Archaeological Investigations at Jackson Landing: An Early Late Woodland Mound and Earthwork Site in Coastal Mississippi

By Edmond A. Boudreaux III

with contributions by Kandace D. Hollenbach,
Kelsey M. Lowe, and Susan L. Scott

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This East Carolina University project has drawn heavily from previous research at Jackson Landing. Mark Williams and members of the Mississippi Archaeological Association conducted the initial investigation of the earthwork. Investigations of the shell midden were undertaken by the Louisiana Archaeological Society and the Mississippi Archaeological Association under the direction of Robert Jones and Marco Giardino, and Marco graciously provided field notes and artifacts from their work at the site. A crew from Coastal Environments, Inc. (Kelsey Lowe, Rich Weinstein, and Jennie Kelley), investigated the mound in 2007 with funding provided by the Mississippi Gulf Coast National Heritage Area.

Success of the 2010 fieldwork was due to the efforts of an excellent field crew. Heat, hurricanes, mosquitoes, deerflies, thick undergrowth, wild pigs, and the sometimes semi-liquid nature of the mound at Jackson Landing all combined to present interesting challenges in the field, but the crew took everything in stride. I thank each of them for their hard work and unique contributions to this project. The field crew consisted of Aimee Bouzigard, Nic Glass, Scott Hudson, Greg Pierce, Joey Roberts and Andy Valiunas. Mike Fedoroff served as field director, and his abilities as a field archaeologist, master carpenter, small engine tinkerer, and large truck un-stucker are much appreciated. This research also benefitted from the efforts of lab director Aimee Bouzigard, East Carolina graduate students Amanda Keeney and Joseph Roberts, and undergraduate student Julia Muller.

Because MDAH owns most of the earthwork, agency permission was granted for shovel testing and access across their property. SABIC Innovative Plastics owns the remainder of the site, and I commend that firm for protecting Jackson Landing and for allowing archaeological research in 2007 and 2010. I am especially grateful to Kay Erwin of SABIC. Kay has been an advocate for conservation and archaeological research at Jackson Landing, and her support and efforts have been instrumental in allowing recent fieldwork at this important site.

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Chapter 1
The Jackson Landing Archaeological Project

The Jackson Landing site is one of the largest and most significant archaeological sites on Mississippi's Gulf coast. The site comprises a 60-acre area that includes a 1.5-m-tall platform mound, a large shell midden, and a semicircular earthen wall that is 460 m long and 3 to 4.5 m tall (Figure 1-1). Archaeological and historical research indicates that Jackson Landing has been utilized for the last 4,000 years. The site's culture history includes minor occupations during the Late Archaic (ca. 3000-1200 BC), late Late Woodland (AD 700-1200), and Mississippi (AD 1200-1550) periods (Giardino and Jones 1996), and a substantial eighteenth-century Historic Indian component (Williams 1987). Perhaps the most significant episode in Jackson Landing's long sequence of human occupation occurred during the early Late Woodland period (AD 400-700), when the site was a regional center marked by monumental construction of the site's earthwork and platform mound (Boudreaux 2011a).

This monograph reports on archaeological investigations at Jackson Landing during the summer of 2010, a project conducted by East Carolina University (ECU) and funded by a grant administered through the Mississippi Department of Archives and History (MDAH). The purpose of this grant project, along with several others funded by MDAH in 2010 (Blitz and Downs 2011; Gums and Waselkov 2013; Jackson 2012; Johnson, Haley, and Henry 2013), was to investigate some of the most significant archaeological sites on the Mississippi Gulf coast.

Jackson Landing was an obvious choice for an archaeological field project for several reasons. Not the least of them is that site's utilization during all periods of Gulf coast prehistory and history over the past 4,000 years. Jackson Landing is historically significant for its association with notable people, such as the nineteenth-century naturalist B. L. C. Wailes (see Brown 1998a), who visited the site in 1851 (Williams 1987:8), and Andrew Jackson, Jr., adopted son of the seventh US president and owner of a sea-island cotton plantation there in the nineteenth century (Giardino and Guerin 1996). The site is archaeologically signif-

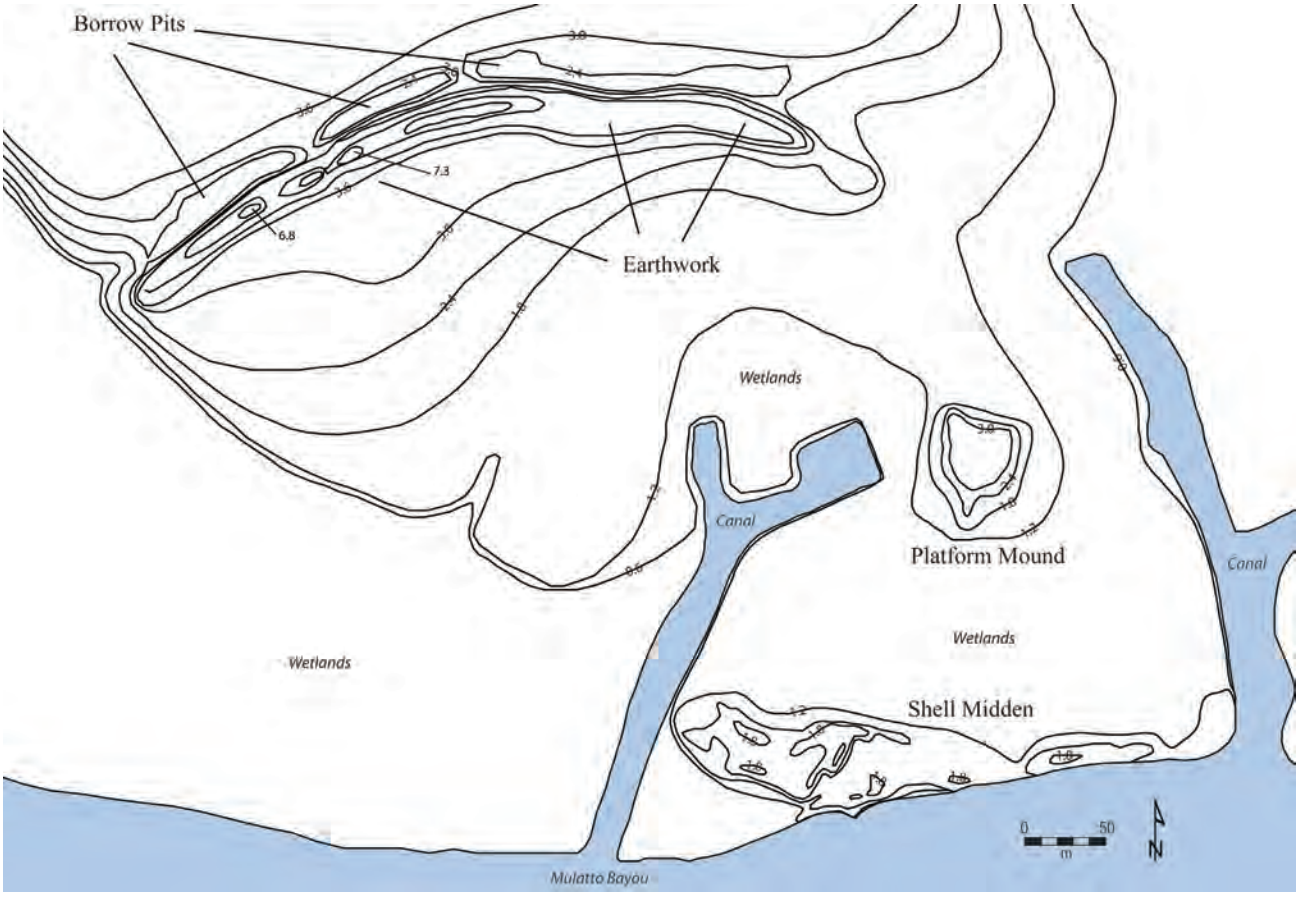


Figure 1-1. Jackson Landing site map (compiled from Gagliano et al. 1982: Figure 2.46 and Williams 1987: Figure 1).

icant for several reasons. Jackson Landing exhibits major, intact monumental architecture, and the site's earthwork is one of the largest earthen monuments in the region (Blitz and Mann 2000:39-40; Lewis 1988:115). Jackson Landing's archaeological appeal also is enhanced by the fact that it has been investigated on multiple occasions, a rarity among Mississippi Gulf coast sites, so it is possible to relate the findings of a new field project to a larger body of work. More specifically, excavations in the earthwork determined that structure had been built during the early Late Woodland period (Boudreaux 2011a; Giardino and Jones 1996; Williams 1987), while testing of the shell midden along Mulatto Bayou demonstrated that it consists of aboriginal deposits dating from the Late Archaic through Historic periods (Giardino and Jones 1996).

Environmental Setting and Site Description

Jackson Landing is located at the western end of Mississippi's Gulf coast on Mulatto Bayou, a tributary of the Pearl River (Figure 1-2). The mouth of Pearl River, which drains into Mississippi Sound, is located about 6 km southeast of the site. An extensive tidal marsh system extends from the mouth of Pearl River to the Jackson Landing site, which occupies the first elevated landform not completely surrounded by marsh that one encounters when traveling upstream from Mississippi Sound (Figure 1-3) (Williams 1987: 5). This landform—alternatively referred to as part of the Gulfport Formation (Otvos 1972:241-248, 1975: 149) or the Prairie Terrace geomorphological unit (Gagliano 1979:2.11; Gagliano et al. 1982: Figure 2.42)—is a Pleistocene-age relict shoreline that forms a low-relief bluff along the eastern side of the Pearl River mouth.

Relative to other areas along the north-central Gulf coast, the Pearl River mouth would have been particularly attractive to prehistoric peoples because of its great habitat diversity (Gagliano 1979:2.29; Gagliano et al. 1982:39). Habitats that converge in the Pearl River mouth area include river bottom swamplands, pine hills, coastal beaches, and brackish and salt marshes (Gagliano 1963:128). The attraction of Native Americans to the Pearl River mouth is demonstrated by the presence of three major archaeological sites—the Late Archaic Cedarland site (22HA506), the Gulf Formational period Claiborne site (22HA501), and the multiple-component but predominantly early Late Woodland Jackson Landing site—within 1 km of each other on the south end of the same landform (Blitz and Mann 2000:19-20; CEI 1977:250; Gagliano 1963:116; Gagliano et al. 1982: Figure 2.42; Gagliano and Webb 1970: 48; C. Webb 1982:36).

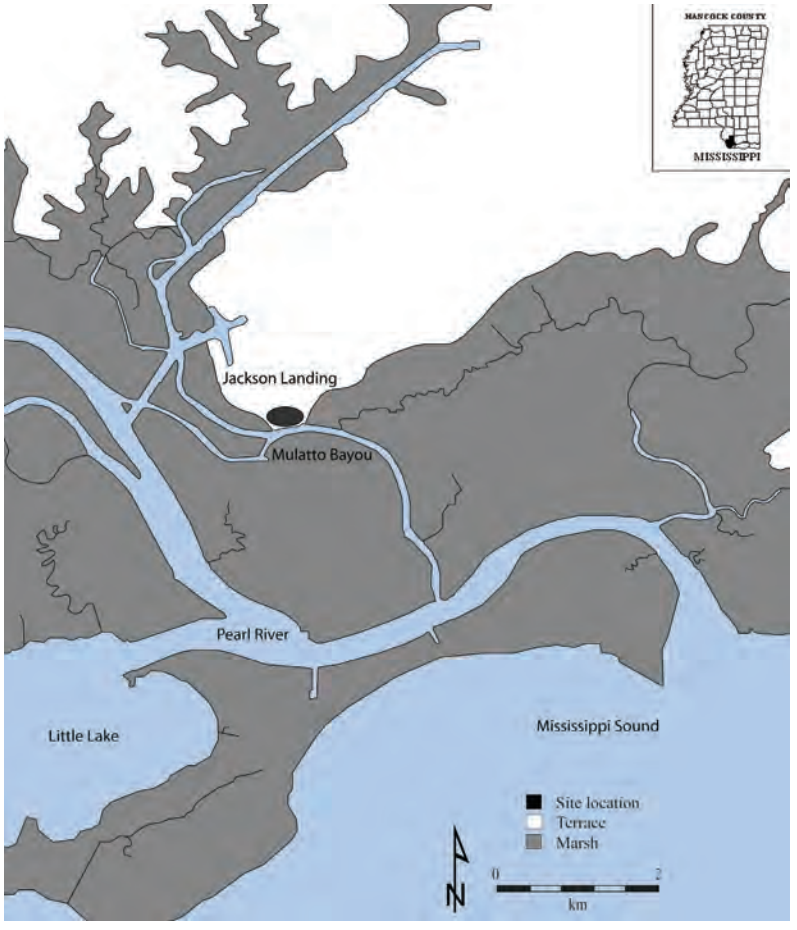


Figure 1-2. Map showing Jackson Landing's location near the mouth of the Pearl River on the Mississippi Gulf coast.

The Jackson Landing site consists of at least three major, spatially discrete elements: a large *Rangia* shell midden (22HA504), a nearly 500-m-long earthwork (22HA515), and a 1.5-m-tall platform mound (see Figure 1-1).[1] The shell midden (Figures 1-4 to 1-6) is quite large, measuring approximately 60 by 175 m (Gagliano et al. 1982:41), but it probably was originally much larger because significant amounts of shell were hauled away as road construction material during the nineteenth and early twentieth centuries (Chambers 1933; Williams 1987:64). The semicircular earthwork located about 400 m north of Mulatto Bayou (Figures 1-7 and 1-8) is a massive structure—up to 30 m wide and over 4 m tall in places (Gagliano et al. 1982:41-42)—and is one of the largest earthen monuments

Figure 1-3. View from the south side of Jackson Landing mound looking towards the mouth of the Pearl River, facing southeast.

Figure 1-6. Kelsey Lowe examining shell midden deposits on Mulatto Bayou.

Figure 1-4. View of Mulatto Bayou from the south end of the site, facing southwest.

Figure 1-7. Andy Valiunas and Mike Fedoroff standing near the western end of the earthwork, facing southeast.

Figure 1-5. Shell midden on Mulatto Bayou, facing east.

Figure 1-8. Borrow pit on the north side of the earthwork near its western end, facing east.

in the region. The earthwork contains two relatively low areas that have been interpreted as openings or "gates" (Williams 1987:5). The earthen platform mound, which measures approximately 60 by 70 m (Figure 1-9) (Gagliano et al. 1982:41-42), is located about 200 m north of Mulatto Bayou, approximately halfway between the bayou and the earthwork.

The people who built and used the earthen monuments at Jackson Landing almost certainly came from multiple communities (Boudreaux 2013b). One factor that probably influenced the site's location was a desire for proximity to both Pearl River and Mississippi Sound, the area's major north-south and east-west transportation corridors (Blitz and Mann 2000:6). Also, the site's location near the mouth of the Pearl River places it at the interface between two archaeological regions—the Delta to the west (Phillips 1970:898-899) and Eastern Mississippi Sound to the east (Blitz and Mann 2000:38-41). If our current understanding of the spatial extent of these archaeological regions approximates past social reality, then Jackson Landing's location at their interface suggests a function as an interregional meeting place for people from different cultural groups along the north-central Gulf coast (Blitz and Mann 2000:40; see Milner and O'Shea 1998).

Background

Considering Jackson Landing is one of the Mississippi Gulf coast's largest and most significant archaeological sites, it is hard to believe so little is known about it. But this lack of site-specific information simply reflects a more general dearth of archaeological research in coastal Mississippi, at least until relatively recently (see Blitz and Mann 2000). Professional archaeologists have been aware of this deficiency for some time. Dave Davis (1984:125) noted nearly 30 years ago in his edited volume, *Perspectives on Gulf Coast Prehistory,* "If Gulf Coast archaeologists agree on one thing, it is that Mississippi represents the major gap in published archaeological data."

The first professional archaeological investigation of the Mississippi Gulf coast took place in 1905 when Clarence B. Moore made a brief, six-day foray into Mississippi Sound, where he examined four sites as an adjunct to his exploration of Mobile Bay (Moore 1905:280, 296-297; Sheldon 2001:45). Moore, who is famous for excavating some of the richest mound burials in the Southeast, was not impressed with sites along Mississippi's coast, so his expedition did not travel west of Biloxi. According to Moore (1905:297), "our ill-success on Mississippi sound had been so uniform . . . [that] our investigation of the aboriginal remains of the sound was abandoned at that point." Moore did not reach (and does not mention) Jackson Landing. The coast was next visited by professional archaeologists in May 1933, during Moreau B. Chambers and James A. Ford's statewide archaeological survey for MDAH (WPA 1940). Chambers' (1933) field journal indicates their survey was quite an adventure, as they spent approximately three weeks traversing the coast between the Pearl and Pascagoula rivers. Chambers and Ford investigated most of the major archaeological sites on the coast, but did not visit Jackson Landing, although they did mention it (Chambers 1933; WPA 1940).

After Chambers and Ford, the coast received virtually no professional attention until the 1960s and 1970s with the discovery of two large, semicircular earth and shell middens on Mulatto Bayou, approximately 1 km north of Jackson Landing. These were the Late Archaic Cedarland site (ca. 3000-1200 BC) (Blitz and Mann 2000:20; CEI 1977:250; Gagliano 1963:116; Gagliano et al. 1982:39) and the Gulf Formational Claiborne site (1200-800 BC) (Blitz and Mann 2000:19-20; Gagliano and Webb 1970:48; C. Webb 1982:36). Although both sites held enormous potential for investigating many aspects of Gulf coast prehistory, little was accomplished, other than documentation of general site structure and the recovery of diagnostic artifacts. Both sites were subsequently either destroyed or badly damaged by looting and development of the port and harbor complex that currently occupies the area (Boudreaux 2009:31-35, 2013a:27-35; Gagliano 1979:2.26; Gagliano et al. 1982:41; Jackson 1989).

Jackson Landing came perilously close to being destroyed by the same forces that claimed these neighboring sites. It initially was spared due to persistent

Figure 1-9. View of the northwest corner of the platform mound, facing southeast.

efforts by concerned citizens, and later by some fortunate events that included mechanical problems with a bulldozer sent to level the site (Neumaier 1985:162-163). Later, after the site received another reprieve when construction contractors refused to participate in its destruction, representatives from MDAH, the property owner, and the port and harbor commission that was developing the area met and agreed to preserve the site (Neumaier 1985:162-163). The state of Mississippi acquired most of the earthwork in 1971, and the remaining portion was donated to the state by GE Plastics in 2003 (Jim Barnett 2012, personal communication). The earthwork is managed by MDAH through its Historic Properties Division. Long-term preservation of the rest of the site, including the approximately 60-acre area south of the earthwork that contains the shell midden and platform mound, has been due to the landowners—including International Paper, GE Plastics, and now SABIC Innovative Plastics—choosing to protect the site. Fortunately, Jackson Landing is still well-preserved today and is one of the few archaeological sites on the Mississippi Gulf coast that has been professionally investigated on multiple occasions (see Chapter 3).

Research Objectives

Fieldwork in 2010 was designed to address three research objectives: (1) determine the spatial distribution of archaeological deposits enclosed by the earthwork; (2) develop a detailed chronology for construction and use of the mound; and (3) recover sufficient archaeological materials from excavated mound and non-mound contexts to address questions of site function and spatial distribution of activities during the early Late Woodland period.

Determining the spatial distribution of archaeological deposits at Jackson Landing was an important objective because, while over 4,000 years of human occupation are represented at the site, the spatial distributions of cultural components were not clear. We addressed this objective by examining the slightly elevated, non-wetland areas north of the mound and south of the earthwork through a systematic shovel test survey (see Appendix A). From the perspective of the early Late Woodland occupation, it was important to know if any deposits were contemporaneous with use of the earthwork and mound. In particular, how does Jackson Landing relate to two types of Woodland platform mounds defined for the period predating AD 700? A number of early platform mounds appear to have been situated either within vacant ceremonial centers (Cobb and Nassaney 2002:534-535; Knight 2001:313; Mainfort and Sullivan 1998:9; see also Lewis 1988:115) or adjacent to permanently occupied villages (Knight 2001:313; Pluckhahn 2000, 2003). Our 2010 investigations suggest that Jackson Landing was not a permanently occupied settlement during the early Late Woodland period, although the space within the earthwork was not completely vacant.

A second objective of the 2010 fieldwork was to establish a chronology for the mound's construction and use. A chronology for construction of the earthwork has been reasonably well established through a significant amount of excavation and acquisition of eight radiocarbon dates (Boudreaux 2011a; Giardino and Jones 1996; Williams 1987). The earthwork was built between cal AD 440-650, during the early Late Woodland period (Boudreaux 2011a). Prior to our 2010 fieldwork, the timing of mound construction was not as well understood. Available evidence indicated the mound was built some time after AD 400, most likely during the early Late Woodland period (Boudreaux 2011a), but a more precise date of construction had not been established and the tempo of mound construction could not be addressed at all.

