeters from the southern profile and 160 centimeters from the western profile. The diameter is 11 centimeters with a intermediate depth of 1.5 centimeters where it narrows and continues to a depth of at least 20 centimeters. This feature is possibly the remains of an old tree and tap root. Feature 5 was 65 centimeters from the southern profile and 107 centimeters from the western profile. It had a diameter of 10 centimeters with a depth of 2 centimeters and a flat bottom.

One cultural feature designated Feature 6 ended several centimeters above the base of Level E, and is therefore not recorded in plan. However, a cross-section of Feature 6 was visible in the eastern profile (Figure 7). Originating in the midden, this feature was located at 40 centimeters from the northeastern corner of the test unit. It had a diameter of 20 centimeters, a flat base, and extended 6 centimeters into Stratum C.

In sum, Features 1, 2, 5, and 6 all had fairly uniform shapes and depths with straight walls and flat bottoms. Based on these regularities, we considered the four features as post molds. Even the depth of Feature 3 (14 centimeters below the base of Level E) does not preclude a post mold assignment. Only Feature 4 is discounted as a post mold because of its irregular form and depth. The position of all five post molds immediately below the midden and the presence of Lamar sherds in Features 2 and 3 strongly suggest a Lamar period association.

Evidence of early historic plowing was encountered at the base of Levels D (85 centimeters below the surface) and E (95 centimeters below the surface) in the form of plow scars. These dark linear soil stains were noted in the surrounding yellow-brown sand. It is possible that these stains were the remains of tree roots or rodent burrows, but their uniformity indicates plow scars. It is a fact that historic period farming activities caused adverse impacts to archaeological resources. The presence of plow scars at Wildcat Creek indicates potential disturbance of the Lamar deposits.

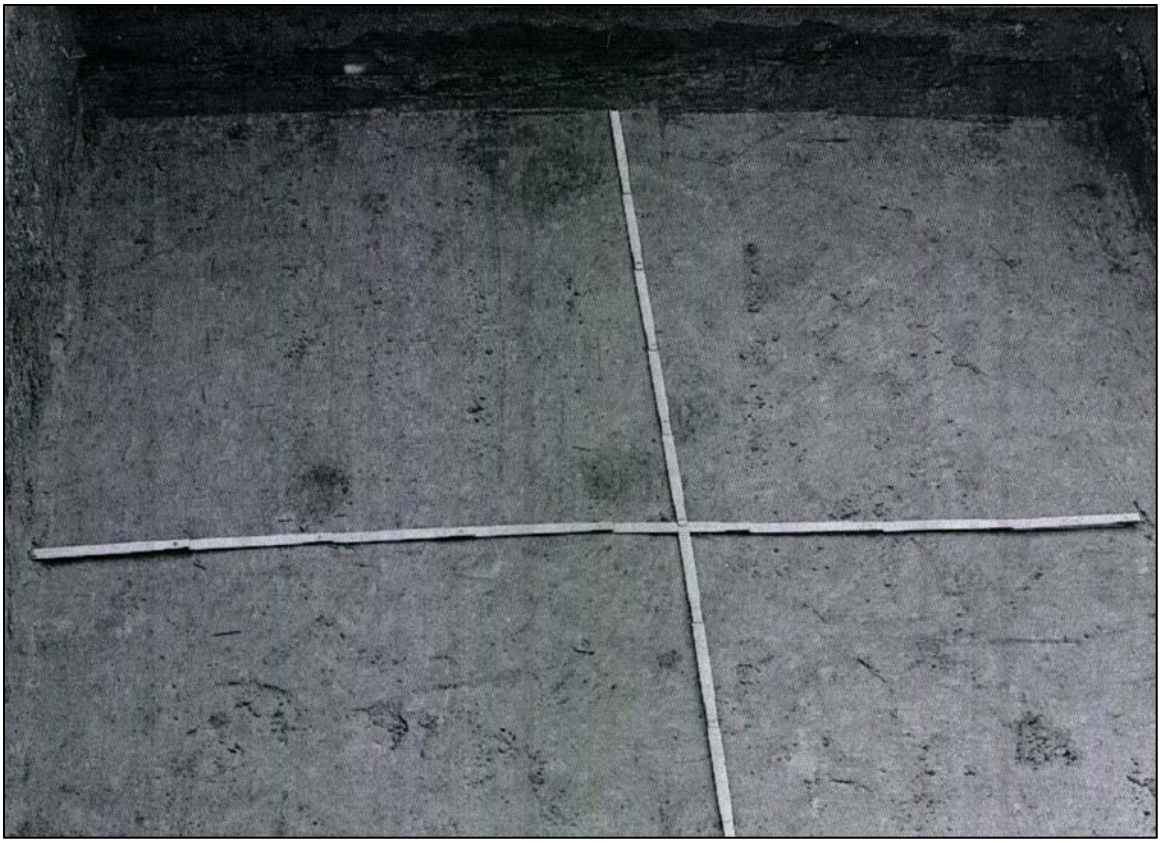

Figure 8.