The 2010 fieldwork indicates the sequence of events that occurred in the mound area consisted of: (1) an event or multiple events that produced pre-mound midden deposits on the original ground surface; (2) two stages of mound construction (Stages I and II) associated with various activities, including use of two distinctive fills to build the second stage; and (3) a final episode of mound construction (Stage III) that buried the deposits from earlier activities. Ten radiocarbon dates obtained from deposits in the mound area, as part of the 2010 fieldwork, indicate the period between AD 600 and 660 brackets the mound's construction and use. When stratigraphic relationships are considered, the mound's use appears to have occurred mostly, perhaps completely, during a very brief interval, from approximately AD 655 to 660.

Determining timing and tempo of the mound's construction, especially in relation to construction of the earthwork, was important because of regional changes in sociopolitical organization that their appearance implies regarding coordination of labor and creation of a large ceremonial center. The labor represented in Jackson Landing's earthwork and mound implies a degree of group organization and interaction that was locally unprecedented (Blitz and Mann 2000:98). Jackson Landing appears to have been a space created for performance of rituals (Boudreaux 2013b), and construction of its monuments reflects a significant change in the scale of public ritual along the north-central Gulf coast. The magnitude of the site's earthwork, the size of the space it enclosed, and the presence of a platform mound all suggest that rituals performed at Jackson Landing were large-scale,

public-oriented events that involved large groups of people. Furthermore, the site's location at the interface of two archaeological regions suggests it was used by groups at the inter-regional level. The increase in scale of public ritual indicated by construction and use of earthen monuments at Jackson Landing suggests changes in the nature and scale of social integration. For all of these reasons, dating the construction of the monuments at Jackson Landing provides a temporal baseline for investigating changes in regional integration and for seeking possible concomitant changes at other sites in the surrounding area.

Another major research objective was to recover enough material from excavations to develop inferences about activities associated with mound and non-mound contexts. The presence of the mound at Jackson Landing, and the demarcation of space by construction of its earthwork, begs many questions about activities performed on the mound and within the space that the earthwork enclosed. To determine what kind of site Jackson Landing was during the early Late Woodland period, we investigated activities associated with the platform mound and contemporaneous off-mound contexts. Toward this end, areas of interest along the bluff edge on the west end of the site and around the mound were intensively surveyed and investigated further through test excavations. Although it is not clear whether deposits in some non-mound areas were contemporaneous with the mound or earthwork, these materials could be the domestic refuse of people who temporarily gathered at Jackson Landing to participate in ceremonial activities associated with the site's monuments. Or they could be the remains of ceremonial activities themselves. In either case, the Woodland period deposits south of the earthwork are widely spaced, and large portions of the site were not utilized at all during the Woodland period, a pattern that may reflect a deliberate attempt to delineate and internally divide ceremonial space.

Investigations in the mound area indicate that Jackson Landing mound is similar in several ways to other early platform mounds that pre-date AD 700 (Knight 1990:166-172, 2001; Lindauer and Blitz 1997:173). Similarities include Jackson Landing mound's location within the space delineated by an earthwork, the mound's association with abundant evidence for feasting, and use of distinctive fills in moundbuilding. Jackson Landing mound also was distinctive in several ways that include the absence of evidence for manipulation of exotic materials and craft production, and ample evidence for the butchering of deer and bear in mound contexts, presumably in preparation for feasting events. While similarities with other early platform mounds reflect the broad sharing of ideas about public ceremony and ritual across eastern North America (Anderson and Mainfort 2002:9; Griffin 1967:183), the differences demonstrate the importance of considering variability of these broadly shared ritual practices (see Anderson and Sassaman 2012:136; Carr and Case 2005:21).

Overview

This monograph reports on how the research objectives discussed in this chapter were addressed, both through re-analysis of information from earlier projects (Boudreaux 2013a; Giardino and Jones 1996; Williams 1987) and through the analysis of new materials recovered during ECU's 2010 investigations of the site. Chapter 2 uses information from previous and current investigations to develop an occupational sequence for the Jackson Landing site. This sequence is then related to regional sequences developed for the lower Mississippi Valley and the Mississippi Gulf coast. Chapter 3 presents an overview of previous archaeological investigations that have taken place at the site and provides a framework for the ECU project. Chapter 4 provides an overview of the ECU fieldwork and its findings. Artifact classes used in analyses of pottery, lithics, and historic artifacts are defined and discussed in Chapter 5. A synthesis of information derived from the ECU project is presented in Chapter 6.

Endnotes

[1] The shell midden and the earthwork have been given different site numbers. although both clearly would be better thought of as part of the same site.

Chapter 2
Culture History

Jackson Landing was occupied during several cultural periods over the past 4,000 years. This chapter presents a brief overview of the site's occupational sequence, as it relates to the culture histories of the two regions most relevant to Jackson Landing, the Delta region of coastal Louisiana (Phillips 1970:866) and the Mississippi Sound region of coastal Mississippi (Blitz and Mann 2000).

Cultural Components at Jackson Landing

Multiple excavation projects at Jackson Landing have contributed valuable information toward understanding the nature and distribution of cultural deposits at this large, complex site (Boudreaux 2011a, 2013a; Giardino and Jones 1996; Williams 1987). This information can be combined to develop a basic occupational sequence for the site. Numerous diagnostic artifacts and 23 radiocarbon dates—13 from previous investigations and 10 from the ECU project (Table 2-1)—indicate that Jackson Landing was occupied possibly as early as ca. 5700 BC, based on the earliest radiocarbon dates, and definitely by around 2000 BC, based on the earliest dates from an undisturbed context (Figure 2-1). Native American use of the site continued through the eighteenth century. Additional documentary evidence indicates the site served as a cattle ranch and a sea-island cotton plantation in the late eighteenth and nineteenth centuries (Giardino and Guerin 1996). This section presents a brief overview of the spatial and temporal distribution of the cultural components represented at Jackson Landing, based on previous research.

Late Archaic Period

A Late Archaic component is represented by deposits in two parts of the site. Several radiocarbon dates from these areas suggest an occupation during the Pearl River phase (ca. 3000-1200 BC) of the Late Archaic period (Blitz and Mann 2000: Figure 7.1; Gagliano 1963:116; Gagliano et al. 1982:39). The type site of this phase is the Cedarland site (22HA506) (Gagliano 1963:116), located approximately 1 km north of Jackson Landing. Similarities between Cedarland and the Late Archaic component at Jackson Landing include the presence at the latter of a pierced Poverty Point object (Figure 2-2) (C. Webb 1982:35) and the absence of pottery (Blitz and Mann 2000:20). An intact Late Archaic layer at the base of the shell midden along Mulatto Bayou included a well-preserved hearth and several postholes, the earliest cultural deposits on a natural levee adjacent to the bayou (Giardino and Jones 1996:16). The hearth contained oysters and *Rangia* shells mixed with charcoal. Two samples of charcoal from the hearth produced radiocarbon dates of 1700±80 BC and 1780±80 BC (Giardino and Jones 1996:15). Features associated with the original ground surface buried beneath the western end of the earthwork produced radiocarbon dates of 1370±80 BC and 1380±60 BC, indicating the presence of Late Archaic deposits (Giardino and Jones 1996:30). One of these dates came from material within a posthole that also contained a piece of soapstone, a raw material frequently found in Late Archaic period contexts (Sassaman 1993).

Early Late Woodland Period

It has been noted for some time that Jackson Landing resembles some pre-AD 700 Woodland sites in terms of the spatial layout of the site's earthen monuments (Williams 1987:61; see Boudreaux 2011b; Knight 1990:167, 2001; Thunen 1988). Prior to ECU's investigations, limited testing of the Jackson Landing platform mound and earthwork indicated they had been built around cal AD 440-650, during the early Late Woodland period (Boudreaux 2011a; Williams 1987).

The early Late Woodland period in the lower Mississippi Valley and adjacent coastal areas is known as the Baytown period (AD 400-700) (Kidder 2002:80; Lee 2010; Phillips 1970:901; Rees 2010: Figure 1.3; Wiseman et al. 1979: Figure 3.1). Baytown period sites have been associated with limited amounts of nonlocal materials, painted pottery, and earthen monuments that include platform mounds and linear earthworks (Kidder 2002:81-82; Lee 2010). Although information about nonmound sites is limited, it is speculated that Baytown populations lived mostly in small dispersed settlements (Lee 2010:138). Coastal Troyville has been recognized by some researchers as an early Late Woodland culture variant in the southern lower Mississippi Valley and adjacent coastal areas of Louisiana and Mississippi, although the concept remains poorly defined (Blitz and Mann 2000:42; Jeter and Williams 1989:152; Kidder 2002:80). In coastal Mississippi, Coastal Troyville has been associated with late varieties of the Marksville ceramic series and construction of a platform mound at Graveline Mound site (Blitz and Downs 2011; Blitz and Mann 2000:42-44).

Table 2-1. Radiocarbon Dates from the Jackson Landing Site by Excavation Area.

Context	Lab Number	Material	Age (BP)	Uncalibrated Date	2 σ Cal Age Ranges	Source
Shell Midden						
hearth at base of shell midden	Beta 36062	unknown	3730±80	1780±80 BC	2455-1920 BC	Giardino and Jones 1996:30
hearth at base of shell midden	Beta 36064	unknown	3650±80	1700±80 BC	2280-1775 BC	Giardino and Jones 1996:30
10-15 cm below surface	Beta 104606	wood charcoal	1160±70	AD 790±70	AD 690-1015	Giardino and Jones 1996:32
Earthwork						
Posthole beneath earthwork	Beta 104605	*Rangia* shell	1710±70	AD 240±70	AD 135-530	Giardino and Jones 1996:31
Beneath earthwork	Beta 104607	wood charcoal	3330±60	1380±60 BC	1750-1455 BC	Giardino and Jones 1996:30
Beneath earthwork	Beta 104608	wood charcoal	3320±80	1370±80 BC	1870-1430 BC	Giardino and Jones 1996:30
Base of Construction Stage 1	Beta 104609	wood charcoal	1480±40	AD 470±40	AD 440-650	Giardino and Jones 1996:32
Base of Construction Stage 1	Beta 104610	wood charcoal	2330±50	380±50 BC	730-210 BC	Giardino and Jones 1996:31
Construction Stage 1	UGA 402	wood charcoal	2350±100	400±100 BC	765-205 BC	Williams 1987:27
Top of Construction Stage 2	UGA 458	wood charcoal	1660±80	AD 290±80	AD 170-575	Williams 1987:27
Construction Stage 2	UGA 459	wood charcoal	1735±315	AD 215±315	505 BC-AD 970	Williams 1987:27
Bluff Midden						
N192E-426, Zone 2	Beta 300352	wood charcoal	6860±40	4910±40 BC	BC 5840-5665	this report
N192E-426, Zone 3	Beta 300353	wood charcoal	6880±40	4930±40 BC	BC 5870-5670	this report
Off-Mound Pit						
N218.7E19.8, Level 8	Beta 300351	wood charcoal	1420±40	AD 530±30	AD 580-660	this report
N217.7E19.8, Zone 2	Beta 300483	acorn	1320±30	AD 630±30	AD 650-770	this report
Pre-Mound Midden						
N183E19, Lv. 6	Beta 240801	wood charcoal	1570±40	AD 380±40	AD 410-575	Boudreaux 2011a
N183E19, Lv. 5	Beta 240802	*Rangia* shell	1750±50	AD 200±50	AD 135-400	Boudreaux 2011a
N168E6, Lv 6, North half	Beta 300485	hickory and acorn	1390±30	AD 560±30	AD 600-675	this report
N171E6, Lv 6, midden at base of lv	Beta 300487	hickory and acorn	1310±30	AD 640±30	AD 655-775	this report
Mound						
N168E6, Lv 4, Stage I flank midden	Beta 300484	acorn	1430±30	AD 520±30	AD 575-660	this report
N171E6, Lv 5, Stage I	Beta 300486	wood charcoal	1520±30	AD 430±30	AD 430-610	this report
Feature 4, Stage II	Beta 300488	pine cone	1420±30	AD 530±30	AD 580-660	this report
Feature 6, Stage II	Beta 300489	wood charcoal	1710±30	AD 240±30	AD 255-405	this report

Note: Calibrated dates are derived from the OxCal 4.1 calibration software (Bronk Ramsey 2009).

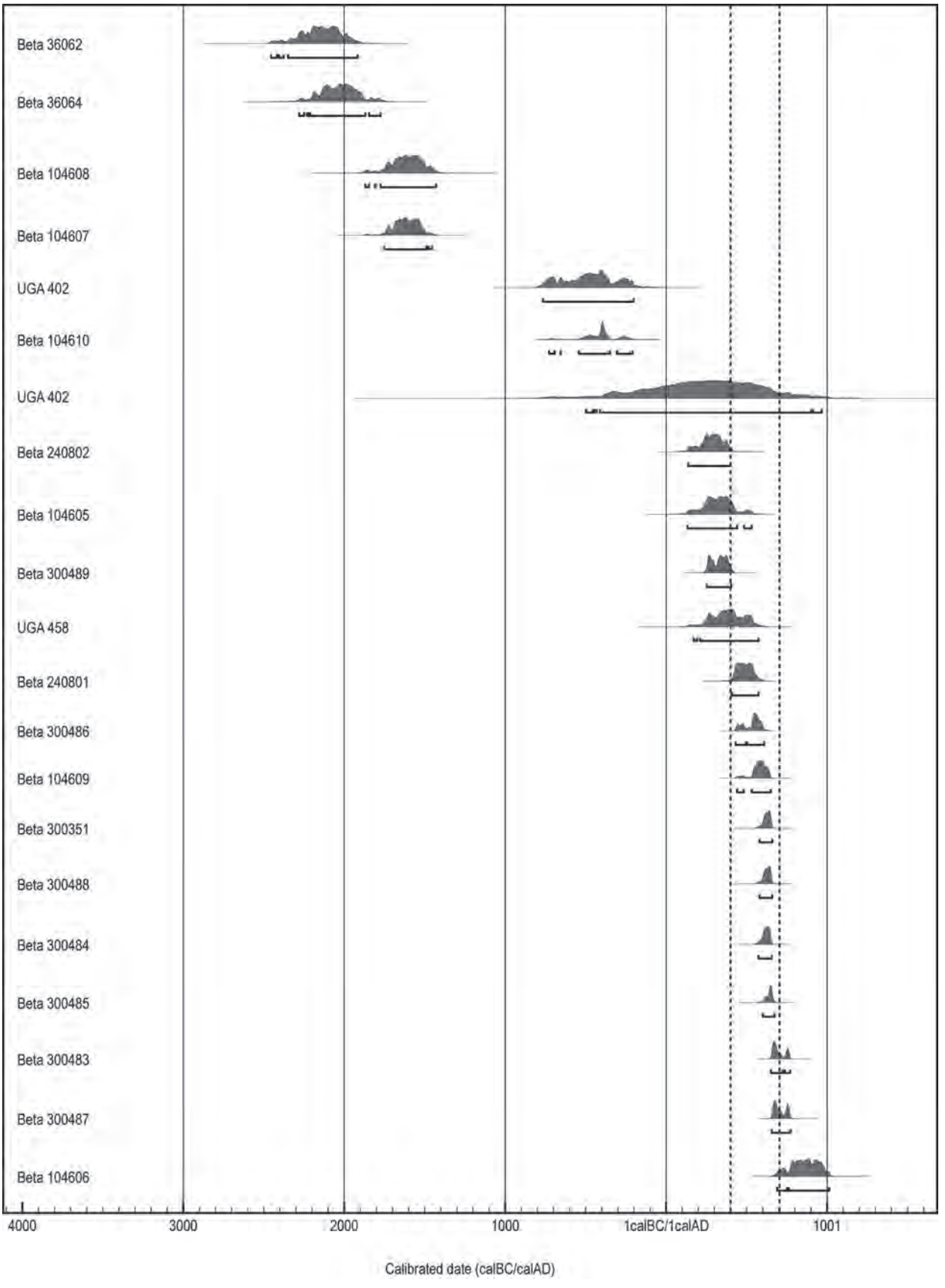


Figure 2-1. Late Archaic through Late Woodland period calibrated radiocarbon dates from Jackson Landing. [*Note:* The dashed lines demarcate the early Late Woodland period (AD 400-700). Figure derived from the OxCal 4.1 calibration software (Bronk Ramsey 2009).]

Coastal Troyville, along with the contemporaneous Troyville culture located to the north, represents the later part of a cultural continuum that began during the preceding Middle Woodland period (Blitz and Mann 2000:42; Jeter and Williams 1989:142, 152; Kidder 2002: Figure 4.2). The Middle Woodland period in coastal Mississippi, coastal Louisiana, and adjacent lower Mississippi Valley is designated the Marksville period (200 BC-AD 400) (Blitz and Mann 2000:38-41; Kidder 2002:72, Figure 4.2; Lewis 1988:115; McGimsey 2010; Phillips 1970:886; Toth 1979, 1988; Wiseman et al. 1979: Figure 3.1). The Marksville period, in turn, is generally divided into early and late subperiods. Early Marksville (200 BC-AD 200) sites have been associated with construction of earthen monuments, the presence of some nonlocal goods, and evidence for limited interaction of some kind with Hopewellian groups to the north (Blitz and Mann 2000:98; Kidder 2002:72-74, 79; Neuman 1984:167; Toth 1988; cf. McGimsey 2010). Construction of earthen monuments continued during the late Marksville period (AD 200-400), though sites of this period generally lack evidence for nonlocal exchange (Blitz and Mann 2000:41; Greengo 1964; Kidder 2002:73-74; Phillips 1970:757-858). Although settlement patterns are poorly understood, Marksville habitation sites generally are thought to represent small, widely dispersed villages and hamlets (Kidder 2002:75; McGimsey 2010:131).

Figure 2-2. Poverty Point object from the LAS excavations in the shell midden along Mulatto Bayou (photograph by Marco Giardino) (actual size).

Figure 2-3. Ceramic pipe from the LAS excavations in the shell midden (photograph by Marco Giardino) (actual size).

Late Late Woodland to Mississippi Period

Mixed deposits dating from the late Late Woodland to Mississippi periods are present in the upper 30 cm of the shell midden. A radiocarbon date of AD 790±70 (cal AD 690-1015) (Beta 104606) came from the upper 20 cm of this deposit. A layer of deposits immediately below this, between 20 and 30 cmbs, yielded a ceramic elbow pipe (Figure 2-3), shell tempered pottery, and numerous animal bones (Giardino and Jones 1996:16-17).

Eighteenth-Century Component

An approximately 45-cm-thick earth and shell midden is superimposed on the eastern end of the earthwork and extends to the northeast an undetermined distance (Williams 1987:61). Williams (1987:8) attributed this midden to a mid-eighteenth-century (ca. 1720-1780) Native American occupation of the site, an assessment based on an assemblage of aboriginal ceramics and approximately 300 objects of European manufacture, including temporally diagnostic gunspalls, glass beads, and ceramics (Williams 1987:53-57). The platform mound was used by Native Americans during the eighteenth century, as well, based on the presence of gunflints, glass beads, and Gulf Historic Fineware pottery (Boudreaux 2013a). Also, a minor Historic period or Mississippian component may be represented in the bluff-edge midden on the west end of the site, based on the presence of some shell tempered sherds in the upper levels of that deposit (Williams 1987:28).

Nineteenth-Century Component

Documentary research indicates Jackson Landing was the location of a sea-island cotton plantation and cattle ranch during the nineteenth century (Giardino and Guerin 1996). However, little unequivocal archaeological evidence of a nineteenth-century occupation

has been recovered, apart from cut nails in the fill of a posthole on the east side of the mound (Boudreaux 2013a).

Regional Culture History

Jackson Landing is located near the interface of two related, but distinctively different, archaeological regions. The Delta region near the mouth of the Mississippi River (Kidder 2002: Figure 4.1; Phillips 1970:866) lies west of the site, and the Mississippi Sound region of coastal Mississippi lies to the east (Blitz and Mann 2000). Distinctions between the two regions are based primarily on the distribution of ceramic types and varieties, since little can be said at this time about large-scale patterns in subsistence, settlement patterns, or social organization. Although there is significant overlap in the ceramic types and varieties found in the Delta and Mississippi Sound regions, generally the ceramics of the Delta were influenced more by traditions within the lower Mississippi Valley (Phillips 1970), while ceramics of Mississippi Sound show relatively more influence from traditions to the east, in coastal Alabama and Florida (Blitz and Mann 2000).

Phillips (1970:866) discussed the archaeology of the Delta region within his massive *Lower Yazoo Basin Survey* monograph, a work in which he established sequences of archaeological phases along the Mississippi River from southern Missouri to coastal Louisiana. He defined the Delta region as the coastal area of eastern Louisiana—around Lake Pontchartrain and in the vicinity of the mouth of the Mississippi River—and the extreme western coastal area of Mississippi (Kidder 2002: Figure 4.1; Phillips 1970:866). Phillips (1970:866) recognized the existence of several distinctive areas within the larger Delta region, with the Eastern Delta and the Pontchartrain Basin being the two most relevant to the archaeology of Jackson Landing. Gagliano (1963) created the Pearl River phase for the Late Archaic in the Eastern Delta, and Phillips (1970:866) established a sequence of cultural phases extending from the Late Archaic to Historic Indian periods. This sequence has been modified and refined by subsequent work in the region (Wiseman et al. 1979: Figures 4.1-4.13).

Blitz and Mann (2000) used archaeological data from the Mississippi Gulf coast to define a sequence of cultural phases that spans the Late Archaic through Historic periods. Dating and cultural content of the phases in this sequence is based largely on materials from the eastern part of the Mississippi Gulf coast (Blitz and Mann 2000:76-82), roughly from Biloxi Bay in the west to the Alabama state line in the east (Blitz and Mann 2000: Figure 1.1). Although data were included from important sites in the western part of the region (e.g., Cedarland, Claiborne, Jackson Landing), Blitz and Mann (2000: Figure 7.1) intentionally limited their sequence to eastern Mississippi Sound until its applicability to sites to the west could be demonstrated.

Currently, we do not know how Jackson Landing's early Late Woodland component relates to the cultural sequences of the Delta and Mississippi Sound regions. A site as large as Jackson Landing presumably was important at the regional level, but the region or regions from which its supporting population was drawn are not clear. Part of our difficulty in relating Jackson Landing to a regional sequence may reflect the site builders' intentional choice to locate it at the interface of two cultural regions as a way to integrate different populations (Boudreaux 2013b). Phillips attributed the Middle Woodland—now, early Late Woodland—component at Jackson Landing, referred to as the Mulatto Bayou site (32-R-15) in his monograph, to the Magnolia phase of the Delta region (AD 200-400) (Phillips 1970:898-899; Wiseman et al. 1979: Figure 3.1). However, he suggested that the site's location on the very eastern edge of his area of study could mean it should be placed in "an entirely different phase of Hopewellian culture" (Phillips 1970:899). Similarly, although Blitz and Mann (2000:38-41) included Jackson Landing site within their discussion of the Eastern Mississippi Sound region, they were not sure their cultural sequence could accommodate sites located along the western part of Mississippi Sound.

Chapter 3
Previous Investigations

Jackson Landing is one of the few archaeological sites on the Mississippi Gulf coast that has been professionally investigated multiple times, including by both small-scale and large-scale projects. This chapter summarizes those field investigations and considers the valuable information they have contributed toward understanding this large, complex site.

Small-Scale Investigations

The earliest professional investigation of the Jackson Landing site is arguably a visit in 1852 by geologist and naturalist B. L. C. Wailes (Williams 1987:64-68; see also Brown 1998a). Wailes sketched a map of the entire site that included the earthwork, platform mound, and shell midden, as well as seven otherwise undocumented mounds located north of the earthwork (Williams 1987: Figure 2). While no mounds have since been found outside of the earthwork at Jackson Landing, this area has never been systematically investigated. Although some of his contemporaries thought the earthwork was a colonial structure, Wailes astutely inferred, based on the size of several oaks and a magnolia located on the earthwork, that it had to be of aboriginal construction (Williams 1987: 8). The site was discussed by Moreau Chambers and James A. Ford in 1933 as part of MDAH's statewide archaeological survey (Chambers 1933; WPA 1940). Chambers' comment that "a fortification of some sort is said to be near this landing" indicates, however, that he and Ford likely did not visit the site and certainly did not actually examine the earthwork themselves (Chambers 1933; WPA 1940). Archaeologists from Coastal Environments, Inc. (CEI), visited the site in 1979 during a study of archaeological sites in the Mississippi/Louisiana coastal region (Gagliano et al. 1982). During that visit, Charles Pearson and Diane Wiseman mapped the shell midden and mound and took two box cores from the midden (Gagliano et al. 1982:41-42; Richard Weinstein, personal communication 2011).

Excavation Projects

Each of Jackson Landing's three major spatial elements—the earthwork, shell midden, and platform mound—has seen some archaeological testing since 1970. In the early 1970s, Mark Williams (1987) directed a volunteer crew of Mississippi Archaeological Association (MAA) members who trenched portions of the earthwork. In the early 1990s, Marco Giardino and Robert Jones (1996) with NASA's Stennis Space Center directed volunteers from the Louisiana Archaeological Society (LAS) and the MAA as they excavated two 2.0-by-2.0-m units in the shell midden. In 2007 CEI tested the platform mound by excavation of a 1.0-by-2.0-m unit on its eastern edge and a 1.0-by-1.0-m unit on its summit (Boudreaux 2013a).

Mississippi Archaeological Association Investigations (1971-1972)

Members of the Gulf Coast Chapter of the MAA investigated the Jackson Landing site in 1971 and 1972. This project was directed by Mark Williams, now an archaeologist at the University of Georgia, who was then an airman stationed at Keesler Air Force Base in Biloxi. Fieldwork, which was prompted by the looting of a Historic period Native American midden on the east end of the earthwork, took place over the 1972 New Year's holiday and a few subsequent weekends (Williams 1987:11). The MAA project determined the earthwork was a Woodland construction (Williams 1987:27). They also tested a Woodland midden on a bluff edge near the western end of the earthwork, and documented the presence of an eighteenth-century Native American midden covering the east end of the earthwork (Williams 1987:28). Excavation results in each of these areas—the earthwork, the bluff midden, and the eighteenth-century midden—are summarized here.

The MAA excavations consisted largely of 5.0-by-5.0-ft units—referred to as pits—excavated in 6-inch arbitrary levels. All soil was screened through ½-inch hardware cloth (Williams 1987:11). Several individual units were expanded and connected through the use of trenches of various widths and lengths (Williams 1987:17). Five clusters of pits and trenches in different locations were referred to as Excavation Units I through V. Artifacts from those excavations are illustrated and discussed in Williams' (1987) report on the MAA investigations. Faunal remains were not analyzed for that report, but they have since been analyzed by Scott (see Appendix B).

Earthwork

Excavation Unit I, the most heavily investigated with 10 pits and five trenches, was located on the earthwork near its eastern end (Williams 1987:13-22). Excavation Unit I produced the most information about the earthwork's construction. Williams (1987:27) offered an interpretation of the earthwork's

construction based on a 23-m (75-ft) profile—a north-south cross section through the earthwork—along his 500 West grid line (Williams 1987: Figure 5). At that location the earthwork sits on a buried ground surface that did not contain any artifacts (Figure 3-1), suggesting to Williams (1987:27) that the area either was not occupied or was intentionally cleaned prior to earthwork construction.

The soil layers overlying the buried, original ground surface indicate the earthwork consists of three construction stages. Construction Stage 1 was a low wall, about 1.5 m high and at least 4.5 m wide, consisting of a "medium dark-brown fill" that contained some charcoal, but no artifacts (Williams 1987:27). A pocket of charcoal near the top of Construction Stage 1 yielded a radiocarbon date of 400 BC±100 (cal 765-205 BC) (UGA 402) (Williams 1987: Figure 5). Since this charcoal may have been an incidental inclusion within fill used to build Construction Stage 1, and consequently unrelated to the actual date of construction, this date is best thought of as a *terminus post quem* for the earthwork.

Construction Stage 2 expanded the earthwork's width significantly, possibly to as wide as 15 m at its base, but it only increased its height by about 30 cm (Williams 1987: Figure 5). This second stage consisted of light orange sand capped with a layer of brown sand mixed with clay. Construction Stage 2 did not contain any artifacts. A sample of scattered charcoal from the base of Construction Stage 2 produced a radiocarbon date of AD 215±315 (cal 505 BC-AD 970) (UGA 459) (Williams 1987:27). This date establishes a *terminus post quem* for Construction Stage 2, although its large error range seriously limits its utility. A charcoal sample from a charred log within the clay cap of Construction Stage 2 produced a radiocarbon date of AD 290±80 (cal AD 170-575) (UGA 458) (Williams 1987:27). This date importantly provides a *terminus post quem* for the capping of Construction Stage 2 and subsequent addition of Construction Stage 3, and provides a *terminus ante quem* for Construction Stage 1.

Construction Stage 3, which did not contain any artifacts or charcoal, increased the earthwork's total width to over 21 m at its base and its height to about 2.7 m (Williams 1987: Figure 5). Williams (1987:27) noted the earthwork has suffered from erosion and speculated it probably stood taller than it does today. Construction Stage 3 represents the earthwork's final episode of construction.

The earthwork was investigated in two additional places during MAA excavations. Excavation Unit II consisted of several trenches. One 18-m (60-ft) trench was placed in Gate 1, a gap in the earthwork approximately 120 m from its western end that presumably served as an entryway (Williams 1987:23). A thin, hard-packed layer encountered at the base of excavations was interpreted as a surface contemporaneous with use of the earthwork. Several pieces of a Baytown Plan, *var. unspecified* bowl were found embedded in this surface (Williams 1987:23). The rest of the fill in Excavation Unit II was sterile.

Two other trenches, placed 79 m (260 ft) west of Gate 1, were located near the western end of the earthwork (Williams 1987:23). Excavation Unit III consist-

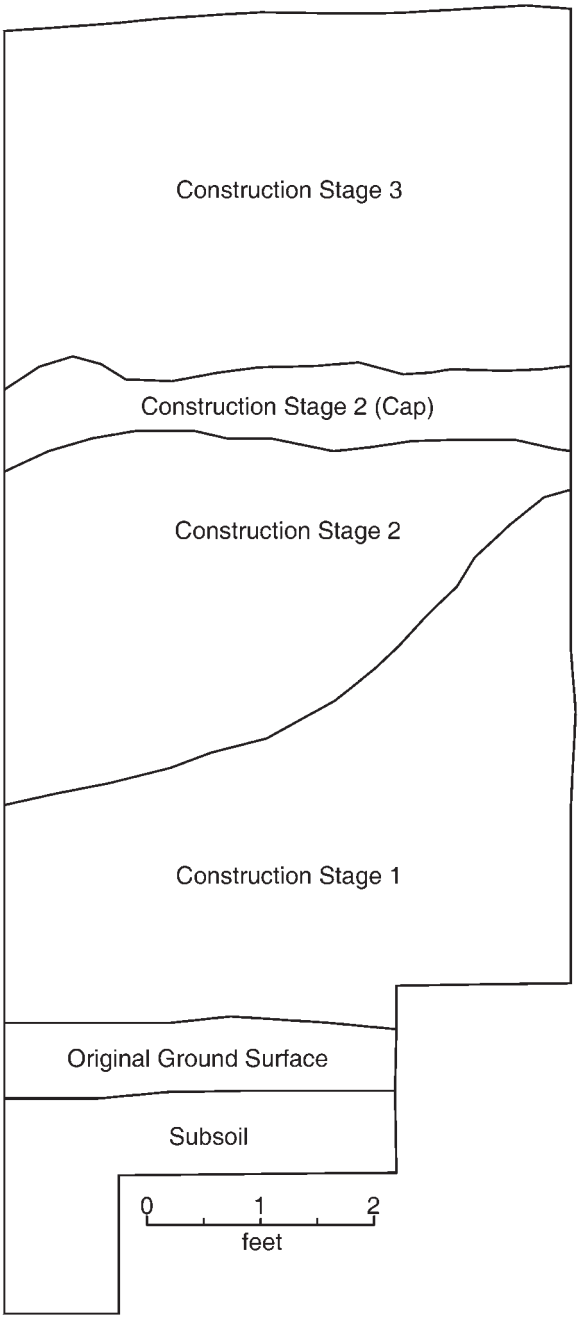


Figure 3-1. Drawing of earthwork excavation unit 500 W-Pit 4 east profile showing stages of earthwork construction (adapted from Williams 1987: Figure 5).

ed of a 6.7-m (22-ft) trench on the north side of the earthwork and a smaller trench on the south side. Artifacts were not found in the fill excavated in Excavation Unit III. Although profile drawings for Excavation Units II and III are not included in the published report (Williams 1987), the same three construction stages presumably were found there as well.

Bluff Midden

Excavation Unit IV consisted of two 5.0-by-5.0-ft pits and a small trench placed in a *Rangia* shell midden located on the bluff overlooking the marshes on the west side of the site (Williams 1987:23). Excavations were located 76 m (250 ft) southeast of the western tip of the earthwork. Williams (1987:23) noted the presence of numerous looter's holes in this midden, which suggests that portions of this deposit may be significantly disturbed. MAA excavations in the bluff midden were limited, so the depth of these deposits and their spatial extent were not determined. The presence of a few shell tempered sherds in this midden indicates a minor Mississippian or, more likely, Historic period component in this area. The majority of ceramics, however, consist of the types Baytown Plain, Marksville Incised, and Marksville Stamped, all diagnostic of the Middle Woodland to early Late Woodland periods (Williams 1987:23). Faunal remains recovered during MAA excavations were recently analyzed by Scott (see Appendix B).

Eighteenth-Century Midden

The MAA excavations also recovered a large number of artifacts from an approximately 45-cm-thick earth and shell midden that represents an eighteenth-century Native American occupation of the site (Williams 1987:61). This midden was found superimposed on the eastern end of the earthwork in Excavation Unit I, and it appears to extend well to the northeast. Excavation Unit V consisted of two 5.0-by-5.0-ft pits located northeast of the eastern end of the earthwork, in an area known from surface exposures to be within the Historic period midden (Williams 1987:24). Excavation Unit V, which consisted of two 5.0-by-5.0-ft squares located approximately 61 m (200 ft) northeast of the east end of the earthwork, sampled this midden as well (Williams 1987:24). Faunal remains recovered during the MAA excavations were recently analyzed by Scott (see Appendix B).

Giardino and Jones Investigations (1989 and 1991)

In 1989 Marco Giardino and Robert Jones (1996), both archaeologists with the nearby NASA Stennis Space Center, supervised volunteers from the LAS and the MAA during an investigation of the shell midden along Mulatto Bayou. The bankline along Mulatto Bayou was augered at a 5-m interval to determine the extent of the shell midden, although its dimensions are not presented in the report (Giardino and Jones 1996:13). Two excavation units, N0W43 and S10W25, investigated areas of interest found during augering (Figure 3-2). These units sampled archaeological deposits dating from Late Archaic to modern times. In 1991 Robert Jones cleaned up and documented the profiles of a trench dug through the western end of the earthwork during placement of an industrial effluent line (Giardino and Jones 1996:2). Giardino and Jones (1996) obtained eight radiocarbon dates during the course of their work, two from the shell midden and six from the earthwork. They put their findings and interpretations into a partially completed, unpublished report (Giardino and Jones 1996), upon which our reconstruction of their investigations is based.

Unit N0W43

Excavation unit N0W43 was excavated in 1.0-by-1.0-m quadrants (Giardino and Jones 1996:14). The northeast quadrant was excavated first in arbitrary 10-cm levels to a depth of 100 cm. Then the remaining quadrants were excavated in natural levels based on the exposed profiles. All soil was water-screened through ¼-inch hardware cloth, and some samples were processed through ⅛-inch screen, as well. The southeast corner of the unit was used as a reference for all depths below surface, given in centimeters below surface (cmbs).

Excavators noted that the upper 50 cm of N0W43 consisted of highly fragmented, compacted, and often burned *Rangia* shell mixed with some aboriginal ceramics and more recent materials (Giardino and Jones 1996:14). They speculated that this upper layer could have been trampled by cattle or crushed by heavy equipment during shell-mining operations that are known to have occurred at the site in the nineteenth century (Giardino and Guerin 1996). Below depths of

Figure 3-2. LAS excavation unit in the shell midden (photograph by Marco Giardino).

around 55 cm, shells were less crushed and more frequently burned, and faunal remains were denser and better preserved (Giardino and Jones 1996:15). Although drawings of this unit's profiles could not be located, photographs clearly show a distinction between the upper and lower portions of the shell deposits in N0W43 (Figure 3-3). Lenses and pockets of sterile sand were present throughout the shell midden, and the authors suggested this may indicate the area was seasonally flooded (Giardino and Jones 1996:16). They noted that most artifacts in the unit were recovered from an approximately 20-cm-thick layer between 53 and 73 cmbs, including Poverty Point objects, projectile points, antler tines, a bone tool, and fish bone

Figure 3-3. West wall of Unit N0W43 (photograph by Marco Giardino).

Figure 3-4. Original ground surface with features at the base of the shell midden in Unit N0W43 (photograph by Marco Giardino).

(Giardino and Jones 1996:16). Unfortunately, nothing more can be said about these artifacts here because they could not be located for analysis.

The base of the shell midden was encountered between 80-90 cmbs, at which point it lay directly on a sterile, sandy layer, likely a natural levee and the original ground surface. A well-preserved hearth (Feature 3) was found around 90 cmbs, at the bottom of the cultural levels and presumably on or near the original ground surface. This hearth contained oyster and *Rangia* shells mixed with charcoal and ash. Materials from the hearth, probably wood charcoal, produced two radiocarbon dates, 1780±80 BC (cal 2455-1920 BC) (Beta 36062) and 1700±80 BC (cal 2280-1775 BC) (Beta 36064) (Giardino and Jones 1996:15). Found near the hearth, and probably in association with it, was a perforated Poverty Point object (see Figure 2-2) (Marco Giardino, personal communication 2007). Several postholes extended from the base of the shell midden into the sterile levee soil below (Figure 3-4). Excavations continued into the original ground surface to a depth of 150 cmbs, but evidently no artifacts were found (Giardino and Jones 1996:16).

Radiocarbon dates suggest the deposits at the base of the shell midden date to the poorly defined Pearl River phase (ca. 3000-1200 BC) of the Late Archaic period (Blitz and Mann 2000: Figure 7.1; Gagliano 1963:116; Gagliano et al. 1982:39). The type site of the Pearl River phase, the Cedarland site (22HA506) (Gagliano 1963:116), located 1 km north of Jackson Landing, resembles this Jackson Landng shell midden in the presence of a pierced Poverty Point object (C. Webb 1982:35) and the absence of pottery (Blitz and Mann 2000:20).

Unit S10W25

Unit S10W25 also was excavated in 1.0-by-1.0-m quadrants, apparently through a combination of arbitrary and natural levels (Giardino and Jones 1996:14-16). All contexts were screened through at least ¼-inch hardware cloth, and some appear to have been water-screened through nested ¼- and ⅛-inch hardware cloth, based on the presence of bags of fine-screen materials from some contexts. The excavators referred to the upper 5 cm of the unit as overburden, which presumably meant recently deposited materials. They noted that deposits between 5 and 20 cmbs consisted of lenses of brown silty loam, dense ash deposits, and *Rangia* shells (Figure 3-5). Artifacts within this layer included bricks, iron objects, and aboriginal ceramics. A radiocarbon date of AD 790±70 (cal AD 690-1015) (Beta 104606) was obtained on charcoal from 10-15 cmbs below the unit's southeast corner (Giardino and Jones 1996:16). The authors considered this date reflective of deposits in the next level (20-30

cmbs), but the date has limited utility since it came from a mixed layer containing deposits from several different time periods.

The excavators noted a change between 20 and 30 cmbs, where the *Rangia* shell midden became denser. Artifacts recovered from this denser layer include a clay elbow pipe (see Figure 2-3), shell tempered pottery, and numerous bones from alligator and deer (Giardino and Jones 1996:17). A lower frequency of ceramics at 30 cmbs corresponded with the recovery of larger *Rangia* shells, a transition to siltier soils, and the appearance of multiple lenses of silty sand. Giardino and Jones (1996:17) attributed the transition layer at approximately 30 cmbs to the late Late Woodland or early Mississippi periods based on the presence of Plaquemine Brushed and some Coles Creek pottery. Deposits between 30 and 85 cmbs contained a preponderance of ceramics from the Marksville series (Giardino and Jones 1996:17), suggesting that they date to the Middle Woodland or early Late Woodland periods. The base of the shell midden was found between 90 and 100 cmbs, where an undisturbed layer of silty loam was encountered. Charcoal, charred wood, postholes, and several shallow pits were present at the interface between the midden and the underlying, undisturbed deposits. Giardino and Jones (1996:17) noted the presence of Marksville Stamped sherds in the fill of some of these features, indicating a Woodland period date.