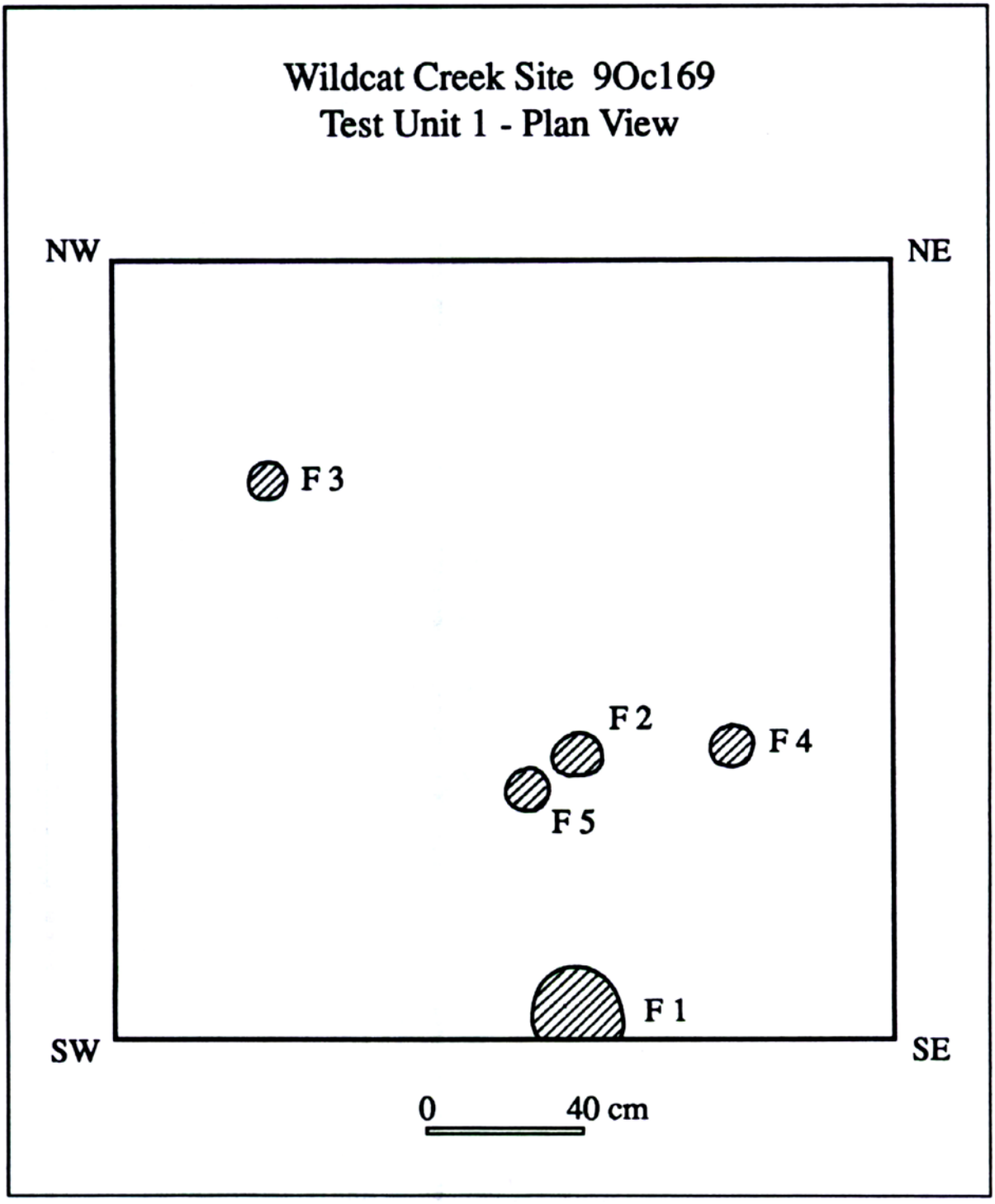
Wildcat Creek Site 9Oc169
Test Unit 1 - Plan View
NW
NE
F 3
F 2
F 4
F 5
F 1
SW
SE
0
40 cm

Figure 9.

ARTIFACT CLASSIFICATION

The artifact assemblage from the Wildcat Creek site consists of ceramics, lithics, thermally altered pebbles and cobbles, and residual unmodified pebbles and rock. Organic material is virtually lacking, represented only by a minute amount of charcoal from Level B (0.3 grams), Level C (0.1 grams), and Level E (1.8 grams). Faunal material is represented by only one deer tooth fragment (0.1 grams) from Level B. The absence of faunal remains is not unexpected given the highly acidic quality of the soil type. Table 1 is an inventory of the entire ceramic and lithic collection. The following sections describe and discuss the ceramic and lithic materials with particular emphasis on the artifacts from Test Unit 1. Included is an analytical interpretation of site formation processes and a history of site occupation based on artifact data.

Ceramics

Ceramics from all proveniences at Wildcat Creek dominated the assemblage with a total of 842 items. These artifacts, summarized in Table 1, include 840 sherds, one smoking pipe rim fragment from Level E, and one piece of daub that weighs 10.6 grams from Posthole Test 6. In the following discussion, only the artifacts from Test Unit 1 are addressed as these provide the most informative data regarding site use through time. The artifacts from posthole tests and features are listed in Table 1 and are given no further consideration in this section.

The ceramic chronology for the Lamar period in northwestern Georgia has been described by Hally and Rudolph (1986:63), Smith (1981:178-191), Wauchope (1966), Williams (1988:118-126), and Williams and Shapiro (1990:60-63). The Woodland period pottery type, Deptford Linear Check Stamped, was classified according to Caldwell and Waring (1968:110) and DePratter (1979:123-124). Based on the sherd types expected from the excavation and later identified during sorting, the ceramic artifact categories used were Lamar Incised, Lamar Complicated Stamped, Lamar Plain, Deptford Linear Checked Stamped, and residual sherdlets (Figure 10). The use of these sherd categories along with other important criteria described below allowed the chronological assignment of the assemblage.

The classification of ceramics, minus the small pipe fragment, proceeded with a culling of all residual sherds less than 1/2 inch in size except for sherdlets that exhibited identifiable diagnostic characteristics. Following this, the remaining sherds were sorted on the basis of surface decoration when present. Although design motifs could not be identified on the complicated stamped ceramics, these along with all plain sherds were considered Lamar based on their association with Lamar Incised sherds in the midden and the lack of earlier Mississippian components. In fact, the haphazard stamping technique is an attribute of late Lamar Complicated Stamped pottery (Williams 1988:84) further supporting the Lamar assignment of these sherds. Ceramic artifacts (N=796) were recovered from Levels B through E (50 to 95 centimeters below the surface). These all dated to the Lamar period, with the exception of two Deptford Linear Check Stamped sherds in Level C. The majority of pottery (N=331; 41.6 percent) was from the midden in Level D. The next most frequent occurrence was 262 (32.9 percent) sherds from just above and in the top portion of the midden in Level C. Following this were 170 (21.4 percent) sherds from the clay alluvium in Level B. Finally, Level E, below the midden, contained 33 (4.1 percent) sherds. Sherd size, for the most part, is extremely small [note the number of residual sherdlets (N=484)]. This condition is attributed to intensive plowing during the nineteenth and twentieth centuries where sherds were broken and crushed into increasingly smaller sizes.

Test Unit 1		Lamar Incised		Lamar Comp. Stamped		Lamar Plain		Deptford Linear Check Stamped		Eroded	TOTAL	Pipe	
LEVEL	Depth (cm)	Body	Rim	Body	Rim	Body	Rim	Body	Rim	<1/2"	SHERDS	Fragments	Daub
B	50-65	5	4	11	0	53	4	0	0	69	146	0	0
B (Southeast Quad)	50-65	3	0	1	0	6	0	0	0	14	24	0	0
C	65-75	9	3	7	1	52	1	1	0	155	229	0	0
C (Southeast Quad)	65-75	0	1	3	0	9	2	1	0	17	33	0	0
D	75-85	9	1	18	0	58	10	0	0	178	274	0	0
D (Southeast Quad)	75-85	1	0	6	0	19	0	0	0	31	57	0	0
E	85-95	1	0	2	1	8	0	0	0	20	32	1	0
F (Northeast Quad)	95-105	0	0	0	0	0	0	0	0	0	0	0	0
G (Northeast Quad)	105-115	0	0	0	0	0	0	0	0	0	0	0	0
H (Northeast Quad)	115-125	0	0	0	0	0	0	0	0	0	0	0	0
I (Northeast Quad)	125-135	0	0	0	0	0	0	0	0	0	0	0	0
J (Northeast Quad)	135-145	0	0	0	0	0	0	0	0	0	0	0	0
K (Northeast Quad)	145-155	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Totals		28	9	48	2	205	17	2	0	484	795	1	0
Feature 1		0	0	0	0	0	0	0	0	0	0	0	0
Feature 2		0	0	0	0	1	0	0	0	0	1	0	0
Feature 3		0	0	1	0	0	0	0	0	0	1	0	0
Feature 4		0	0	0	0	0	0	0	0	0	0	0	0
Feature 5		0	0	0	0	0	0	0	0	0	0	0	0
Sub-Totals		0	0	1	0	1	0	0	0	0	2	0	0
Posthole Test 1		1	0	0	0	1	0	0	0	0	2	0	0
Posthole Test 2		0	0	0	0	0	0	0	0	0	0	0	0
Posthole Test 3		0	0	0	0	6	0	1	0	4	11	0	0
Posthole Test 4		0	0	0	0	0	0	0	0	2	2	0	0
Posthole Test 5		1	0	2	0	1	0	0	0	4	8	0	0
Posthole Test 6		2	1	8	1	0	0	0	0	7	19	0	1
Posthole Test 7		0	0	0	0	0	0	0	0	1	1	0	0
Sub-Totals		4	1	10	1	8	0	1	0	18	43	0	1
TOTALS		32	10	59	3	214	17	3	0	502	840	1	1

Table 1. Total Ceramics Counts from All Proveniences.

Test Unit 1		Folded Rims			Simple Rims			TOTAL
LEVEL	Depth (cm)	Incised	Stamped	Plain	Incised	Stamped	Plain	SHERDS
B	50-65	0	0	2	3	1	2	8
B (Southeast Quad)	50-65	0	0	0	0	0	0	0
C	65-75	0	0	2	3	0	0	5
C (Southeast Quad)	65-75	0	0	0	1	0	2	3
D	75-85	0	0	5	1	0	5	11
D (Southeast Quad)	75-85	0	0	0	0	0	0	0
E	85-95	0	1	0	0	0	0	1
F (Northeast Quad)	95-105	0	0	0	0	0	0	0
G (Northeast Quad)	105-115	0	0	0	0	0	0	0
H (Northeast Quad)	115-125	0	0	0	0	0	0	0
I (Northeast Quad)	125-135	0	0	0	0	0	0	0
J (Northeast Quad)	135-145	0	0	0	0	0	0	0
K (Northeast Quad)	145-155	0	0	0	0	0	0	0
Sub-Totals		0	1	9	8	1	9	28
Feature 1		0	0	0	0	0	0	0
Feature 2		0	0	0	0	0	0	0
Feature 3		0	0	0	0	0	0	0
Feature 4		0	0	0	0	0	0	0
Feature 5		0	0	0	0	0	0	0
Sub-Totals		0	0	0	0	0	0	0
Posthole Test 1		0	0	0	0	0	0	0
Posthole Test 2		0	0	0	0	0	0	0
Posthole Test 3		0	0	0	0	0	0	0
Posthole Test 4		0	0	0	0	0	0	0
Posthole Test 5		0	0	0	0	0	0	0
Posthole Test 6		0	0	0	1	0	0	1
Posthole Test 7		0	0	0	0	0	0	0
Sub-Totals		0	0	0	1	0	0	1
TOTALS		0	1	9	9	1	9	29

Table 2. Rim Sherd data from All Proveniences.