Investigations of the Earthwork

Giardino and Jones (1996) also conducted a salvage investigation of a portion of the earthwork. This part of their work is not described in their report, although mentioned in the report's abstract. Five radiocarbon dates from the earthwork are presented in their appendix (Giardino and Jones 1996:30-36). The information presented here comes from conversations with Marco Giardino and Robert Jones (personal communication 2007) and from brief descriptions of radiocarbon sample contexts included in the appendix of their report. A portion of the western end of the earthwork was destroyed in 1991 during installation of an effluent-line trench for a nearby industrial operation. Robert Jones was able to salvage some information from this event by drawing profiles of the earthwork exposed in the trench. He also collected artifacts and materials for radiocarbon testing. In contrast to the MAA investigations, in which no cultural materials were found beneath the earthwork, Jones documented the presence of a posthole, a *Rangia* shell, and a fragment of soapstone beneath the earthwork.

Jones obtained two dates on charcoal and one on a *Rangia* shell from the original ground surface buried beneath the earthwork. The charcoal dates are 1380±60 BC (cal 1750-1455 BC) (Beta 104607) and 1370±80 BC (cal 1870-1430 BC) (Beta 104608), with the former coming from charcoal found near a large piece of soapstone (Giardino and Jones 1996:30). These two dates fall near the end of the Pearl River phase of the Late Archaic period. Along with dates associated with the hearth and Poverty Point object at the base of the shell midden, the dates from beneath the earthwork suggest a Pearl River phase occupation along the site's southern and western peripheries. A date of AD 240±70 (cal AD 135-530) (Beta 104605) came from a *Rangia* shell that Jones found in a posthole beneath the earthwork (Giardino and Jones 1996:31). Assuming that this posthole did not originate from the overlying earthwork, and there is no indication that it did, then this date provides a *terminus post quem* for construction of the earthwork.

Jones also obtained two radiocarbon dates from charcoal found in the fill of the earthwork near its base. Notes in the report say that both samples were taken from 5-7 cm above the bottom of Construction Stage I, which presumably corresponds to the initial construction episode within the earthwork identified by Williams (1987:27). Because of their origin within the fill, these dates are only useful for establishing a *terminus post quem* for Construction Stage I. One of the dates, 380±50 BC (cal 730-210 BC) (Beta 104610) (Giardino and Jones 1996:31), is far older than associated evidence suggests is plausible. A second, more recent date from Construction Stage 1, AD 470±40 (cal AD 440-650) (Beta 104609) (Giardino and Jones 1996:32), however, is crucial for establishing a *terminus post quem* for the earthwork.

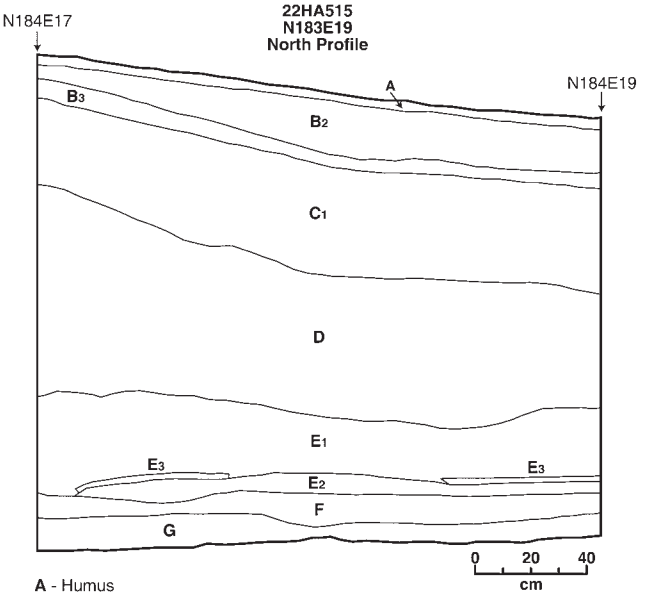
Figure 3-5. West profile of Unit S10W25 (photograph by Marco Giardino).

Coastal Environments, Inc., Investigations (2007)

In 2007 CEI undertook a short field project to test the platform mound and determine when it had been built (Boudreaux 2013a). Dating the mound was the goal of the CEI investigations because it was the only major element of Jackson Landing's site structure about which virtually nothing was known. CEI's mound-testing project consisted of three components. First, data were collected for creation of a contour map of the mound and its immediate environs. Second, portions of the mound and some adjacent areas were cored to guide the selection of promising locations for test units. Third, two excavation units were placed on the mound. Excavation unit N183E19, designated by the grid coordinate of the unit's southeast corner, was a 1.0-by-2.0-m test unit placed on the east side of the mound adjacent to a core that had encountered a pre-mound midden beneath approximately 1.5 m of mound fill. Unit N184E0 was placed on the mound summit and was excavated to a depth of 30 cmbs.

Unit N183E19

Eleven strata were encountered during excavation of unit N183E19. The complex deposits encountered in this test unit have been interpreted as comprising a small number of depositional events that represent the sequence of construction and use of the mound.



A - Humus
B2 - Light brownish gray sandy silt with scattered *Rangia* sp. | colluvium/ slopewash
B3 - Grayish brown sandy loam | buried ground surface
C1 - Gray sandy loam | Stage III moundfill
D - Very dark brown to black sandy loam, heavily mottled with lighter soils | Stage II moundfill
E1 - Basketloaded light to dark grayish brown clayey loam | Stage I moundfill
E2 - Dark yellowish brown clayey loam | Stage I moundfill
E3 - Brownish yellow sandy clay | Stage I moundfill
F - Black sandy loam with dense pockets of rangia | Premound midden
G - Dark yellowish brown sandy loam | Subsoil

Figure 3-6. North profile of N183E19 showing pre-mound midden and stages of mound construction.

These episodes in the history of the mound include formation of a pre-mound midden, three episodes of mound construction, and re-use of the mound summit from the eighteenth century through modern times.

The stratigraphy of N183E19 was best represented in the profile of its north wall (Figures 3-6 and 3-7). The upper 15-20 cm consisted of a buried ground surface (Stratum C) that had formed on top of the third mound construction stage (Stratum D), a layer of colluvium (Stratum B), and the current ground surface (Stratum A). Portions of the mound summit appear to have been cleared and possibly leveled in the relatively recent past, perhaps during modern house construction, and soil from the mound's summit was re-deposited downslope. This layer of colluvium (Stratum B) was distinguished by its loose texture and light brownish-gray color. Also, Stratum B was the only layer to contain scattered *Rangia* shells, which is similar to the mound's current surface. The

Figure 3-7. North profile of N183E19.

Figure 3-8. Feature 1 in the east profile of N183E19.

redeposited soil of Stratum B covered a humus layer that had formed on the mound's slope (Stratum C).

The only feature within N183E19 was a large posthole (Feature 1) at the eastern end of the unit that originated from the buried ground surface of Stratum C (Figure 3-8). Feature 1 was 30 to 60 cm wide and approximately 116 cm deep. Feature 1 contained a number of square nails, suggesting deposition prior to widespread use of wire nails at the end of the nineteenth century (Edwards and Wells 1993:13). An approximate late nineteenth-century date for Feature 1 indicates that burial of the old ground surface (Stratum C) by colluvium could not have occurred before that time. With the exception of a few nails from the deeper parts of Feature 1, all historic and modern artifacts recovered from unit N183E19 came from Strata A, B, and C. Artifacts below 60 cmbs (Level 2), which came from undisturbed mound construction layers or pre-mound midden, consist almost exclusively of ceramics of the Marksville series.

The next 100 to 110 cm consisted of fill associated with construction of the mound (Boudreaux 2011a, 2013a). These mound deposits comprised three distinct episodes of mound construction. The second (Stratum E) and third (Stratum D) mound construction stages consist of a sandy loam. Although both consisted of sandy loam that was identical in texture, Strata D and E were distinguished by differences in color, with a clear visual break between the two. The second mound construction stage (Stratum E) was 40 to 70 cm thick and dark gray in color. The third mound construction stage (Stratum D) was 30 to 35 cm thick and consisted of yellowish brown soil. The low number of artifacts recovered from Strata D and E—just several small sherds of Baytown Plain, *var. unspecified*—is noteworthy, considering that approximately 2 m^3 of fill were excavated and screened.

Figure 3-9. West profile of N184E0.

The first mound construction layer (Stratum F) contained a variety of soils, but consisted mostly of brownish-yellow and yellowish-brown clayey loam, within which individual loads were clearly visible. Stratum F, which was between 25 and 30 cm thick, is distinguished from subsequent mound construction episodes by its higher clay content. The distinctive clayey soil of Stratum F suggests this initial layer may have served a different purpose than the two mound construction stages of sandy silt that followed. The only artifacts within Stratum F were a few sherds of Baytown Plain, *var. unspecified* and a single sherd of Marksville Incised, *var. unspecified* (Boudreaux 2011a, 2013a).

The oldest cultural deposit encountered in test unit N183E19 was a *Rangia* shell and earth midden (Stratum G) located directly on the original ground surface. This midden consisted of black, wet, clayey loam that contained ceramics, bone, charcoal, and *Rangia* shells. The distribution of *Rangia* shells was not consistent across the entire stratum, but occurred in several dense clusters that suggest different dumping episodes. The pre-mound midden was about 10 cm thick and contained animal bone, charcoal, a small amount of debitage, and some pottery. All of the pottery (n=98) was grog tempered and attributable to the Marksville series (Boudreaux 2013a), a group of ceramic types and varieties used during the Woodland period (Blitz and Mann 2000:38-39, 41-42; McGimsey 2010:133; Phillips 1970:886). Most of this pottery was classified as non-diagnostic Baytown Plain, *var. unspecified* (n=35), although the decorated types Marksville Incised, *var. unspecified* (n=5) and Marksville Stamped, *var. unspecified* (n=1) were present (Boudreaux 2011a, 2013a).

Two samples from pre-mound midden deposits were submitted for radiocarbon dating. One sample (Beta 240801) consisted of wood charcoal, from the interface between the pre-mound midden and the original ground surface, that produced a date of AD 380±40 (cal AD 410-575). The second sample (Beta 240802) consisted of *Rangia* shell collected from within the pre-mound midden that produced a date of AD 200±50 (cal AD 135-400). The more recent of these two dates indicates the pre-mound midden was not deposited until around AD 400 or later. Determining a date for the pre-mound midden is important because it provides a *terminus post quem* for all of the overlying mound deposits.

Unit N184E0

A 1.0-by-1.0-m unit was placed on top of the mound to assess the integrity of deposits on the mound summit (Figure 3-9). Test unit N184E0 was excavated

to a depth of 30 cmbs and only two soil layers were encountered. Both of these layers appeared to be within the third mound construction stage encountered in test unit N183E19. Stratum A in N184E0 was a 10-cm layer of slightly sandy silt topsoil that had formed on the surface of the mound. The lower 20 cm (Stratum B) in the unit profile consisted primarily of pale brown slightly sandy silt mottled with lighter browns and yellows. The upper 20 cm of N184E0 contained a mixture of modern and aboriginal artifacts, indicating the top of the mound has been disturbed by modern activities.

Artifacts from N184E0 indicate the presence of mixed Woodland and eighteenth-century components (Boudreaux 2013a). Prehistoric artifacts include grog tempered ceramics (n=23) and one Collins Side-Notched projectile point, a type that dates to the Late Woodland period (ca. AD 500-1000) (McGahey 2000:198-200; Williams and Brain 1983:222-223). Eighteenth-century aboriginal ceramics from N184E0 include a small number of Gulf Historic Fineware (n=2) and shell tempered (n=4) plainware sherds. Decorated types present are La Pointe Combed, *var. unspecified*, Leland Incised, *var. unspecified*, and Port Dauphin Incised, *var. Port Dauphin*. All of these date to the Historic period (ca. AD 1699-1775) (Blitz and Mann 2000:71). Eighteenth-century artifacts from N184E0 also include three European glass trade beads (Boudreaux 2013a)—one each of Brain's (1979:102 and 106) types IIA6, IVB4, and IVB4.

Conclusions

Previous investigations at Jackson Landing have documented a span of human occupation dating at least back to the Late Archaic period. Both the earthwork and platform mound appeared to have been built during the early Late Woodland period. Exactly when, however, was not clear. Important insights regarding the mound include its construction in three stages and the discovery of still intact deposits associated with the first and second stages. In fact, an intact mound surface associated with the second mound construction stage appeared to be present at ca. 60 cmbs across much of the mound (Boudreaux 2013a). Previous investigations also indicated that Woodland period midden deposits, which appear to be contemporaneous with use of the mound, were located in the bluff area on the west side of the site. Previous fieldwork has provided some important insights into Jackson Landing's occupation during the Woodland period, and this information helped to frame the research objectives and fieldwork of the ECU 2010 investigations.

Chapter 4
2010 Fieldwork

The 2010 fieldwork season at Jackson Landing consisted of three major components: (1) mapping; (2) subsurface surveying through various methods that included hand augering with an Oakfield Tube Sampler (see Steponaitis et al. 2009:259), power augering, shovel testing (see Appendix A), excavating 2-inch sediment cores (URS 2011), and geophysical survey (Johnson et al. 2011); and (3) excavations.

All aspects of fieldwork were undertaken to address specific research objectives (see Chapter 1). Mapping was necessary to relate the East Carolina University (ECU) fieldwork to previous fieldwork conducted at the site (Boudreaux 2013a; Giardino and Jones 1996; Williams 1987). Various subsurface survey methods were important for investigating spatial distributions of buried deposits. Hand augering and coring of the mound permitted investigation of the cultural deposits that comprise the mound across an area well beyond what was feasible through excavations alone. Site-wide shovel and power-auger testing allowed investigation of the spatial distribution of cultural components across much of the area within the earthwork. The various subsurface survey methods also revealed intact, buried deposits that could be further investigated through excavation. Excavations were then used to recover artifacts and ecofacts that have allowed inferences about the kinds of activities performed and the time periods represented in various mound and non-mound contexts.

Excavation Grid and Mapping

Two different grids were employed during prior fieldwork at Jackson Landing by the Mississippi Archaeological Association (MAA) (Williams 1987) and the Louisiana Archaeological Society (LAS) (Giardino and Jones 1996). A datum used during MAA excavations was located somewhere on the east end of the earthwork, with a grid origin point (N0E0) somewhere near the northeast corner of the platform mound (Williams 1987:11). Exact locations are not known for either point. The MAA grid could be approximately re-established, sufficient for interpreting their excavations and integrating them with other

Figure 4-1. Former location of USGS benchmark near livestock dip vat along Mulatto Bayou, facing south.

fieldwork at the site. But subsequent excavations obviously could not be based on that grid.

Another grid was established during the 1989 LAS testing of the shell midden. A USGS benchmark located near a livestock dip vat on Mulatto Bayou was the origin point (N0E0) for the LAS excavation grid (Giardino and Jones 1996). Unfortunately, this benchmark is no longer present because, in places, at least 1 m of shoreline and site along Mulatto Bayou has been lost to erosion since those excavations took place (Figure 4-1).

During the 2007 Coastal Environment, Inc. (CEI), mound investigations, the LAS grid was used because it could be more easily and precisely re-established (Boudreaux 2013a). In order to compensate for the missing benchmark, a global positioning system with sub-meter accuracy was used to identify the former location of the LAS datum. The LAS grid was re-established by setting a metal pipe in the ground 7 m north (N7E0) of the datum's former location. This grid point was given an arbitrary elevation of 100 m, and all elevations in this report are relative to that point. A series of stations paralleling Mulatto Bayou (east-to-west) was then established along the N7 line. Another series of stations placed along a north-south line 20 m to the west, along the E20 line, connected the shell midden with the platform mound. A number of stations were subsequently established for making a contour map of the mound. At the end of CEI fieldwork in 2007, metal stakes were driven into the ground at multiple locations along the E20 line to facilitate re-establishing this grid in the future. These buried stakes were used to re-establish the grid during the 2010 ECU fieldwork. Data for a topographic map of the mound were collected during CEI's 2007 investigation of the mound (Figure 4-2). During the ECU project, transects were mapped at a greater distance to provide additional data for this map (Figure 4-3).

Site-Wide Shovel Test Survey

An important part of the 2010 fieldwork was to determine where archaeological deposits were present across the site by systematically surveying areas away from the mound, especially between the earth-

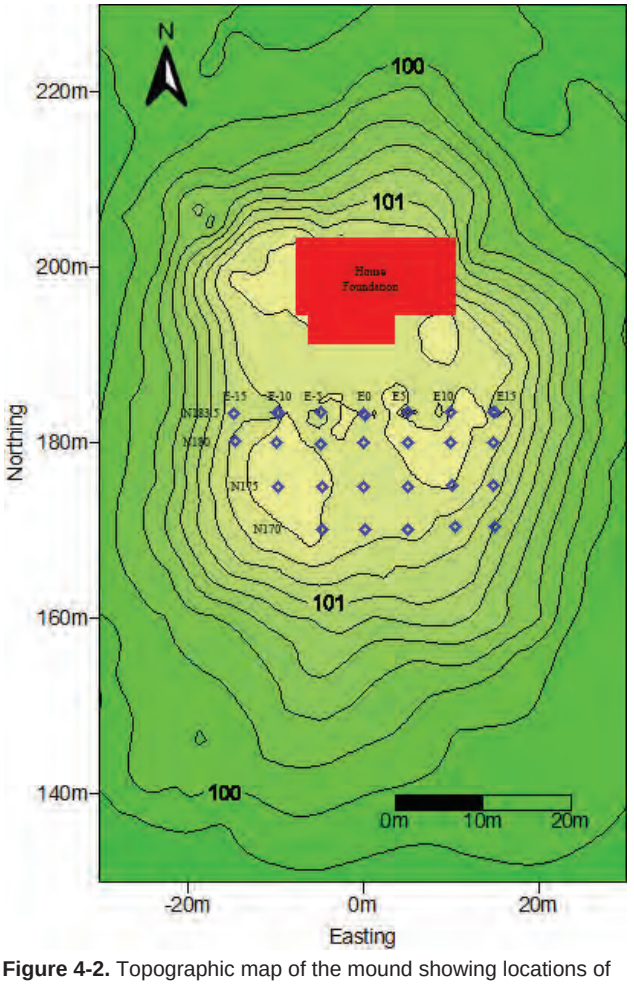


Figure 4-2. Topographic map of the mound showing locations of hand-auger tests.

Figure 4-3. Mapping on the south side of the mound, facing south.

work and Mulatto Bayou. The task of shovel testing large portions of the site was subcontracted to CEI, and the project manager for that survey was Kelsey Lowe. The survey took place in July 2010, while ECU field investigations were underway, so ECU and CEI crews communicated on a daily basis. One outcome was modification of the area to be surveyed by CEI, based on observations made in the field. The original plan called for investigation of approximately 60 acres, the entire area between the earthwork and Mulatto Bayou, with over 200 shovel tests spaced at 30-m intervals. Decisions made in the field, in the end, excluded areas south of the mound and south of the canal at the center of the site, because they are occasionally inundated low-lying wetlands. This reduced the number of potential shovel tests to 136, a further 46 of which were not excavated because they fell in marsh or standing water (Figure 4-4) (Lowe 2011:5).

Twenty-eight of the 90 excavated shovel tests contained cultural materials (Tables 4-1 and 4-2). The survey located four clusters of positive shovel tests within the space between the earthwork and the canal, and a single positive shovel test north of the mound (see Appendix A). The last shovel test (no. 165) contained a Marksville Stamped, *var. Godsey* sherd and a single piece of Gulf Historic Fineware plain pottery. One isolated cluster of eight positive shovel tests (nos. 70, 75, 94, C, E, G, I, and J) is located in the southern part of the site on the edge of a small peninsula surrounded by marsh. Artifacts from this cluster indicate occupations during several time periods. Two retouched bladelets from this cluster suggest an occupation during either the Late Archaic or Gulf Formational periods (Haag and Webb 1953; Webb 1968:303, C. Webb 1982:50). This cluster also produced all of the site's Tallahatta Sandstone—one of the few non-local lithic materials found during the ECU excavations—a material associated with a Poverty Point-era, Gulf Formational component at the nearby Claiborne site (Boudreaux 1999:70). Recovery from this cluster of grog tempered (n=11), sand tempered (n=9), and Gulf Historic Fineware (n=1) pottery indicates the presence of Woodland and Historic period components as well. The only modern artifact, a single nail, may indicate this area is not as disturbed as other parts of the site.