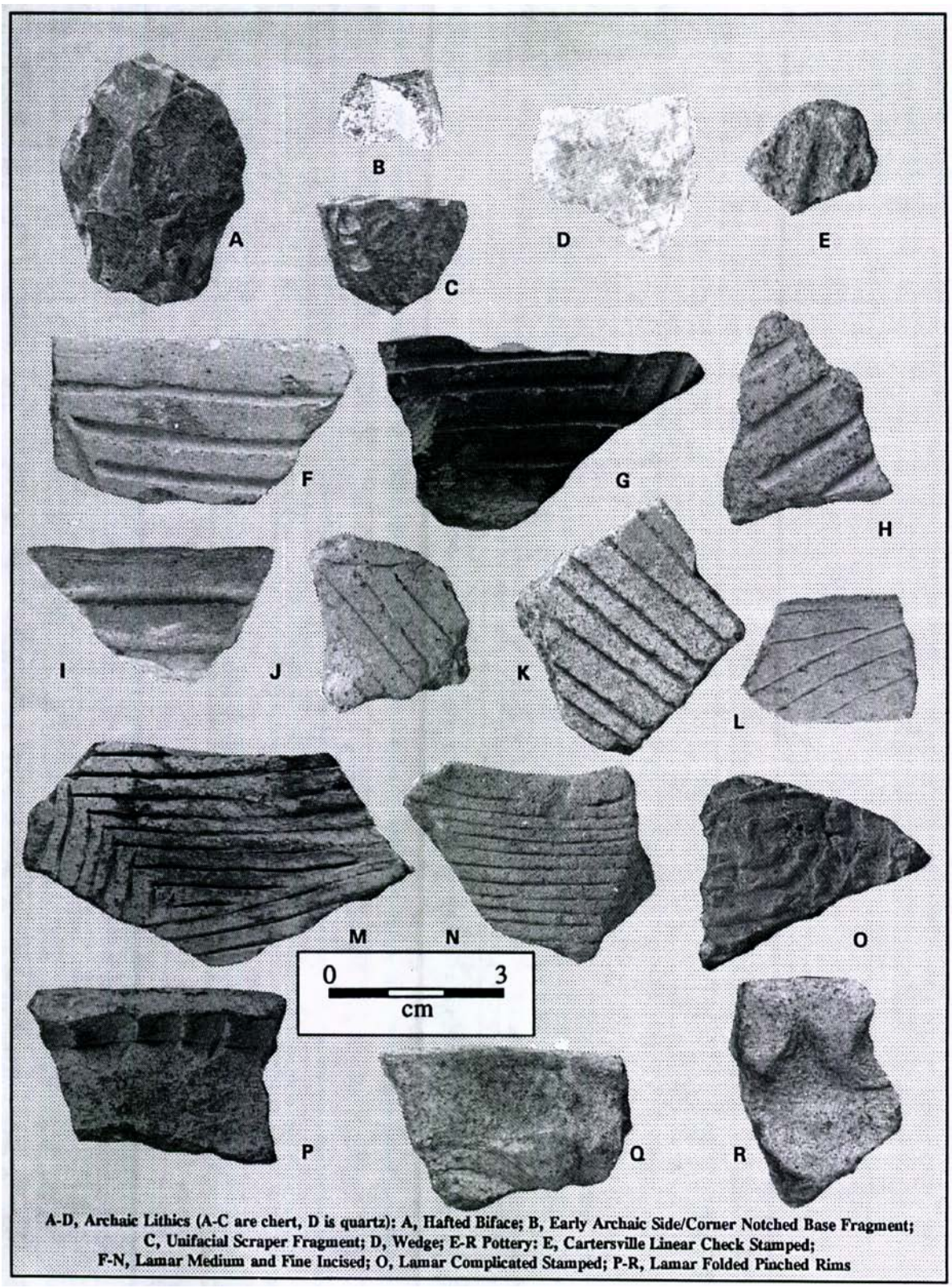
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
0
3
cm
P
Q
R
A-D, Archaic Lithics (A-C are chert, D is quartz): A, Hafted Biface; B, Early Archaic Side/Corner Notched Base Fragment;
C, Unifacial Scraper Fragment; D, Wedge; E-R Pottery: E, Cartersville Linear Check Stamped;
F-N, Lamar Medium and Fine Incised; O, Lamar Complicated Stamped; P-R, Lamar Folded Pinched Rims

Figure 10.

The assemblage was dominated by eroded sherds less than 1/2 inch (N=484) representing 60.8 percent of the collection. Lamar Plain sherds (N=222) form the next most frequent category constituting 27.9 percent. Following Lamar Plain in quantity was Lamar Complicated Stamped (N=50) comprising 6.2 percent. In regard to this category, an attempt to further divide the sherds into rectilinear and curvilinear complicated stamped proved fruitless because the stamping was either too eroded, too light, or too over-stamped for objective classification. Lamar Incised (N=37; 4.6 percent) was the next most frequent type. Finally, the presence of two (0.5 percent) Deptford Linear Check Stamped sherds indicate a Middle Woodland component.

The collection contained a total of 28 rim sherds (Table 2). The majority of these were from bowls, with the remainder from flaring rim jars. Two classes of rim sherds were recognized, simple (non decorated) and folded (Williams 1988:73-77). The simple rim category contained 18 sherds, of which nine were plain, eight were incised, and one was complicated stamped. Of the 10 folded rims, nine were plain and one was complicated stamped. Although folded rim vessels sometimes exhibit incising on their exterior (Smith 1981:188 and Plate 20) and interior (Elliott and Boyko 1989:11), there were none in the assemblage with this type of decoration.

Interpretive Analysis of Ceramics

This discussion is two-fold. It focuses on time sensitive ceramic attributes for purposes of chronology followed by an assessment of the stratigraphic integrity of the ceramic deposits. The folded rim sherds were subjected to further classification based on stylistic and metric data. This information is crucial in determining phases of site occupation. Rim treatment included folded pinched, folded notched, and folded rims with nodes. Because all of these decorative traits are common throughout the late Lamar period, they are not particularly useful in determining assignment to specific phases. However, researchers have observed that rim fold widths increased through time and so it is this attribute, rather than rim fold decoration, that serves as a good temporal indicator (Williams and Shapiro 1990:61-63). For this reason, measurements were recorded for the ten folded rims in the collection as presented in Table 3.

LEVEL	FOLD DECORATION	WIDTH (mm)
B	folded/notched	20
B	folded/pinched	23
C	folded/pinched	8
C	folded/pinched	19
D	folded/pinched	14
D	folded/pinched	16
D	folded/notched	16
D	folded/pinched	18
D	folded/noded	20
E	folded/pinched	6

Table 3. Qualification of Rim Folds by Test Unit Level

These data show that rim fold sizes range from 6 to 23 millimeters. Despite these extremes, the majority fall within a range of 16 to 20 millimeters. According to Williams and

Shapiro (1990:62), analyses of Lamar period assemblages have demonstrated that sherd samples with folded rims widths between 16 and 20 millimeters are typical of Dyar phase components. Based on this information, the rim fold data from Wildcat Creek support a Dyar phase assignment for Wildcat Creek. However, before drawing final conclusions concerning the dates of site occupation, there are other ceramic data that require consideration.

Previous research has demonstrated that sherds decorated with incised lines are as time-sensitive as rim fold widths (Smith 1881; Williams 1990; Williams and Shapiro 1990:61-63). Both the width and number of incised lines are attributes that indicate temporal trends. In general, there is a increase in the number of incised lines along with a reduction of line width on Lamar vessels through time.

There were 37 Lamar Incised sherds in the collection. These sherds were further separated into Bold Incised (lines greater than 2 millimeters), Medium Incised (lines between 1 and 2 millimeters), and Fine Incised (lines less than 1 millimeter) (Smith 1981:181; Williams 1988:71; Williams and Shapiro 1990:61-63). As shown in Table 6, Fine Incised were most common (N=21) followed by Medium Incised totaling 13, and finally, Bold Incised represented by three sherds. The greater quantity of Fine and Medium Incised sherds (N=34) compared to Bold Incised (N=3) strongly indicates a Bell phase date.

Just as important, if not more, to the width of incising, is the number of line elements on incised motifs. Previous research has shown that the number of incised lines increases over time with four or more medium sized lines occurring on Dyar phase vessels and multiple (up to 30 or more) fine lines on Bell phase vessels (Smith 1981:188; Williams 1988:121; Williams and Shapiro 1990:61-63). Table 6 lists the number of incised sherds by level along with the total number of lines on each sherd. Even though all of these sherds were small and did not exhibit complete incised motifs, it was still possible to obtain chronological information. The collection from Test Unit 1 contains 21 out of 37 sherds with four or more lines on each sherd. A breakdown of this sample revealed two bold incised sherds with five lines each, seven medium incised sherds with four to nine lines per sherd, and 12 fine incised sherds with four to 14 lines per sherd. The fact that multiple line elements occur on the majority of incised sherds is indicative of Bell phase pottery characteristics.

Researchers have demonstrated that during the late Lamar period the frequency of complicated stamped vessels decreases, with virtually no complicated stamped ceramics (less than 1.0 percent) present in Bell phase assemblages (Smith 1981:188; Williams and Shapiro 1990:61-63). A total of 272 Lamar Plain and Complicated Stamped sherds is present in the assemblage. Of these, 222 (81.6 percent) are plain and 50 (18.4 percent) exhibit complicated stamping. This proportion of plain to complicated stamped pottery strongly supports a late Dyar phase assignment.

One final aspect of ceramic analysis was the attempt to stratigraphically determine temporal patterns within the levels containing sherds, and between Zones I and II in the midden. To accomplish this, the vertical location by level of diagnostic Lamar artifacts was considered. The folded rim width data in Table 5 shows that the sherd with the least rim measurement (6.0 millimeters) was found in the lowest level (E) containing ceramics and the rim sherd with the widest fold (23.0 millimeters) was recovered in the highest level (B). Rim width sizes on seven sherds in Levels C and D range from 8.2 to 20.0 millimeters. However, if the rim fold size of 8.2 millimeters is excluded, the mean width for the remaining folded rims is 17.2 millimeters. These

data have the appearance of a temporal progression, but probably too much should not be made of this with such a small sample.

The stratigraphic data with regard to the width of incised lines and number of line elements is more obfuscated. Fine Incised sherds with multiple lines are found in all levels rather than just the upper levels as would be expected with Bell phase pottery. Medium Incised ceramics occur in the upper three levels, and Bold Incised are present in Level C. Similarly, complicated stamped pottery is found dispersed throughout all levels, although there is a higher quantity in Level D of the midden as opposed to Level C. This may imply a pattern of decreasing frequency of complicated stamped in the upper levels, but again the sample is too small for reliable conclusions.

Basically, all this points to a vertical displacement of ceramics in Levels B through E thus obscuring any cultural stratigraphy. Artifact displacement is most evident by the presence of Deptford sherds in the Lamar midden. This condition of component displacement is primarily attributed to historic farming activity, which has the detrimental effect of mixing discrete deposits throughout the plow zone. As for Zone I and II of the midden, no component differentiation could be determined. It is plausible that Zone II is actually a layer of organic leaching from Zone I, attested by the lighter brown soil color. However, the large quantity of sherds in Zone II makes this speculation dubious. More likely, organic leaching has occurred from Zone II to the underlying Stratum C, where the soil is a mottled yellow brown. The two midden zones may indicate superimposed Lamar occupations (Dyar and Bell), however this distinction could not be made with the data from the pottery assemblage.

In summary, the vertical ceramic displacement in Levels B through E inhibited Lamar phase assignments by means of cultural stratigraphy. Instead, Lamar phase designations were accomplished by collapsing the contents of these levels and studying them as one unit. This analytical method demonstrated that the late Lamar occupation occurred during the late Dyar and early Bell phases. If chronological interpretation was based on individual sherds, it is plausible that the two sherds with the smallest rim fold widths represent an Iron Horse phase occupation. However, extensive excavations and a much larger ceramic assemblage is needed to test this possibility. As it stands, all of the Lamar ceramics most likely originated in the midden and were displaced above and below this stratum through historic period plowing, prehistoric human activities, and other post-depositional processes.

Lithics

The artifact collection from Wildcat Creek contains a total of 54 pieces of flaked stone as summarized in Table 4. Almost the entire assemblage is composed of debitage (n=53), with only one hafted biface present. The shovel tests produced eleven flakes, all of which are quartz. Test Unit 1 yielded 42 lithic flakes along with the hafted biface. No debitage was recovered from the features excavated in Level E. The remainder of this section deals only with the lithics from Test Unit 1.