The other three clusters of positive shovel tests are located near each other on the west side of the site. Though separated by negative shovel tests, they likely comprise a single large area of activity. A small cluster of four positive shovel tests (nos. 40, 58, 59, and 63) is located in the northwest part of the site just south of

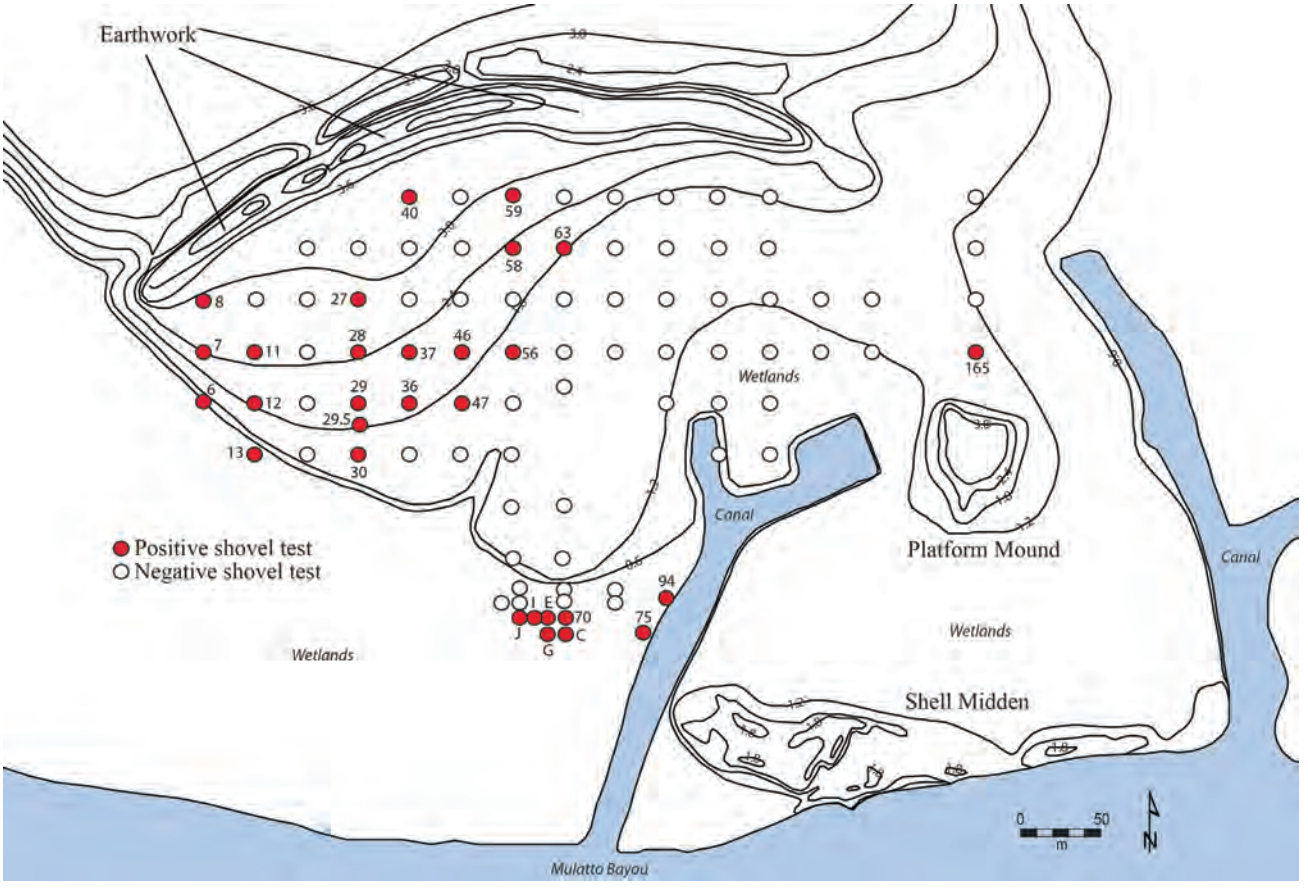


Figure 4-4. Locations of shovel test pits (positive shovel tests are labeled).

Table 4-1. All Artifacts from CEI Shovel Tests.

	6		7		8		11		12		13		27		28		29		29.5		36		37		40		46		47	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Bone and Shell - *Rangia*	-	269.5	-	4.5	-	-	-	16.5	-	-	-	-	-	1.0	-	67.5	-	7.0	-	0.5	-	-	-	84.5	-	8.5	-	18.5	-	-
Ceramics - Aboriginal Pottery	-	-	-	-	-	-	-	-	-	-	1	5.0	-	-	-	-	4	5.0	-	-	7	6.0	1	0.5	-	-	6	31.5	3	6.5
Stone - Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brick - Fragments	-	-	-	-	-	-	-	-	-	-	-	-	3	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal - Fragments	-	-	-	-	7	10.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal - Nail	-	-	1	7.0	8	34.5	-	-	3	8.0	-	-	-	-	-	-	-	-	8	55.5	-	-	-	-	-	-	-	-	-	-
Miscellaneous - Unclassified	2	4.5	-	-	1	1.5	2	1.5	-	-	-	-	1	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	**2**	**274.0**	**1**	**11.5**	**16**	**46.5**	**2**	**18.0**	**3**	**8.0**	**1**	**5.0**	**4**	**10.5**	**0**	**67.5**	**4**	**12.0**	**8**	**56.0**	**7**	**6.0**	**1**	**85.0**	**0**	**8.5**	**6**	**50.0**	**3**	**6.5**

Table 4-1 (Continued).

	56		58		59		63		70		75		94		165		C		E		G		I		J		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Bone and Shell - *Rangia*	-	-	-	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.5	-	-	-	514.0
Ceramics - Aboriginal pottery	2	12.0	-	-	3	15.0	1	1.0	-	-	-	-	1	1.5	2	2.5	1	6.0	6	7.5	11	31.0	2	3.5	9	7.0	60	141.5
Stone - Flakes	-	-	-	-	-	-	-	-	7	17.5	1	0.1	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-	9	18.6
Brick - Fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	6.0
Metal - Fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	10.5
Metal - Nail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.0	-	-	21	108.0
Miscellaneous - Unclassified	-	-	-	-	-	-	-	-		-	-	-	-	-	16	37.5	-	-	-	-	-	-	-	-	-	-	22	48.5
Totals	**2**	**12.0**	**0**	**8.5**	**3**	**15.0**	**1**	**1.0**	**7**	**17.5**	**1**	**0.1**	**1**	**1.5**	**18**	**40.0**	**1**	**6.0**	**7**	**8.5**	**11**	**31.0**	**3**	**34.0**	**9**	**7.0**	**122**	**847.1**

Table 4-2. Aboriginal Pottery from CEI Shovel Tests.

	13		29		36		37		46		47		56		59		63		94		165		C		E		G		I		J		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																																		
Baytown Plain, *var. unspecified*	-	-	4	5.5	-	-	-	-	6	32.0	2	6.0	1	1.0	2	11.5	1	1.0	-	-	-	-	1	6.0	6	8.0	1	5.5	-	-	-	-	24	76.5
Marksville Incised, *var. unspecified*	1	5.0	-	-	1	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	7.0
Marksville Stamped, *var. Godsey*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-	-	-	-	-	1	1.0
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4.5
Marksville Stamped, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5
Plain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3.0	3	3.0
Gulf Historic Fineware																																		
Plain, *var. unspecified*	-	-	-	-	6	5.0	-	-	-	-	-	-	1	11.0	-	-	-	-	1	1.5	1	2.0	-	-	-	-	-	-	-	-	-	-	9	19.5
Sand																																		
Plain, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	23.5	1	3.5	-	-	9	27.0
Unclassified																																		
Small Sherds	-	-	-	-	-	-	1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2.5	-	-	6	4.5	9	7.5
Totals	**1**	**5.0**	**4**	**5.5**	**7**	**7.0**	**1**	**0.5**	**6**	**32.0**	**3**	**6.5**	**2**	**12.0**	**3**	**16.0**	**1**	**1.0**	**1**	**1.5**	**2**	**3.0**	**1**	**6.0**	**6**	**8.0**	**11**	**31.5**	**1**	**3.5**	**9**	**7.5**	**59**	**146.5**

the earthwork. Materials recovered from these shovel tests consist of a small amount of *Rangia* shell and some grog tempered pottery (n=4) that includes Baytown Plain, *var. unspecified* and Marksville Stamped, *var. Newsome*. A cluster of six positive shovel tests (nos. 6, 7, 8, 11, 12, and 13) is located on the western edge of the site, along the bluff edge adjacent to the marsh. This area corresponds to the bluff midden tested by Mark Williams (see Chapter 3) and further investigated by ECU in 2010. CEI shovel tests in this area indicated the presence of dense shell midden deposits. The presence of a Woodland period component, which is consistent with Williams' (1987:28) findings, is indicated by a Marksville Incised, *var. unspecified* sherd, the only piece of pottery recovered in this cluster. A number of metal artifacts also were found, which indicates a Historic period or modern component and that these midden deposits may be disturbed. The third cluster in the western part of the site consists of 10 shovel tests (nos. 27, 28, 29, 29.5, 30, 36, 37, 46, 47, and 56). These tests recovered a large amount of *Rangia* shells and some modern materials, such as bricks and nails. A relatively large number of grog tempered sherds (n=15) and some Gulf Historic Fineware pottery (n=7) indicate components dating to the Woodland and Historic periods.

Overall, information from the shovel test survey suggests some interesting patterns in the distribution of activities within the area between the earthwork and the canal. This survey identified a Late Archaic or Gulf Formational period component in the southern part of the site, and excavations in the nearby Mulatto Bayou shell midden encountered Late Archaic deposits (Giardino and Jones 1996). So activities during early periods in the site's history seem focused on the southern portions of the site along Mulatto Bayou. A small number of Gulf Historic Fineware sherds indicate utilization of the western and southern parts of the site by Native Americans during the eighteenth century, but the intensity of activities there seems far less than those documented around the mound and the eastern end of the earthwork. The distribution of grog tempered pottery reflects Woodland period activities in the northern, western, and southern parts of the site. The presence of pottery types Marksville Incised and Marksville Stamped suggests these activities were contemporaneous with construction and use of the earthwork and mound. Two observations are important regarding the distribution of Woodland ceramics. First, they occur in relatively low density. Second, although there clearly were small areas utilized during the Woodland period—perhaps during a time that coincides with use of the mound and earthwork—much of the space within the earthwork shows no evidence of use during the Woodland period. In particular, the central part of the site seems to have been completely unoccupied, which leaves a striking gap between the mound and its adjacent deposits on the east side of the site and the clusters of positive shovel tests on the west side of the site.

Mound Investigations

Goals of the mound investigations included (1) recovering artifacts and ecofacts to investigate activities that took place on the mound, and (2) more accurately dating the mound's sequence of construction. Identifying and excavating discrete deposits associated with the mound's three construction stages were essential to realizing these goals. ECU's investigation of the mound included systematically hand augering the southern half, excavating power-auger tests along the flanks and in adjacent off-mound areas, and excavating eight units.

Hand augering of the mound in 2007 by CEI suggested the presence of a buried mound-summit surface approximately 60 cm below the mound's current summit (Boudreaux 2013a). An initial objective of the 2010 mound investigation was to expose a large area of this summit and excavate features associated with that buried surface. This buried mound surface was reached in multiple locations during 2010 fieldwork and several associated features were excavated. A large area of this buried summit could not be exposed, however, due to instability of rain-saturated profiles after Hurricane Alex passed through the area in early July. Excavated mound contexts include mound fill from several stages of mound construction, features associated with two buried mound surfaces, portions of a mound-flank midden associated with the mound's first construction stage, and a pre-mound midden.

Hand-Auger Testing

Excavation of 17 hand-augered cores across the mound in 2007 indicated the presence of a buried mound-summit surface at 60 cmbs across much of the mound (Boudreaux 2013a). In 2010, 28 additional hand-auger cores were excavated (see Figure 4-2), primarily on the south side of the mound summit (Figure 4-5). These cores were taken at a 5-m interval, and most were excavated to depths between 1.5 and 2.0 m below surface. Currently, much of the north side of the mound summit is covered with concrete slabs and chain-wall foundations associated with a modern house destroyed by Hurricane Katrina (Figure 4-6). Although surface obstructions also are present on the south side of the mound, the southern portion of the mound summit was the focus of augering because its surface is relatively open and clear, since modern

structures in this area had been elevated on piers (Figures 4-7 and 4-8). Additionally, because structures had been elevated on piers in the southern area, we hoped the mound would be less disturbed there.

Augering the south side of the mound provided three important pieces of information about the underlying mound structure that helped guide placement of excavation units. First, the southwestern quadrant of the mound was avoided during excavations because augering at N175E5 showed disturbed soil to a depth of approximately 1.0 m below surface. Substantial brick piers on the surface of the southwest portion of the mound suggest substantial modern construction in this area. Second, augering indentified an area of intact midden deposits on the south side of the mound at a depth of approximately 1.0 m below surface, an area that immediately became a priority for testing. Third, augering near the center of the mound encountered a dark black soil layer at approximately 65 cmbs that was at least 40 cm thick in places. Whether this layer was a discrete feature or simply a dark layer of mound fill was unclear from augering.

Figure 4-5. Hand-augering the south side of the mound, facing southwest.

Figure 4-6. View of the north side of the mound, facing south.

Excavations

One reason the mound had never been tested is that its summit had been occupied for years by a structure. Understandably, past proposals for mound excavations had been thwarted by landowner concerns about digging around the buildings on the summit. During testing directed by Giardino and Jones in the 1980s, the structure was a private residence and the occupants did not want archaeologists digging around their house. In subsequent years, after the property was acquired by GE Plastics, the structures served as an interpretive center. The buildings on the mound summit were destroyed, however, on August 29, 2005 when the eye of Hurricane Katrina made landfall at the mouth of the Pearl River, covering the Jackson Landing site with a storm surge of 20 ft or more (URS 2006:37).

Eight excavation units were placed on the mound (Figure 4-9), their arrangement determined by information collected during coring and based on CEI's

Figure 4-7. View of the south side of the mound, facing west.

Figure 4-8. View of the modern structural remains on the mound summit, facing north.

previous testing of the mound (Boudreaux 2013a). Units were placed so they avoided possibly disturbed areas, sampled areas of interest, and exposed enough of the mound deposits in contiguous sections to confidently establish its sequence of construction and use. Hand augering in 2010 indicated the southwestern part of the mound might be relatively more disturbed than other areas, so that quadrant was avoided during excavations. Augering also identified two areas of interest to be investigated by excavation: a buried midden on the south side of the mound, and a buried layer of dark black soil near the center of the mound.

Three units (N168E6, N168E8, and N171E6) were clustered along the E6 line, on the south side of the mound, to investigate buried midden deposits identified in cores. Additionally, the east and west profiles of N171E6 and N168E6 provided a north-south exposure of mound deposits that spanned 5 m.

A second cluster of five units (N183E7, N183E10, N183E12, N183E15, N181E6) was placed near the center of the mound. Units in the central mound area allowed investigation of the buried dark black soil layer identified during coring. Additionally, in conjunction with the earlier CEI units, these units exposed mound deposits along an approximately 14-m east-west cross section of the mound. One of these, N181E6, was aligned along the E6 line with two of the southern units. The other four units were placed along the N183 line, which aligned them with the two CEI units from 2007.

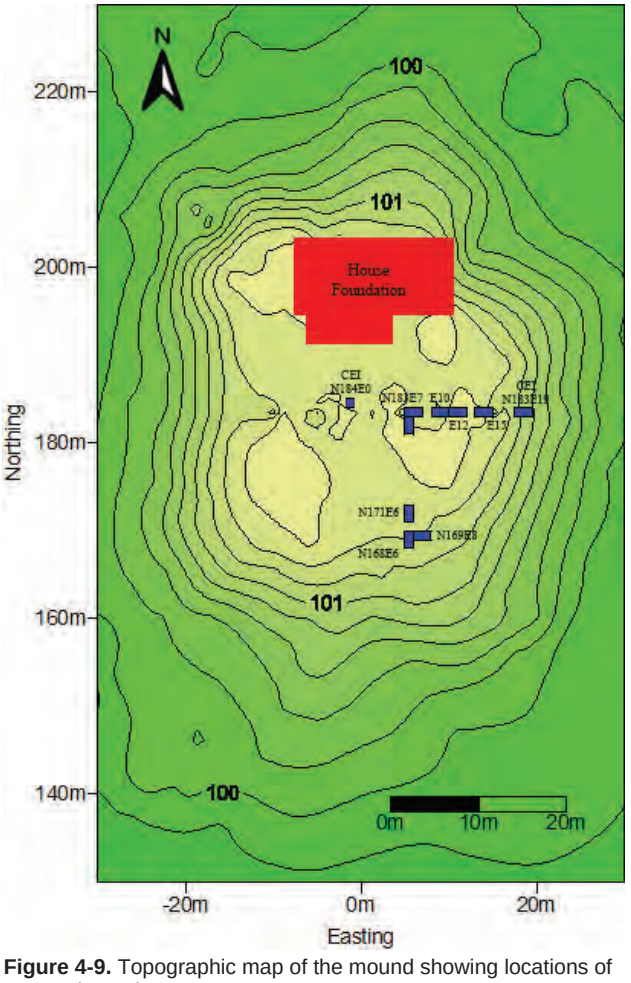


Figure 4-9. Topographic map of the mound showing locations of excavation units.

These units were originally placed along the E6 and N183 lines to serve as exploratory 1.0-by-2.0-m units excavated in 30-cm levels. Adjacent units would be excavated in discrete soil layers based on the profiles exposed and documented in the exploratory units (see Knight 2010:75). Augering the mound in 2007 and 2010 indicated the presence of a buried mound-summit surface at approximately 60 cmbs. Exploratory units were excavated in large levels (30 cm) so the 60-cmbs depth could be reached quickly. We planned to excavate three levels to 90 cmbs, below the target surface, then document the deposition of soil layers, which would facilitate excavation of adjacent units by discrete soil zones, thereby separately recovering and analyzing the different episodes of mound construction and use (see Knight 2010:75). North-south and east-west exposures of mound deposits along the E6 and N184 lines would enable excavators to understand deposits in the southeast quadrant of the mound relatively well, so excavations could expand by moving from exposed, documented profiles into adjacent units.

The only unit in the southern part of the mound that followed this intended process was N169E8, which was excavated in zones based on soil deposition episodes visible in an exposed profile. Unfortunately, the passage of Hurricane Alex through the area on July 1, 2010 played havoc with our mound excavations and the original plan proved no longer viable. Soils used to build the mound at Jackson Landing are primarily sandy loams, which make for easy digging and ideal screening, but maintaining the integrity of vertical profiles was always a concern, and we were aware that excavations below a certain depth would have to be stepped down for safety. There were no problems with profiles collapsing during either the CEI fieldwork in 2007 or the initial 2010 excavations during the month of June. Heavy rainfall from Hurricane Alex, however, saturated the ground and this destroyed the excavation units.

Although the mound has withstood all that Mother Nature has thrown at it for over 1000 years, the combination of exposed soils in open pits and significant rainfall that occurred in July 2010 had an extraordinary effect on the mound. Major failures occurred in all profiles in all units as our rectangular, straight-sided excavation units turned into round, mud-filled pits (Figure 4-10). It was unlike anything any of us had

ever seen. Walls of units were completely destroyed and each unit filled with mud and muck. Huge crevices developed laterally from the walls of the units where entire soil layers eroded from the excavation walls into the mound for several meters (Figure 4-11). Fortunately, though, a concerted effort to complete profile drawings the day prior to Hurricane Alex's arrival documented the stratigraphy of nearly all excavation units before they were destroyed. Otherwise, our excavation efforts would have been a total loss. In the one unit where profiles had not been drawn (N183E15), the damaged walls were subsequently cut back and the strata documented.

Our initial recovery plan was to muck out the units, cut back the damaged profiles, and continue excavations as originally intended. However, mound soils were so unstable that profiles could not be maintained. This was the case even with units that were temporarily back-filled and re-excavated weeks later, on the chance that perhaps there had been sufficient time for them to dry out. Instead, once excavations extended below about 40 cm, entire sections of walls would collapse. In the case of N183E15, a unit whose profiles had not been drawn prior to Hurricane Alex, the unit was re-excavated and within minutes of the profile being cut back and troweled, large sections began to collapse (Figures 4-12 and 4-13).

Excavations in most units were abandoned after wall failures caused by Hurricane Alex. Two exceptions were units N168E6 and N171E6, on the south side of the mound. In both units, excavators had been removing layers of mound-flank and pre-mound midden at the time of the wall collapses. Excavations continued in these units because these midden deposits were critical for understanding initial construction and use of the mound. Continuing excavations in these units was not an easy task; both units had completely filled with water and mud, and the walls were completely unstable. Shoring and bracing with plywood and lumber stabilized the walls, kept the muck out, and protected excavators. In N171E6 the upper meter or so of the unit was expanded and the unit stepped down. The entire unit was then shored with plywood and bracing (Figure 4-14). In N168E6 a cofferdam of sorts was built from plywood and lumber (Figure 4-15), and cofferdam walls were gradually tapped deeper into the unit as muck was excavated from its interior. Pre-mound midden was reached in

Figure 4-10. Collapsed walls of units N183E10 and N183E12 after Hurricane Alex, facing east.

Figure 4-12. Cleaning the walls of N183E15 after its re-excavation. Note the standing water in the sump at the center of the unit.

Figure 4-11. Collapsed walls of unit N171E6, facing east.

Figure 4-13. Portion of the south wall of N183E12 that collapsed minutes after being re-excavated and trowelled for photography.

both units after approximately four days of shoring, bracing, and excavating the muck and mud that filled the original excavations. Midden deposits were clearly distinguished from muddy wall collapse based on the midden's dark color, compact soil, and dense amounts of *Rangia* shells.

Southern Mound Area Units

Three units were placed at the southern end of the mound to investigate buried midden deposits detected during coring. Two were excavated on the summit and one was placed on the slope of the mound. These units revealed three episodes of mound construction that correspond with those identified in 2007 on the east side of the mound in CEI Unit N183E19 (Boudreaux 2013a). These are referred to as Mound Stages I, IIB, and III in this report. An additional episode of mound construction, Stage IIA, was identified near the center of the mound. Excavations in the southern part of the mound also encountered two discrete midden deposits. One was a mound-flank midden associated with Stage I and the other was a pre-mound midden. Artifact data from excavations in the southern mound area are presented in Tables 4-3 to 4-5.

Figure 4-14. Excavations in N171E6 (foreground) and N168E6 (background) after Hurricane Alex.

N168E6 began as a 1.0-by-2.0-m unit, but changed to a 1.0-by-1.0-m unit when a human burial was discovered near the top of Level 2, in the southeast corner of the unit, at approximately 35 cmbs (Figure 4-16). Once discovered, this burial was isolated and left unexcavated until MDAH could be consulted and a plan of action developed. After discussing the matter with MDAH, which in turn consulted the Mississippi Band of Choctaw Indians, a plan was developed to expose the burial, document it *in situ*, and re-bury the individual. However, the extensive damage to excavations caused by Hurricane Alex forced us to abandon this plan. While the burial itself was not damaged by flooding and wall collapse, the area immediately surrounding it was significantly impacted and the burial was in danger of collapse. In order to preserve this burial, the surrounding area was shored with a

Figure 4-15. Excavations in N168E6 after Hurricane Alex.

Figure 4-16. Exposing Burial 1 at the top of Level 2 in N168E6. Note Feature 4 after excavation in the background.

Table 4-3. Aboriginal Pottery from the Southern Mound Units.

	N168E6										N169E8																			
	Lv 1		Lv 2		Lv 4		Lv 5		Lv 6		Zn 1		Zn 2		Zn 3		Zn 3/4		Zn 4		Zn 5, Lv 1		Zn 5, Lv2		Zn 5, Lv 3		Zn 5, Lv 4		Zn 5, Lv 4+	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																														
Baytown Plain, *var. unspecified*	7	33.0	-	-	24	244.0	23	231.5	13	132.5	20	108.5	2	5.5	6	32.0	3	15.0	4	22.5	2	5.5	1	2.5	5	37.5	3	43.5	27	211.0
Marksville Incised, *var. Spanish Fort*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	35.5
Marksville Incised, *var. unspecified*	1	3.0	1	5.0	1	2.5	-	-	-	-	-	-	2	11.0	1	3.0	1	14.5	-	-	-	-	-	-	-	-	-	-	1	2.5
Marksville Stamped, *var. Manny*	-	-	-	-	-	-	-	-	-	-	-	-	1	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	1	7.0	-	-	1	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	13.5
Marksville Stamped, *var. Troyville*	1	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. unspecified*	-	-	-	-	-	-	1	23.0	-	-	2	9.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified Incised	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	25.0
Gulf Historic Fineware																														
Chickachae Combed, *var. unspecified*	1	5.5	-	-	-	-	-	-	-	-	1	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kemper Combed, *var. unspecified*	1	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leland Incised, *var. unspecified*	1	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plain	5	24.5	1	3.5	-	-	-	-	-	-	5	10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Port Dauphin Incised, *var. Port Dauphin*	2	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand																														
Indian Pass Incised, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plain	1	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell																														
Bell Plain, *var. unspecified*	2	4.0	1	6.0	-	-	-	-	-	-	1	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mississippi Plain, *var. unspecified*	4	19.0	-	-	-	-	-	-	-	-	8	24.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tchefuncte																														
Lake Borgne Incised, *var. Lake Borgne*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified																														
Small Sherds	49	53.5	1	1.5	23	16.5	26	21.5	16	8.5	63	64.0	11	9.0	11	3.5	11	9.0	5	3.5	7	2.5	1	0.5	10	13.5	4	1.0	63	47.5
Totals	**75**	**166.5**	**4**	**16.0**	**48**	**263.0**	**50**	**276.0**	**30**	**148.0**	**100**	**221.5**	**17**	**33.5**	**18**	**38.5**	**15**	**38.5**	**9**	**26.0**	**9**	**8.0**	**2**	**3.0**	**15**	**51.0**	**7**	**44.5**	**94**	**335.0**

Table 4-3 (Continued).

	N171E6																	
	Lv 1		Lv 2		Lv 3		Lv 4		Lv 5		Lv 6		Base Lv 6		Lv 7		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																		
Baytown Plain, *var. unspecified*	8	30.5	16	89.5	10	58.0	3	16.5	1	10.5	11	60.5	10	64.0	8	26.5	207	1480.5
Marksville Incised, *var. Spanish Fort*	-	-	-	-	-	-	-	-	-	-	1	77.0	-	-	-	-	2	112.5
Marksville Incised, *var. unspecified*	2	14.0	6	31.0	-	-	-	-	-	-	2	6.5	1	8.0	1	3.5	20	104.5
Marksville Stamped, *var. Manny*	-	-	-	-	-	-	-	-	-	-	1	6.0	-	-	-	-	2	10.0
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	-	-	-	-	1	3.0	-	-	4	27.5
Marksville Stamped, *var. Troyville*	-	-	1	3.0	-	-	-	-	-	-	-	-	-	-	-	-	2	8.0
Marksville Stamped, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	32.0
Unclassified Incised	-	-	-	-	-	-	-	-	1	5.5	-	-	-	-	-	-	2	30.5
Gulf Historic Fineware																		
Chickachae Combed, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	7.0
Kemper Combed, *var. unspecified*	1	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5.5
Leland Incised, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5.5
Plain	10	28.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	66.0
Port Dauphin Incised, *var. Port Dauphin*	2	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	10.5
Sand																		
Indian Pass Incised, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.5	1	2.5
Plain	-	-	1	4.5	-	-	-	-	-	-	-	-	-	-	-	-	2	9.0
Shell																		
Bell Plain, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	14.0
Mississippi Plain, *var. unspecified*	13	45.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	89.0
Tchefuncte																		
Lake Borgne Incised, *var. Lake Borgne*	1	18.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	18.5
Unclassified																		
Small Sherds	29	35.5	41	37.5	14	15.5	2	1.0	4	3.5	15	13.5	11	10.0	15	14.0	432	386.0
Totals	**66**	**179.0**	**65**	**1564.0**	**24**	**73.5**	**5**	**17.5**	**6**	**19.5**	**30**	**163.5**	**23**	**85.0**	**25**	**46.5**	**737**	**2419.0**

Table 4-4. Lithics from Excavation Units.

	N168E6				N169E8								N171E6										N183E7						N183 E10		N183E12			
	Lv 1		Lv 4		Zn 1		Zn 3		Zn 3/4		Zn 5, Lv 4+		Lv 1		Lv 2		Lv 3		Lv 5		Lv 6		Lv 1		Lv 2		Lv 3		Zn 5		Lv 1		Lv 4	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Chipped Stone																																		
Bifacial Tools																																		
Projectile Point	2	3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.9	-	-	-	-	-	-	-	-
Unclassified Biface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	6.2	-	-
Flake Tools																																		
Retouched Flake	1	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debitage																																		
Flake	7	1.0	-	-	4	1.0	-	-	1	0.6	1	3.9	2	1.6	3	2.3	1	0.2	1	5.9	1	0.1	3	1.2	-	-	-	-	1	0.50	-	-	-	-
Shatter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ground Stone																																		
Celt Fragments	-	-	1	13.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified Ground Stone	-	-	-	-	-	-	1	12.7	1	26.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	50.4	-	-	-	-	1	9.1
Unmodified Stone																																		
Unclassified Unmodified Stone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	**10**	**5.9**	**1**	**13.2**	**4**	**1.0**	**1**	**12.7**	**2**	**27.1**	**1**	**3.9**	**2**	**1.6**	**3**	**2.3**	**1**	**0.2**	**2**	**6.9**	**1**	**0.1**	**3**	**1.2**	**1**	**0.9**	**1**	**50.4**	**1**	**0.5**	**1**	**6.2**	**1**	**9.1**

Table 4-4 (Continued).

	N183E15				N183E19		N192E-426								N192.2 E-423.7		N193.2E-423.7				N195 E-412		N218.7E19.8					
	Lv 1		Lv 4		Lv 5		Zn 1		Zn 1/2		Zn 2		Zn 3		Lv 3		Lv 4		Lv 5		Lv 2		Lv 6		Lv 7		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Chipped Stone																												
Bifacial Tools																												
Projectile Point	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4.6
Unclassified Biface	1	11.3	-	-	-	-	1	3.2	-	-	-	-	1	1.2	-	-	-	-	-	-	1	2.1	-	-	1	2.8	6	26.8
Flake Tools																												
Retouched Flake	-	-	-	-	-	-	-	-	-	-	-	-	1	2.4	-	-	-	-	-	-	-	-	-	-	-	-	2	3.6
Debitage																												
Flake	-	-	1	0.2	1	0.5	4	8.0	-	-	12	41.5	7	20.0	1	0.7	-	-	1	3.8	-	-	1	0.1	1	0.3	54	93.4
Shatter	1	1.9	-	-	-	-	1	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4.3
Ground Stone																												
Celt Fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	13.2
Unclassified Ground Stone	-	-	-	-	-	-	1	0.2	-	-	3	20.1	-	-	-	-	1	1.8	-	-	-	-	-	-	-	-	9	120.8
Unmodified Stone																												
Unclassified Unmodified Stone	-	-	-	-	-	-	-	-	1	62.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	62.2
Totals	**2**	**13.2**	**1**	**0.2**	**1**	**0.5**	**7**	**12.8**	**1**	**62.2**	**15**	**61.6**	**9**	**23.6**	**1**	**0.7**	**1**	**1.8**	**1**	**3.8**	**1**	**2.1**	**1**	**0.1**	**2**	**3.1**	**79**	**328.9**

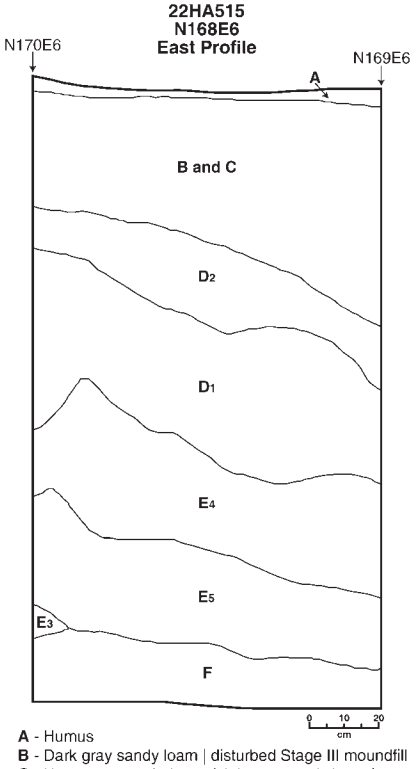
sheet of tin and braced with lumber. The space behind the tin sheet was then backfilled and the burial area re-filled to ground level.

Although Burial 1 was not excavated, there are indications it relates to the eighteenth-century Native American occupation of the site. First, a relatively shallow depth (ca. 35 cmbs) indicates it post-dates deeper, older deposits in the mound that clearly date to the early Late Woodland period. Second, several eighteenth-century artifacts of native and European manufacture were found in the soil immediately above and around Burial 1. These artifacts include European glass trade beads, a French gunspall of honey-colored chert, and ceramics from the Gulf Historic Fineware series. The presence of a Historic period Native American burial in the mound at Jackson Landing is not surprising, based on the significant eighteenth-century occupation documented at the site (Williams 1987).

In order to avoid Burial 1, only the northern 1.0 m of N168E6 was excavated below Level 1 (Figure 4-17). This portion of the unit was excavated to a depth of

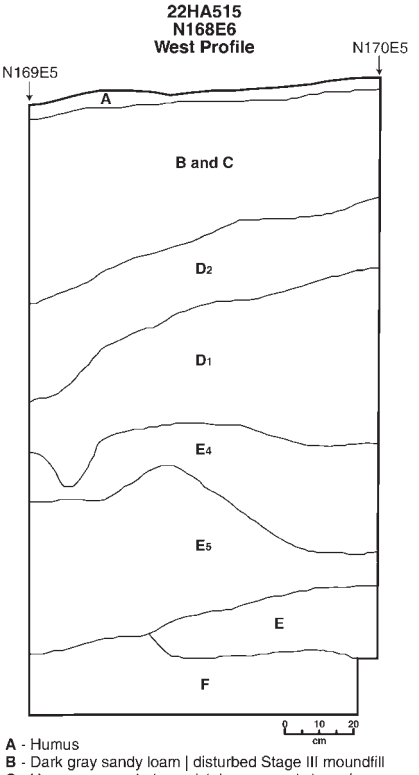
Figure 4-17. Excavation of the north half of N168E6, facing north.

Figure 4-19. East profile of N168E6.



A - Humus
B - Dark gray sandy loam | disturbed Stage III moundfill
C - Homogenous, dark grayish brown sandy loam | Stage III moundfill
D1 - Homogenous gray sandy loam | Stage IIB moundfill
D2 - Homogenous very dark gray sandy loam | Stage IIB moundfill
E3 - Brownish yellow sandy clay | Stage I moundfill
E4 - Black sandy loam with dense pockets of rangia | Stage I flank midden
E5 - Black sandy loam | Stage I flank midden
F - Black sandy loam with dense pockets of rangia | Pre-mound midden

Figure 4-18. East profile of N168E6.



A - Humus
B - Dark gray sandy loam | disturbed Stage III moundfill
C - Homogenous, dark grayish brown sandy loam | Stage III moundfill
D1 - Homogenous gray sandy loam | Stage IIB moundfill
D2 - Homogenous very dark gray sandy loam | Stage IIB moundfill
E - Light gray sandy loam | Stage I moundfill
E4 - Black sandy loam with dense pockets of rangia | Stage I flank midden
E5 - Black sandy loam | Stage I flank midden
F - Black sandy loam with dense pockets of rangia | Pre-mound midden

Figure 4-20. West profile of N168E6.

Table 4-5. Euroamerican Artifacts from Excavation Units.

	Feat. 5		N168E6				N169 E8		N171E6				N181E6				N183E7				N183E10		N183E12		N183E15	
			Lv 1		Lv 2		Zn 1		Lv 1		Lv 4		Lv 1		Lv 2		Lv 1		Lv 3		Zn 1		Lv 1		Lv 1	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Ceramics																										
Coarse earthenware, green lead-glazed	-	-	1	1.0	-	-	-	-	-	-	-	-	1	0.5	-	-	3	2.0	-	-	2	3.0	-	-	-	-
Faience Blanche, Normandy Blue-on-White	-	-	1	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	-	-	-	-
Pearlware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-
Pearlware, hand-painted	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	-	-	7	11.5	-	-	-	-	-	-	-	-
Stoneware, white salt-glazed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-	-	-	-	-
Glass																										
Container, dark olive green	-	-	-	-	-	-	-	-	-	-	-	-	1	3.0	-	-	-	-	-	-	-	-	-	-	1	2.0
Container, modern	-	-	-	-	-	-	-	-	3	7.0	-	-	1	3.0	-	-	3	6.5	-	-	2	1.0	-	-	1	0.5
Flat	-	-	-	-	-	-	-	-	1	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5.5
Projectile point	-	-	1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bead, Type IIA1	-	-	2	1.0	1	1.0	1	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bead, Type IIA6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-
Bead, Type IIA7	-	-	-	-	-	-	1	0.1	2	0.5	1	0.5	-	-	-	-	-	-	-	-			-	-	-	-
Bead, Type IIB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-
Bead, Type IIB2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0	-	-	-	-
Bead, Type IVB1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-	-	-	-	-	-	-
Bead, Type WIE4	-	-	-	-	-	-	-	-	1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal																										
.22 caliber slug	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.0
Lead ball	-	-	1	12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brass button, Type B-111A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.0	-	-	-	-	-	-	-	-
Iron blade	-	-	-	-	-	-	-	-	1	13.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cut nail	-	-	2	25.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wire nail	-	-	1	4.5	-	-	-	-	6	27.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	7.5
Unclassified nail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shotgun shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4.0	-	-	-	-	-	-	-	-
Iron fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	22.0	-	-	-	-	1	0.5
Lead fragments	-	-	3	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unidentified fragments	20	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stone																										
Gunspall, French flint	-	-	1	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	**20**	**6.0**	**13**	**58.1**	**1**	**1.0**	**2**	**0.6**	**14**	**49.6**	**1**	**0.5**	**4**	**4.5**	**1**	**0.5**	**19**	**26.5**	**4**	**22.0**	**8**	**7.0**	**1**	**0.5**	**10**	**18.0**

Note: All bead types are based on Brain (1979) and Kidd and Kidd (1970).

Table 4-5 (Continued).

	N189.5E-410.7				N192.2E-423.7						N193.2E-423.7						N218.7E19.8							
	Lv 1		Lv 2		Lv 1		Lv 2		Lv 3		Lv 1		Lv 2		Lv 3		Lv 2		Lv 3		Lv 7		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Ceramics																								
Coarse earthenware, green lead-glazed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	6.5
Faience Blanche, Normandy Blue-on-White	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2.0
Pearlware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5
Pearlware, hand-painted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	12.5
Stoneware, white salt-glazed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5
Glass																								
Container, dark olive green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5.0
Container, modern	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	19.0	8	11.5	-	-	27	45.5
Flat	-	-	-	-	-	-	-	-	-	-	27	26.5	40	36.0	2	1.5	1	0.5	2	0.5	-	-	74	71.5
Projectile point	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.1
Bead, Type IIA1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	2.5
Bead, Type IIA6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5
Bead, Type IIA7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1.1
Bead, Type IIB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5
Bead, Type IIB2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.0
Bead, Type IVB1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5
Bead, Type WIE4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.1
Metal																								
.22 caliber slug	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.0	-	-	-	-	2	4.0
Lead ball	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	12.0
Brass button, Type B-111A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.0
Iron blade	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	13.5
Cut nail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5.0	-	-	3	30.5
Wire nail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	55.0	-	-	-	-	30	94.5
Unclassified nail	5	14.5	2	11.5	-	-	-	-	-	-	-	-	-	-	-	-	2	5.0	-	-	-	-	9	31.0
Shotgun shell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4.0
Iron fragments	-	-	-	-	20	13.0	22	43.0	1	1.5	-	-	-	-	-	-	-	-	13	38.5	2	1.0	63	119.5
Lead fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5.5
Tin fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	-	-	-	-	1	0.5
Unidentified fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	6.0
Stone																								
Gunspall, French flint	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	7.5
Totals	**5**	**14.5**	**2**	**11.5**	**20**	**13.0**	**22**	**43.0**	**1**	**1.5**	**27**	**26.5**	**40**	**36.0**	**2**	**1.5**	**33**	**82.0**	**24**	**55.5**	**2**	**1.0**	**276**	**480.8**

Note: All bead types are based on Brain (1979) and Kidd and Kidd (1970).

Figure 4-21. West profile of N168E6.

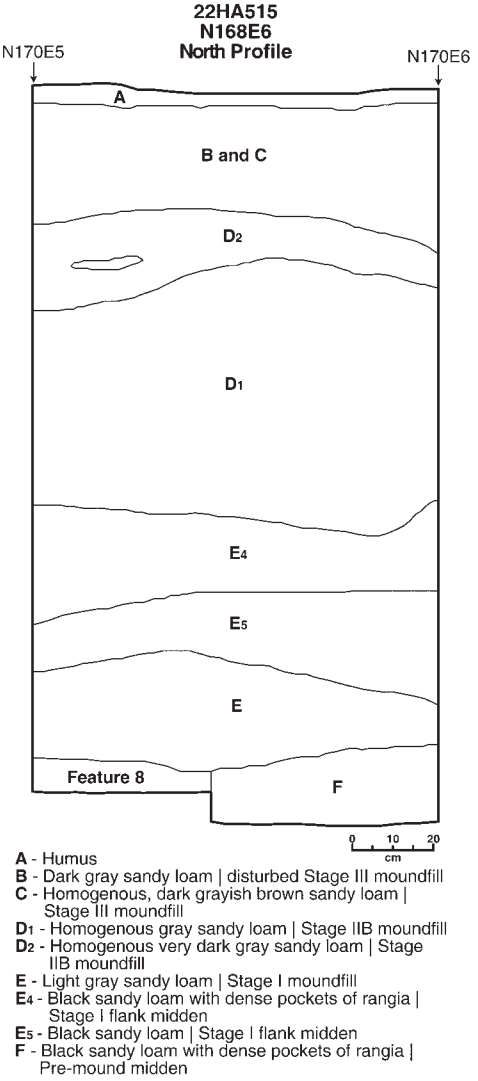


Figure 4-22. North profile of N168E6.