Lithic artifacts were recovered from all but Levels I and K. The assemblage contained an almost equal proportion of chert (n=21; 51.2 percent) to quartz (n=20; 48.8 percent) debitage. Quartz material is available locally in the form of outcrops and some chert was also locally procured within the Piedmont (e.g., Ledbetter, Kowalewski and O'Steen 1981), as well as from the Coastal Plain and the Ridge and Valley provinces. During classification, use-wear modification was noted on only one flake from Level E. This flake exhibited unifacial alteration along a

portion of the dorsal side edge indicating use as an expedient tool.

Test Unit 1		Chert		Quartz		Unifacial Flake Tool		Hafted Biface		TOTAL LITHICS	
Level	Depth (cm)	#	wt (g)	#	wt (g)	#	wt (g)	#	wt (g)	#	wt (g)
B	50-65	1	0.2	1	0.2	0	0.0	0	0.0	2	0.4
B (Southeast Quad)	50-65	1	0.4	1	1	0	0.0	0	0.0	2	1.4
C	65-75	3	1.5	6	15.6	0	0.0	0	0.0	9	17.1
C (Southeast Quad)	65-75	0	0.0	1	0.7	0	0.0	0	0.0	1	0.7
D	75-85	1	2.6	4	1.4	0	0.0	0	0.0	5	4
D (Southeast Quad)	75-85	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
E	85-95	2	2.2	5	2	1	2.1	0	0.0	8	6.3
F (Northeast Quad)	95-105	1	0.4	1	1.6	0	0.0	0	0.0	2	2
G (Northeast Quad)	105-115	4	4.5	0	0.0	0	0.0	0	0.0	4	4.5
H (Northeast Quad)	115-125	7	1.7	0	0.0	0	0.0	1	7.8	8	9.5
I (Northeast Quad)	125-135	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
J (Northeast Quad)	135-145	1	0.7	1	0.4	0	0.0	0	0.0	2	1.1
K (Northeast Quad)	145-155	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sub-Totals		21	14.2	20	22.9	1	2.1	1	7.8	43	47
Feature 1		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Feature 2		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Feature 3		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Feature 4		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Feature 5		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sub-Totals		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Posthole Test 1		0	0.0	5	32.5	0	0.0	0	0.0	5	32.5
Posthole Test 2		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Posthole Test 3		0	0.0	2	0.2	0	0.0	0	0.0	2	0.2
Posthole Test 4		0	0.0	1	0.6	0	0.0	0	0.0	1	0.6
Posthole Test 5		0	0.0	2	0.6	0	0.0	0	0.0	2	0.6
Posthole Test 6		0	0.0	1	5.7	0	0.0	0	0.0	1	5.7
Posthole Test 7		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sub-Totals		0	0.0	11	39.6	0	0.0	0	0.0	11	39.6
TOTALS		21	14.2	31	62.5	1	2.1	1	7.8	54	86.6

Table 4. Total Lithic Counts From All Proveniences.

Test Unit 1		Lamar Red Pebbles		Brown Pebbles		Firecracked/ Unmod. Rock		TOTAL STONE	
Level	Depth (cm)	#	wt (g)	#	wt (g)	#	wt (g)	#	wt (g)
B	50-65	86	128.0	16	47.0	145	107.0	247	282.0
B (Southeast Quad)	50-65	5	7.0	7	12.0	54	654.0	66	673.0
C	65-75	186	227.0	23	42.0	365	355.0	574	624.0
C (Southeast Quad)	65-75	18	23.0	6	3.0	36	21.0	60	47.0
D	75-85	308	447.0	48	70.0	605	321.0	961	838.0
D (Southeast Quad)	75-85	48	90.0	9	25.0	50	97.0	107	212.0
E	85-95	40	75.0	4	16.0	269	435.0	313	526.0
F (Northeast Quad)	95-105	0	0.0	0	0.0	20	156.0	20	156.0
G (Northeast Quad)	105-115	0	0.0	0	0.0	24	90.0	24	90.0
H (Northeast Quad)	115-125	0	0.0	0	0.0	29	220.0	29	220.0
I (Northeast Quad)	125-135	0	0.0	0	0.0	2	10.0	2	10.0
J (Northeast Quad)	135-145	0	0.0	0	0.0	2	252.0	2	252.0
K (Northeast Quad)	145-155	0	0.0	0	0.0	0	0.0	0	0.0
Sub-Totals		691	997.0	113	215.0	1601	2718.0	2405	3930.0
Feature 1		0	0.0	0	0.0	0	13.0	0	13.0
Feature 2		0	0.0	0	0.0	0	0.0	0	0.0
Feature 3		2	1.0	1	0.9	0	0.8	3	2.7
Feature 4		0	0.0	0	0.0	0	0.0	0	0.0
Feature 5		0	0.0	0	0.0	0	0.0	0	0.0
Sub-Totals		2	1.0	1	0.9	0	13.8	3	15.7
Posthole Test 1		0	0.0	0	0.0	40	145.0	40	145.0
Posthole Test 2		0	0.0	0	0.0	2	3.0	2	3.0
Posthole Test 3		8	9.0	0	0.0	14	49.0	22	58.0
Posthole Test 4		0	0.0	0	0.0	8	23.0	8	23.0
Posthole Test 5		0	0.0	3	7.0	10	928.0	13	935.0
Posthole Test 6		6	9.0	5	4.0	9	15.0	20	28.0
Posthole Test 7		1	0.7	0	0.0	5	4.0	6	4.7
Sub-Totals		15	18.7	8	11.0	88	1167.0	111	1196.7
TOTALS		708	1016.7	122	226.9	1689	3898.8	2519	5142.4

Table 5. Total Miscellaneous Stone From All Proveniences.