Figure 4-23. North profile of N168E6.

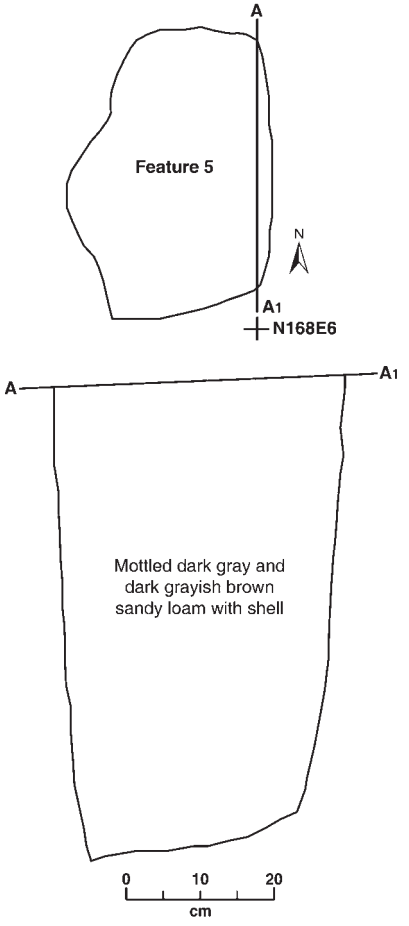


Figure 4-24. Plan view and cross section of Feature 5.

171 cmbs in six 30-cm levels. Depth below surface is relative to the unit's northeast corner, which was the highest elevation when excavations began. The base of this unit excavation had not reached subsoil when the walls collapsed from Hurricane Alex, so the unit was not completed. Excavations in the adjacent unit to the east (N169E8), however, indicate that the base of N168E6 was only a few centimeters from undisturbed subsoil when excavations ended.

Several soil layers were encountered during excavation of N168E6 (Figures 4-18 to 4-23). Stratum A consisted of humus recently formed at the current ground level. Strata B and C comprised a thick layer of yellowish brown sandy loam, part of Mound Stage III, the third and final episode of mound construction. Feature 5, a pit, was recognized within Strata B and C at about 25 cmbs (Figures 4-24 and 4-25). This pit was about 40 cm in diameter and about 70 cm deep. The shallow depth of Feature 5 and the fact that it contained a number of metal fragments indicates an eighteenth-century or later date. Stratum D_2 was an approximately 10-cm thick layer of very dark gray sandy loam. Stratum D_1 was a 20 to 40-cm thick layer of predominantly gray, but heavily mottled, sandy loam. Strata D_2 and D_1 were both layers within Mound Stage IIB.

Strata E_4 and E_5 comprised a 40-to-70-cm thick layer that appears to be a mound-flank midden associated with Mound Stage I (Stratum E_3) (Figure 4-26). The materials within this mound-flank midden presumably represent activities associated with Mound Stage I. A distinction was noted between Stratum E_5, with pockets of *Rangia* shells, and Stratum E_4, the upper half of the midden, where no *Rangia* shells were found. Acorn fragments from the mound-flank midden (N168E6, Lv 4) produced an AMS date of AD 520±30 (cal AD 575-660) (Beta 300484). The mound-flank midden of Stratum E_5 lay directly on the pre-mound midden, Stratum F, throughout much of the unit, but a break was visible between the two midden deposits. In the northern part of the unit, the mound-flank midden (Strata E_4 and E_5) and the submound midden (Stratum F) were stratigraphically separated by Mound Stage I (Stratum E_3). Stratum E_3 consisted of clayey loam that was highly mottled, but predominantly yellowish brown in color. This layer of mound-fill is part of Mound Stage I. Excavations caught the toe of the first stage of mound construction, wedge-shaped Stratum E_3 in the unit's west profile. Two solid 5-cm-thick patches of fired clay (Features 8 and 9) were located at the top of the pre-mound midden at its interface with Stratum E_3 (Figures 4-27 and 4-28). These two features appear to be hearths. The deepest layer in N168E6 was Stratum F, a 10-to-20-cm thick layer of pre-mound midden that contained *Rangia* shells and charcoal. Hickory and acorn fragments from the pre-mound midden (N168E6, Lv 6) produced an AMS date of AD 560±30 (cal AD 600-675) (Beta 300484). Although N168E6 was not completely excavated to subsoil due to wall collapses from Hurricane Alex, excavations in N169E8—the adjacent unit to the east—indicate that only a few centimeters of cultural deposits remained when excavations ended.

N169E8, a 1.0-by-2.0-m unit adjacent to N168E6, was the only unit excavated in the southern part of the mound, albeit only partially so, according to the original plan, whereby exploratory units would be excavated in arbitrary levels and adjacent units would be excavated by depositional strata based on exposed profiles (see Knight 2010:75). Excavation of N169E8 began with the east profile of N168E6 used as a guide. Unfortunately, only two zones were excavated before the profiles collapsed due to Hurricane Alex. Zone 1

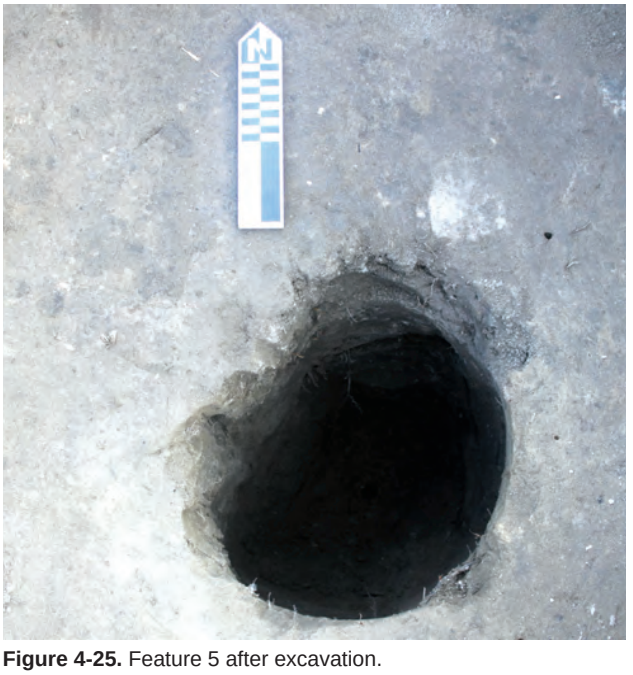


Figure 4-25. Feature 5 after excavation.

Figure 4-26. Excavation of midden deposits in N168E6.

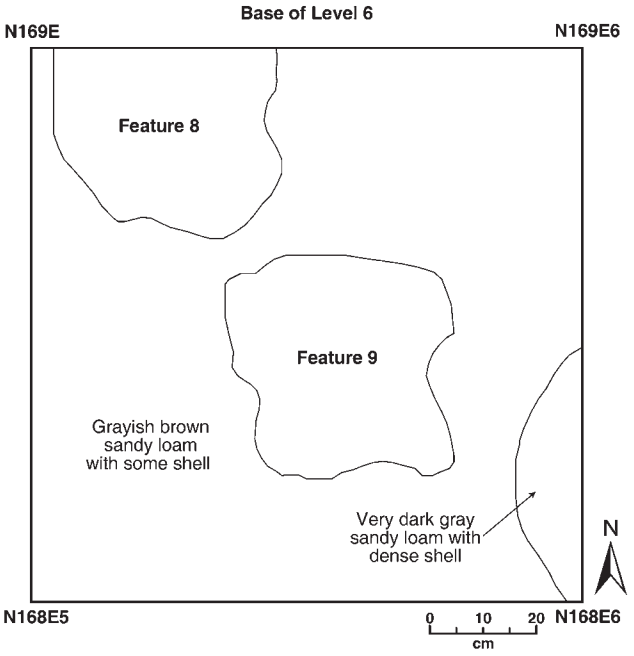


Figure 4-27. Features 8 and 9 at the base of Level 6 in N168E6.

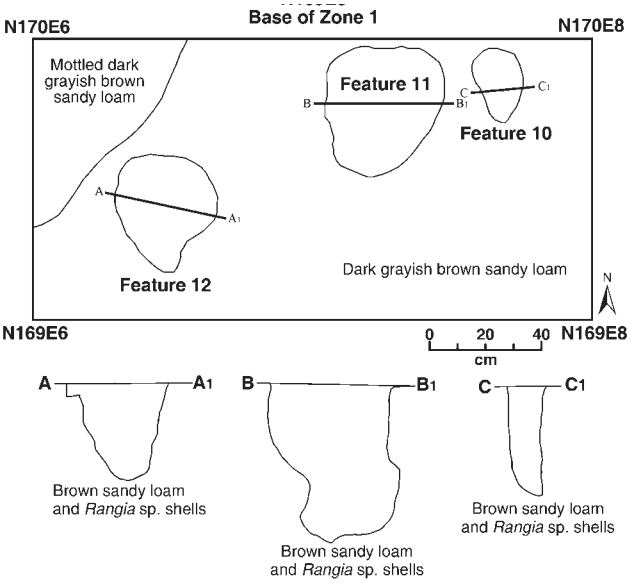


Figure 4-29. Plan view and cross section of Features 10, 11, and 12.

Figure 4-28. Features 8 and 9 at the base of Level 6 in N168E6.

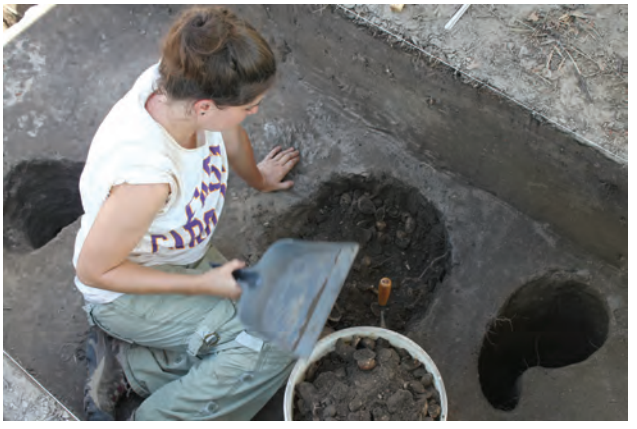


Figure 4-30. Feature 11 during excavation.

Figure 4-31. Features 10, 11, and 12 after excavation.

Table 4-6. Aboriginal Ceramics from Features.

Feature	1		2		4		5		9		10		11		12		13		Totals	
	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt
Grog																				
Baytown Plain, *var. unspecified*	-	-	-	-	15	106.0	3	12.5	1	4.0	1	4.0	4	20.0	-	-	-	-	24	146.5
Marksville Incised, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	7.0	1	4.5	2	11.5
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	1	3.0	-	-	-	-	-	-	-	-	1	3.0
Unclassified Incised	-	-	-	-	-	-	-	-	-	-	-	-	1	3.0	-	-	-	-	1	3.0
Shell																				
Mississippi Plain, *var. unspecified*	2	9.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	9.0
Unclassified																				
Small Sherds	-	-	1	1.0	56	38.0	18	7.0	-	-	9	4.0	15	8.5	-	-	4	2.0	103	60.5
Totals	**2**	**9.0**	**1**	**1.0**	**71**	**144.0**	**21**	**19.5**	**2**	**7.0**	**10**	**8.0**	**20**	**31.5**	**1**	**7.0**	**5**	**6.5**	**133**	**233.5**

consisted of humus and Mound Stage III—Strata A, B, and C from N168E6. Zone 2, which consisted of Stratum D_2 identified in the east profile of N168E6, represents the uppermost soil layer in Mound Stage IIB. Zone 2 was only partially removed before excavations ceased.

Three features were encountered at approximately 40 cmbs, at the interface between Zones 1 and 2 (Figures 4-29 to 4-31). Features 10, 11, and 12 superimposed Zone 2 and they presumably represent activities associated with the summit of Mound Stage IIB. Consistent with this interpretation are the presence of only grog tempered pottery and the absence of modern artifacts in their fill (Table 4-6). These pits, which may be postholes, could be aligned, but it is impossible to discern any larger pattern because so little of this surface was exposed. The fill of all three features consisted of *Rangia* shells and dark midden soil. Feature 10 appears to be a small posthole, 10 cm in diameter and about 30 cm deep. The top of this feature was irregular, suggesting it has been disturbed, probably by roots. Feature 11 was a larger pit, approximately 40 cm in diameter and about 60 cm deep. Feature 12 measured about 30 cm in diameter and approximately 30 cm deep. Another posthole, Feature 13, was recognized at about 60 cmbs. This small posthole was about 10 cm in diameter and its fill consisted of *Rangia* shells and dark midden soil. Feature 13 was at least 20 cm deep, but its excavation ended there because it disappeared into the mound-flank midden associated with the first mound construction stage.

Excavations in N169E8 continued after Hurricane Alex, because one goal of the unit was to reach the mound-flank and pre-mound midden deposits that had been documented in the east profile of N168E6. Post-Alex excavations in this unit involved a makeshift cofferdam with plywood sides and lumber cross braces to shore up the unstable, waterlogged walls of the excavation unit (Figures 4-32 to 4-33). The frame of the cofferdam initially protruded above ground, but its walls were gradually lowered (i.e., beaten down with a shovel or axe) below the surface as excavation of the unit's floor went deeper into mound deposits. The solid walls of the cofferdam and the unstable nature of the waterlogged mound deposits precluded any possibility of making profile drawings for N169E8.

Zones 3, 4, and 5 were excavated with the cofferdam in place. Zones 3 and 4 probably include Strata D_1 and D_2, which represent Mound Stage IIB, but they undoubtedly also include materials that washed into the unit. Once the cofferdam was in place, we realized the surrounding, waterlogged deposits were constantly oozing under the cofferdam's walls and onto the unit's floor. Zone 5 represents upper portions of Stratum E_4, the mound-flank midden associated with Mound Stage I. Initially, Zone 5 was excavated in 10-cm levels (Levels 1 to 4) to subdivide this important

Figure 4-32. Building the cofferdam in N169E8.

Figure 4-33. Excavations in N169E8 with the cofferdam in place.

Figure 4-34. Excavating the midden deposits of Zone 5/Level 4+ in N169E8.

Figure 4-35. Upper portion of the shoring and bracing in N171E6.

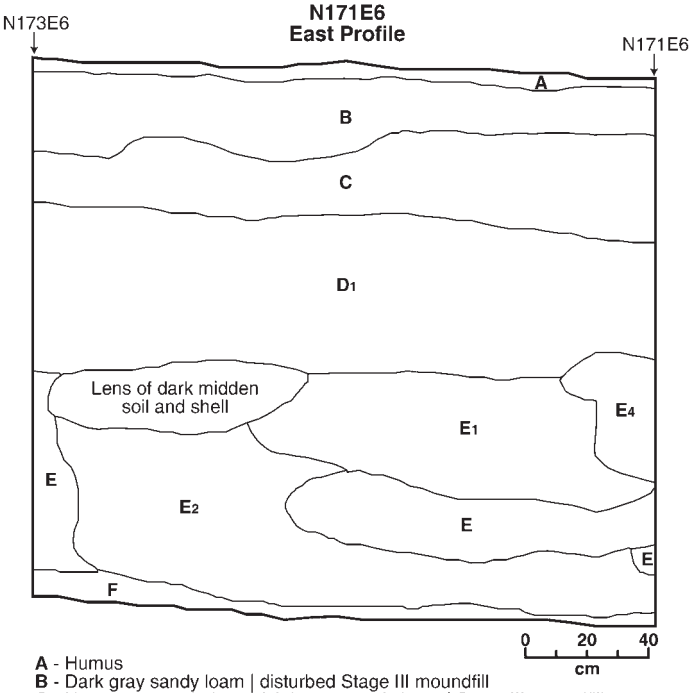
deposit. We realized, however, that our slow rate of excavation could not keep pace with the ooze seeping into the unit beneath the walls of the cofferdam. Therefore, most of the artifacts recovered from Zone 5/Levels 1-4 came from upper levels of the mound-flank midden (Stratum E_4) associated with Mound Stage I, but they also likely include materials that seeped into the unit from surrounding deposits.

Zone 5/Level 4+ represents a change in excavation strategy, when it was decided to isolate the midden deposits with certainty and rapidly excavate them before surrounding deposits could seep into the excavation unit. Based on the east profile of N168E6, we knew that portions of the midden represented by Stratum E_4 consisted of very dark brown soil containing a relatively high density of *Rangia* shells. Once excavations reached deposits that were clearly within this midden, the entire midden deposit, which was approximately 30 cm deep, was excavated in a single level. Horizontally, the midden was removed in two 1.0-by-1.0-m sections consisting of the eastern and western halves of N168E6. Since the midden deposit was too waterlogged to support the weight of an excavator, Zone 5/Level 4+ was excavated by standing on a cross brace of the cofferdam and using posthole diggers to remove the midden below, much in the way an oysterman tongs for oysters (Figure 4-34), a highly effective though unorthodox technique. Midden deposits were completely excavated and water-screened in a single day. A 10-liter flotation sample was also taken. Unfortunately, these unique conditions meant that the mound-flank midden (Strata E_4 and E_5), located stratigraphically above Mound Stage I, could not be separated during excavations from the pre-mound midden (Stratum F) located below Mound Stage I. The excavators were able to observe a layer of white sand beneath the lowest midden deposits in N168E6; this sand may rest directly on the subsoil.

N171E6 was a 1.0-by-2.0-m unit aligned with N168E6 and placed 1.0 m to the north. Together, these two units exposed 3.0 m of mound deposits along a north-south line at the south end of the mound. N171E6 was excavated to a depth of approximately 220 cmbs. Levels 1-6 were 30-cm levels excavated, prior to Hurricane Alex, to a depth of 180 cm. The profiles of N171E6, which were recorded the day before the storm, were absolutely destroyed. At 180 cmbs, the floor of the unit had just reached a pre-mound midden deposit. In order to sample this midden, we shored and braced unit N171E6 to continue excavations (Figure 4-35). Level 7 represents materials excavated from the pre-mound midden deposits after Hurricane Alex.

Soil layers in N171E6 correspond to those identified in N168E6 and N169E8 and represent the same depositional sequence (Figures 4-36 to 4-42). The uppermost layer was Stratum A, modern humus on the surface of the mound. Strata B and C appear to have been part of Mound Stage III. Stratum B consisted of dark grayish brown soil disturbed by modern activities. For instance, a ceramic pipe, part of a drainage system for a modern structure on the mound, was located in Stratum B at the north end of N171E6. Stratum C was a grayish brown sandy loam interpreted as relatively undisturbed Stage III mound fill.

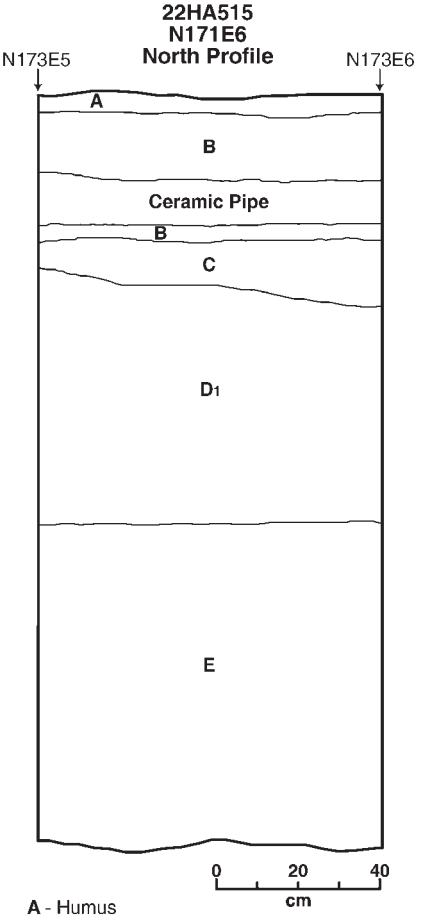
Mound Stage IIB consisted of Stratum D_1, a dark grayish brown sandy loam heavily mottled with light gray to white soil. Two lenses of dark midden soil with *Rangia* shells scattered throughout were located at the interface between Mound Stages I and IIB. These lenses of midden presumably represent activities that occurred on the summit of Mound Stage I. Wood charcoal collected from one of these lenses produced an AMS date of AD 430±30 (cal AD 430-610) (Beta 300486). Strata E, E_1, and E_2 represented different kinds of fill—gray, brown, and yellowish brown in color, ranging from loamy to clayey—used to create Mound Stage I. The deepest soil layer encountered in



A - Humus
B - Dark gray sandy loam | disturbed Stage III moundfill
C - Homogenous, dark grayish brown sandy loam | Stage III moundfill
C1 - Gray sandy loam | Stage III moundfill
D1 - Homogenous gray sandy loam | Stage IIB moundfill
E - Light gray sandy loam | Stage I moundfill
E1 - Basketloaded light to dark grayish brown clayey loam | Stage I moundfill
E2 - Dark yellowish brown clayey loam | Stage I moundfill
E4 - Black sandy loam with dense pockets of rangia | Stage I flank midden
F - Black sandy loam with dense pockets of rangia | Pre-mound midden

Figure 4-36. East profile of N171E6.