Formal lithic tools included a hafted biface from Level H manufactured from amber colored Piedmont chert that was thermally altered, a basal fragment of an Early Archaic side or corner notched point made from Coastal Plain chert (65-75 centimeter depth), and the haft portion of an Early Archaic formal uniface scraper made from Piedmont chert (85-95 centimeters). The biface exhibits irregular flake scars with no thinning or retouching at the base. It measures 34.9 millimeters from base to tip with a maximum width of 27.9 millimeters across the mid-section, and a thickness of 8.7 millimeters. The blade is convex and sub-circular with a slight shoulder that inclines toward a contracting stem and a relatively straight base with a width of 18.1 millimeters. Stylistically, this biface is similar to the Stemmed and Shield-Shaped projectile points described

by Wauchope (1966:123-140; Figures 239-241) for northern Georgia and the Swannanoa Stemmed projectile point type (Keel 1976:196-198) of the upper Piedmont and Blue Ridge provinces of North Carolina and Tennessee. Very similar tools occur in Late Paleo, Early Archaic contexts in the Barnett Shoals area, however (O'Steen, et al. 1987). Considering the depths of these finds at Wildcat Creek, they are probably early in date.

Morphologically, this biface conforms to typical products of Early Woodland lithic manufacture. As Sassaman (1992) maintains, Early Woodland hafted bifaces lack the regularity in execution and design in comparison to the more formalized bifaces of the Archaic period. A hard hammer technique of shaping and thinning was used during manufacture, resulting in deep and irregular flake scars on one or both faces. Basically, the entire technology can be described as rather crude, evincing a technological discontinuity with the preceding Late Archaic period. On the grounds of technological evidence, typological comparisons with the data from Wauchope and Keel, and the vertical location of the biface in Test Unit 1 (115-125 centimeters below the surface), it most likely represents an Early Woodland component.

Lithic Analysis and Cultural Stratigraphy

The number of lithic tools and debitage (N=43) from the excavation of Test Unit 1 is a relatively small assemblage. However, the vertical distribution of debitage show density modes, or peaks, interspersed among levels of low density. As Stoltman (1974:70) points out, "since the relative positions of the peaks are presumed to be governed by the geological principle of superposition, they have chronological relevance."

Not surprisingly, the first of these peaks occurs in Level C in the midden. With the knowledge that high lithic (as well as ceramic) density occurs in a well preserved occupation surface, it is reasonable that other peaks in artifact density were also occupation surfaces. The second peak occurs in Level E (85 to 95 centimeters below the surface) just below the midden. The temporal assignment of the artifacts in this level is problematic because of the absence of diagnostic artifacts. However, we speculate that Level E encompasses the Middle Woodland occupation surface based on the presence of two Deptford sherds in the midden. This supposition is not as convoluted as it may seem when one realizes that the presence of Deptford sherds in the midden is most likely a result of post depositional disturbance by Lamar occupants or historic period plowing. The level did contain an Early Archaic uniface, however.

Finally, the third peak occurs in Level H (115 to 125 centimeters below the surface), and indicates an Early Archaic occupation surface. The evidence supporting this chronological assignment is the depth of artifacts and the presence of a diagnostic biface. It is important to reiterate here that Levels F through K were 1 by 1 meter in size, so the lithics in these levels are actually a sample of what would have been recovered had the other two thirds of each level been dug. If this was the case, the peak in Level H would show a greater lithic density than any other level in the test unit.

The presence of lower numbers of debitage in the levels above and below the artifact peaks was most likely the result of vertical displacement through post depositional disturbances rather than the appearance and disappearance of artifact type popularity (e.g., Brooks and Sassaman 1990). These disturbances were the result of historic plowing and bioturbation processes such as tree root growth, rodent and earthworm burrowing, surface scouring by river flooding, and

prehistoric human activity.

The presence of debitage in the Lamar midden is somewhat problematic. Williams (1990a:123) notes that flaked stone is generally not part of the artifact inventory at most Lamar sites in the Piedmont portion of the Oconee River valley. However, the excavation of a large pit feature containing Lamar refuse at the upland King Bee site (Forest Service site GA081852) produced a large quantity of quartz debitage (Elliott and Boyko 1989:15). Although the King Bee researchers make no firm conclusions, they do admit that the direct association of this lithic debris with Lamar artifacts indicates lithic tool manufacture by the Lamar occupants.

In any case, how much, if any, of the lithic debris from the midden at Wildcat Creek can be attributed to tool manufacture by the Lamar occupants is inconclusive as no Mississippian triangular points were recovered. It would seem that if these are Lamar in origin, chert was not a commonly utilized material during this time confirming Williams' (1990a:123) observation. On the other hand, the presence of flakes in the midden, along with the Deptford sherds and an Early Archaic point fragment could be a result of prehistoric human disturbance (i.e., digging holes for storage pits and house posts) into the underlying Woodland and Archaic occupation layers. We can most likely presume that the majority, if not all, of the lithic debris in the levels below the midden is the by-product of tool manufacture and maintenance by earlier site occupants.

MISCELLANEOUS STONE

The artifact assemblage from Wildcat Creek contained a large quantity of rock (N=2,519; 5,142.4 grams) classified as Miscellaneous Stone. This category was further divided into three sub-categories as follows: Lamar Red Pebbles (Williams n.d.), brown pebbles, and fire cracked rock/unmodified rock. All Miscellaneous Stone is inventoried by counts and weights in Table 5. Fire cracked/unmodified rock is the most common material consisting of 1,689 pieces (3,898.8 grams) of broken quartz cobbles and various residual piedmont rocks. This material occurs throughout Test Unit 1 in varying densities. Although fire cracked rock was not separated from unmodified rock, most were fragmented quartz cobbles whose breakage was probably the result of direct exposure to fire. However, it is very likely that much of this quartz material was the product of lithic tool manufacture. The next most abundant stone materials were Lamar Red Pebbles (N=708; 1,016.7 grams). In Test Unit 1, these were found only in Levels B through E, the same levels that contained all the Lamar ceramics. A contextual discussion of Lamar Red Pebbles is presented below. Finally, the least quantity of stone was brown pebbles numbering 122 and weighing 215.0 grams. Along with Lamar Red Pebbles and Lamar pottery, these also occurred in Levels B through E.

The contents of the sub-category, Lamar Red Pebbles, are as intriguing as the name suggests. These pea sized, water worn, quartz pebbles are red in color as a result of thermal alteration--direct exposure to fire. Lamar Red pebbles are considered diagnostic artifacts as they are found in large quantities in Lamar period cultural deposits. Locally available in stream beds (originally as brown pebbles), the pebbles were heated in a fire, either directly or indirectly, which altered their physical properties, evidenced by the change in color.

Although Lamar pebbles were recognized in artifact assemblages for years, their function remained an enigma. Most certainly these pebbles were not used to boil liquids for cooking as in Late Archaic stone cooking technology (Sassaman 1991:127). In fact, vessel analysis and ethnographic information show that Lamar cooking pots were directly exposed to fires (Hally

1982). In a recent report, Williams (1990b) hypothesized one use for these hot rocks was steam production during sweat lodge ceremonies. His idea was based on a combination of ethnohistorical documentary research of sweat lodges in the Southeast and archaeological evidence from the Punk Rock Shelter site (9PM211) excavated during the Wallace Reservoir Project. Aside from the name, this rock shelter site was unusual archaeologically. Although completely excavated, no cultural features were encountered and the artifact assemblage contained nothing but hundreds of Lamar sherds in association with thousands of Lamar pebbles indicating a special use function for the site.

Williams surmised that Lamar people closed off the rock shelter with timber and poured cold water held in ceramic vessels onto pre-heated pebbles to produce steam for the sweat bath. He continued by speculating that after a period of exposure to the steam, the participants may have immersed themselves in the cold water of the nearby Oconee River as part of the ceremony. If this indeed was the function of Lamar pebbles, then sweat bath ceremonies may have likewise been occurring at the Wildcat Creek site. A better explanation, however, was that the red pebbles were involved in some sort of cooking activity at Wildcat Creek. Their presence on large numbers of Lamar homesteads implies that their use in cooking must have been very common.

INTERPRETATIONS AND CONCLUSIONS

Wildcat Creek is a prehistoric site in the Oconee River floodplain with cultural deposits dating to the Early Archaic and Middle Woodland, and Late Mississippian Lamar period. Archaeological investigations included the production of a site map and the excavation of seven posthole tests and one 2 by 2 meter test unit. The test unit excavation yielded what we consider a representative sample of artifacts from the cultural periods listed above. Excavations also provided information concerning the integrity of the archaeological deposits. Even with the large body of archaeological data concerning the Lamar period in the Oconee Valley, the results of this project contribute to our understanding of a significant Lamar period occupation in the floodplain.

Although we were concerned primarily with the Lamar component, our investigations revealed the presence of at least two earlier occupations. An Early Archaic period use of the site is represented by a side/corner notched PPK, a formal uniface, and a diagnostic hafted biface similar to the Stemmed and Shield Shaped bifaces described by (Wauchope (1966:123-140). This biface was recovered in context with a majority of the lithic debitage from Test Unit 1 at 115 to 125 centimeters below the surface. The high density of debitage at this depth along with the biface indicates an Early Archaic occupation surface in this level.

A Middle Woodland component is represented by several Deptford Linear Check Stamped sherds in the Lamar midden. The presence of these sherds in the midden indicates post depositional displacement of the Middle Woodland component immediately underlying the midden. A high density of lithic debitage supports a Middle Woodland occupation surface in the level below the midden. It is possible that the lithic debitage in the midden is not associated with the Lamar component, but rather is a result of vertical displacement from the Middle Woodland deposit.

As stated, the period of Lamar occupation was our primary focus of investigation. The Lamar cultural deposit was found buried under 70 centimeters of modern alluvium. A 15 centimeter midden layer, from 70 to 85 centimeters below the surface, contained the majority of Lamar ceramics with the remainder in levels immediately above and below the midden. A

ceramic analysis of various time sensitive attributes revealed that the pottery assemblage dated to the late Dyar/early Bell phases. The lack of cane punctate rim sherds and the presence of wide folded pinched, notched, and noded rims support a Dyar phase designation for the site. Additionally, the high proportion of plain to complicated stamped pottery implies a late Dyar occupation. The overwhelming quantity of medium and especially fine incised sherds with multiple line elements indicated a Bell phase assignment. However, the absence of T- shaped rim sherds, a diagnostic marker of Bell phase assemblages, along with the low relative frequency of complicated stamped pottery (yet greater than one percent), support an early Bell phase designation.

In all probability, the late Lamar component represents an occupation, or overlapping occupations, that occurred during the transition between phases, rather than separate Dyar and Bell phase occupations. This is supported by the pottery assemblage, which is shows a transformational combination of Dyar and Bell phase pottery characteristics. Based on this idea, Lamar residence at the site probably occurred sometime between A.D. 1560 and A.D. 1620. This late occupation is consistent with an interpretation based upon previous research that showed that 78 of 83 Lamar sites in the Barnett Shoals are date to the Dyar/Bell phases (Ledbetter and O'Steen 1986).

The subsurface integrity of the site is considered good based on our investigations. The Lamar midden is relatively intact and cultural features are well preserved despite the adverse impacts to cultural deposits by historic farming practices and prehistoric human occupation. However, as a consequence of these destructive forces, the cultural stratigraphy within and immediately below the midden is somewhat obscured. No temporal progression could be determined from artifact distributions in these levels.

Based on our analysis of artifact densities in Test Unit 1, we postulate that the buried deposits at Wildcat Creek consist of a series of occupation surfaces, interpreted from peaks in vertical distributions. These peaks represent relatively long term stable surfaces, such as the midden, that were buried by sediments of rapid, discrete depositional episodes (i.e., flooding). The displacement of artifacts above and below these peaks results from bioturbation processes and prehistoric human residence (e.g., Brooks and Sassaman 1990).

Further work at Wildcat Creek should include a series of posthole tests to more accurately delineate the site boundary and possibly detect intrasite activity areas. In addition, the excavation of future test units or block excavations should be done in natural layers (ie., Zones I and II in the midden), or in arbitrary 5 or 10 centimeter levels within thick natural layers. Use of these methods may enable even further refinements in site chronology, not only for the Lamar period but the earlier components as well.

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