Figure 4-37. East profile of N171E6.



A - Humus
B - Dark gray sandy loam | disturbed Stage III moundfill
C - Homogenous, dark grayish brown sandy loam | Stage III moundfill
D1 - Homogenous gray sandy loam | Stage IIB moundfill
E - Light gray sandy loam | Stage I moundfill

Figure 4-38. North profile of N171E6.

Figure 4-39. North profile of N171E6.

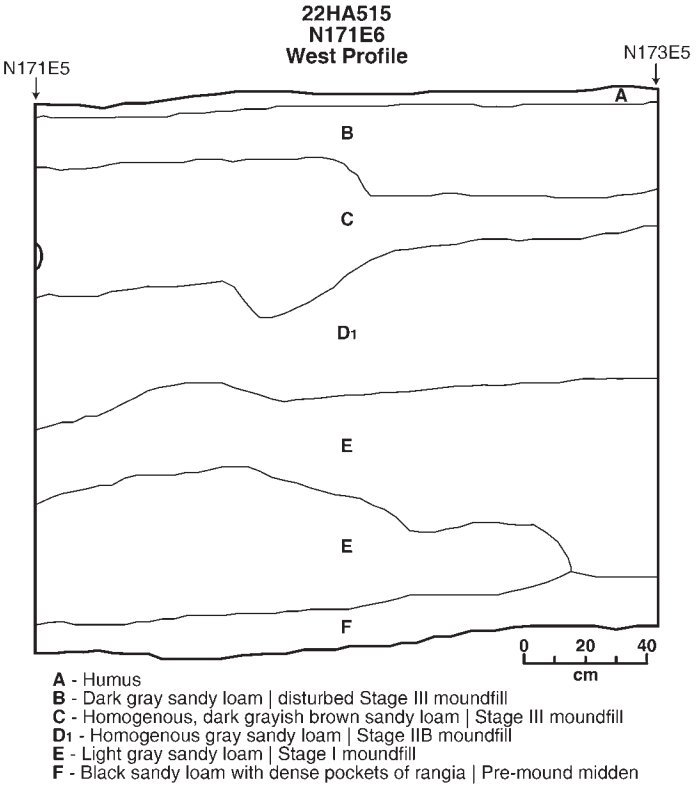


Figure 4-40. West profile of N171E6.

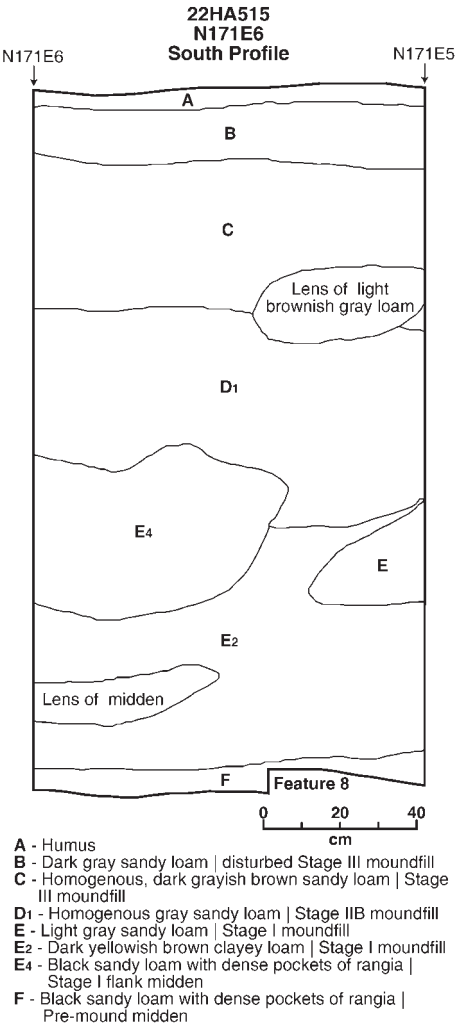


Figure 4-42. South profile of N171E6.

Figure 4-41. West profile of N171E6.

Figure 4-43. Drawing the east profile of N181E6. N183E7 is in the foreground. Note the cast iron pipe in N181E6.

N171E6 (Stratum F) was a dark gray pre-mound midden deposit. The upper 10 to 15 cm of the pre-mound midden was excavated as part of Level 6 before Hurricane Alex arrived. Fragments of hickory and acorn from a flotation sample taken from the pre-mound midden in Level 6 produced an AMS date of AD 640±30 (cal AD 655-775) (Beta 300487). Lower portions of the pre-mound midden deposit were excavated as Level 7, after the unit was shored and braced.

Central Mound Area Units

Five units were excavated in the central mound area, all on the mound summit. Four units were placed along the N183 line, at E7, E10, E12, and E15, to investigate a layer of black soil identified in coring at approximately 65-70 cmbs. These four units were also aligned with the two previously excavated CEI units, located at N183E0 and N183E19, so an 11-m east-west exposure of mound deposits could be recorded over a 20-m long area. This was critical for understanding the construction of this large mound. The fifth unit, N181E6, was oriented perpendicular to the other central mound units, but aligned with the southern mound units located along the E6 line. In two cases, adjoining squares were excavated. In the following sections, stratigraphic profiles documented in adjoining units are discussed together. With the exception of the clearly disturbed Level 1 in N181E6, soil from all units was dry-screened through ¼-inch hardware cloth. Artifact data are presented in Tables 4-4, 4-5, and 4-7.

Units were excavated in 30-cm levels and total depths of excavations ranged from 90 to 130 cmbs. All units were still in cultural deposits when excavations ended. As Hurricane Alex arrived, excavations in the central mound area had already halted and profiles had been recorded in four of the five units in anticipation of expanding laterally from these exploratory units. Unfortunately, it was not possible to continue excavations in any of the central mound units in the wake of the storm. All of these units were backfilled immediately after the hurricane for the safety of the crew and to stabilize the rapidly deteriorating deposits within the mound.

N181E6 and N183E7 were the two westernmost 1.0-by-2.0-m units excavated in the central mound area (Figure 4-43). N183E7 was oriented east-west and aligned with the other units in this area. N181E6 was oriented north-south and aligned with the units in the southern mound area. Both units were excavated in four 30-cm levels to a depth of about 110 cmbs. The upper 10 cm in each unit consisted of a humus layer (Stratum A) (Figures 4-44 and 4-45). In N181E6 a large, cast iron pipe from one of the modern structures on the mound was encountered at about 10 cmbs. Level 1, the upper 30 cm of this unit, was not screened because it consisted mostly of pipe trench fill. In general, the upper 30 cm of deposits across the entire central mound area appeared to be disturbed. This upper zone, Strata A and B, consisted of dark gray, sandy soil with a mixture of modern, eighteenth-century, and prehistoric artifacts. This disturbed layer presumably was created by modern activities on the mound associated with construction and occupation of several structures.

Undisturbed mound fill was encountered in both units at about 30 cmbs. This fill consisted of a homogenous dark grayish brown sandy loam that comprises Mound Stage III (Stratum C). A second, distinctive mound fill layer was encountered at about 60-70 cmbs (Stratum D). Deposits in this layer consisted of heterogeneous soils, predominantly very dark brown to black, but including lenses of light gray soil (Figures 4-46 and 4-47). This fill was distinctive for its very dark color, and it clearly is the dark soil layer encountered by hand-augering that prompted the placement of units in this location in the first place. This layer of dark mound fill was not encountered during exca-

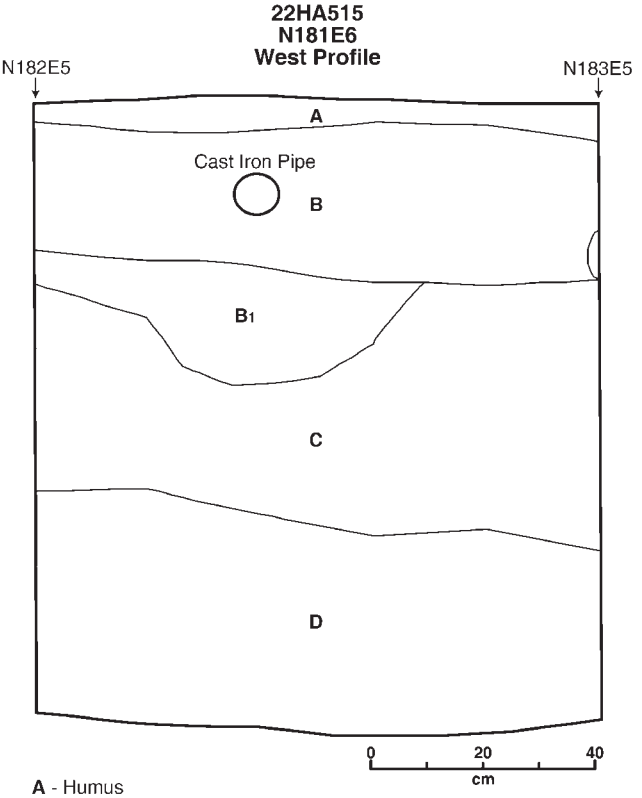


Figure 4-44. West profile of N181E6.

Table 4-7. Aboriginal Pottery from the Central Mound Units.

	N181E6				N183E10								N183E12							
	Lv 1		Lv 2		Zn 1		Zn 2		Zn 3		Zn 5		Lv 1		Lv 2		Lv 3		Lv 4	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																				
Baytown Plain, *var. unspecified*	-	-	17	120.5	5	16.0	4	22.0	1	3.0	-	-	7	31.0	10	97.5	8	105.5	3	12.0
Marksville Incised, *var. Spanish Fort*	-	-	1	7.0	1	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Incised, *var. Steele Bayou*	-	-	-	-	-	-	1	4.5	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Incised, *var. unspecified*	-	-	4	29.0	-	-	-	-	2	6.0	-	-	-	-	-	-	2	7.0	2	18.0
Marksville Incised, *var. Yokena*	-	-	1	10.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. Manny*	-	-	1	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. Troyville*	-	-	-	-	-	-	1	3.0	-	-	-	-	-	-	-	-	1	4.0	-	-
Marksville Stamped, *var. unspecified*	-	-	1	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gulf Historic Fineware																				
Chickachae Combed, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kemper Combed, *var. unspecified*	-	-	-	-	1	3.0	1	4.5	-	-	-	-	-	-	-	-	-	-	-	-
La Pointe Combed, *var. unspecified*	-	-	-	-	2	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plain	2	4.0	-	-	13	87.0	-	-	-	-	-	-	19	78.5	-	-	-	-	-	-
Port Dauphin Incised, *var. Port Dauphin*	1	4.5	-	-	1	1.5	-	-	-	-	-	-	1	17.5	-	-	-	-	-	-
Unclassified Decorated	-	-	-	-	-	-	1	2.0	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified Engraved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified Incised	-	-	-	-	3	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand																				
Plain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell																				
Grace Brushed, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mississippi Plain, *var. unspecified*	8	47.5	-	-	22	129.0	-	-	-	-	-	-	19	99.0	-	-	-	-	-	-
Unclassified Decorated	-	-	-	-	-	-	-	-	-	-	-	-	1	3.5	-	-	-	-	-	-
Unclassified Incised	-	-	-	-	4	15.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified																				
Small Sherds	14	12.5	31	23.0	60	85.5	11	10.0	1	0.5	2	1.5	65	61.0	5	3.0	10	8.5	3	3.0
Totals	**25**	**68.5**	**56**	**201.5**	**112**	**357.0**	**19**	**46.0**	**4**	**9.5**	**2**	**1.5**	**113**	**296.5**	**15**	**100.5**	**21**	**125.0**	**8**	**33.0**

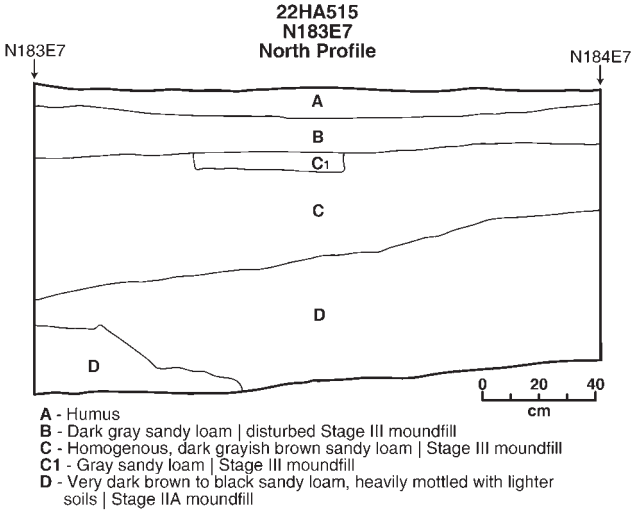


Figure 4-45. North profile of N183E7.

vations in either the CEI unit on the east side of the mound or in the southern mound area units. This dark layer of mound fill seems to be present only in the central area of the mound. The elevation of the layer of dark soil, and its stratigraphic position beneath Mound Stage III and above Mound Stage I, suggests it is part of Mound Stage II. But the very dark brown to black soils near the center of the mound are strikingly different from the light gray soils that comprise Mound Stage IIB on both the southern and eastern flanks of the mound. This indicates that Mound Stage II actually consists of at least two sub-stages: the dark soils of Stage IIA at the center of the mound, and the lighter gray soils of Stage IIB along the mound perimeter.

Table 4-7 (Continued).

	N183E15						N183E7									
	Lv 1		Lv 2		Lv 3		Lv 1		Lv 2		Lv 3		Lv 4		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																
Baytown Plain, *var. unspecified*	1	7.5	2	16.5	3	8.0	-	-	4	17.0	-	-	3	7.5	68	464.0
Marksville Incised, *var. Spanish Fort*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	13.5
Marksville Incised, *var. Steele Bayou*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4.5
Marksville Incised, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	2	10.5	-	-	12	70.5
Marksville Incised, *var. Yokena*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	10.5
Marksville Stamped, *var. Manny*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	6.0
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	-	-	-	-	1	5.5	1	5.5
Marksville Stamped, *var. Troyville*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	7.0
Marksville Stamped, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5.5
Gulf Historic Fineware																
Chickachae Combed, *var. unspecified*	-	-	-	-	-	-	1	3.0	-	-	-	-	-	-	1	3.0
Kemper Combed, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	7.5
La Pointe Combed, *var. unspecified*	-	-	-	-	-	-	3	13.5	-	-	-	-	-	-	5	19.5
Plain	5	12.5	-	-	-	-	25	93.5	-	-	-	-	-	-	64	275.5
Port Dauphin Incised, *var. Port Dauphin*	3	10.0	-	-	-	-	2	5.5	-	-	-	-	-	-	8	39.0
Unclassified Decorated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.0
Unclassified Engraved	-	-	-	-	-	-	1	17.5	-	-	-	-	-	-	1	17.5
Unclassified Incised	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	7.5
Sand																
Plain	-	-	-	-	-	-	1	3.5	-	-	-	-	-	-	1	3.5
Shell																
Grace Brushed, *var. unspecified*	-	-	-	-	-	-	1	8.5	-	-	-	-	-	-	1	8.5
Mississippi Plain, *var. unspecified*	6	25.5	-	-	-	-	29	373.5	1	5.0	-	-	-	-	85	679.5
Unclassified Decorated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.5
Unclassified Incised	-	-	-	-	-	-	2	31.0	1	10.5	-	-	-	-	7	56.5
Unclassified																
Small Sherds	26	23.0	-	-	-	-	64	62.0	5	4.5	2	3.0	12	4.0	311	305.0
Totals	**41**	**78.5**	**2**	**16.5**	**3**	**8.0**	**129**	**611.5**	**11**	**37.0**	**4**	**13.5**	**16**	**17.0**	**580**	**2015.0**

Fieldnotes indicate that most of the artifacts in N183E7 came from a depth of approximately 60-70 cmbs (Level 3), at the top of the dark soil of Mound Stage IIA. This suggests the presence of an intact surface with artifacts from mound-summit activities at the top of this mound stage. Identification of a posthole (Feature 3) around 57 cmbs in N183E7 is consistent with an intact surface at 60 cmbs (Figures 4-48 and 4-49). This posthole measured 20-25 cm in diameter and about 25 cm deep. The fill of this feature was screened through ⅛-inch hardware cloth, but no artifacts were found.

At the base of Level 2 (ca. 60 cmbs) in N183E7, excavators thought that the eastern half of the unit represented the fill of a large feature, which was consequently removed as Feature 2 while the western half of the unit was taken out as Levels 3 and 4/west half. The idea that the eastern half of N183E7 was part of a feature was abandoned once the unit was excavated to its final depth and the entire profile could be examined. Although differences were noted within the unit—the eastern half, for example, was more mottled with lighter colored soils than the western half—these differences are now thought to reflect variability within Mound Stage IIA.

N183E10 (Figures 4-50 to 4-60) was excavated in zones based on soil layers exposed in the west wall of **N183E12**. Stratum A in N183E12 consisted of a humus layer present to 5-10 cmbs across both units. This layer was discarded without being screened in N183E12 due to its disturbed nature. Zone 1 in N183E10, labeled Stratum B in the west wall of N183E12, appears to be a layer of disturbed mound fill (10-20 cmbs) from Mound Stage III. The mixed deposits of this

Figure 4-46. Excavation of dark mound fill (Mound Stage II) at the top of Level 3 in N183E7.

Figure 4-47. South profile of N183E7 at the base of Level 2.

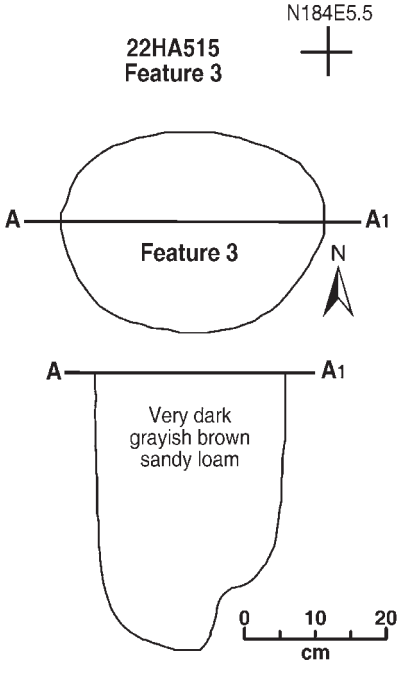


Figure 4-48. Plan view and cross section of Feature 3.

Figure 4-49. Top of Feature 3 at the base of Level 2 in N183E7.

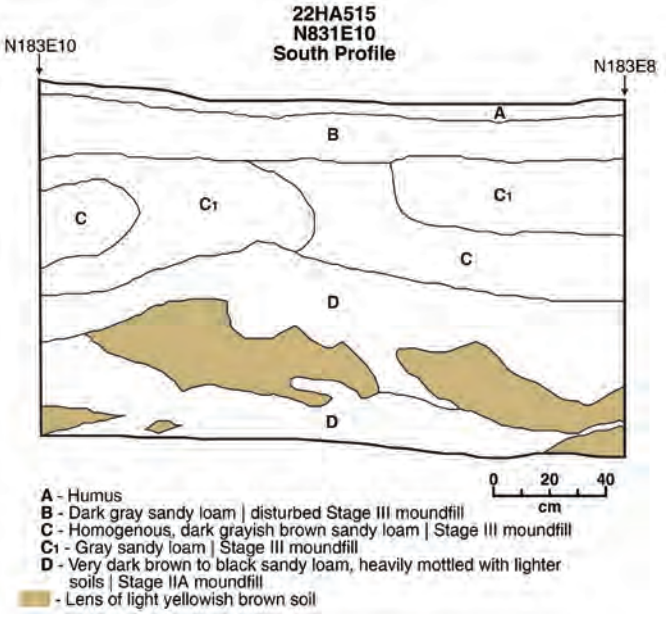


Figure 4-50. South profile of N183E10.

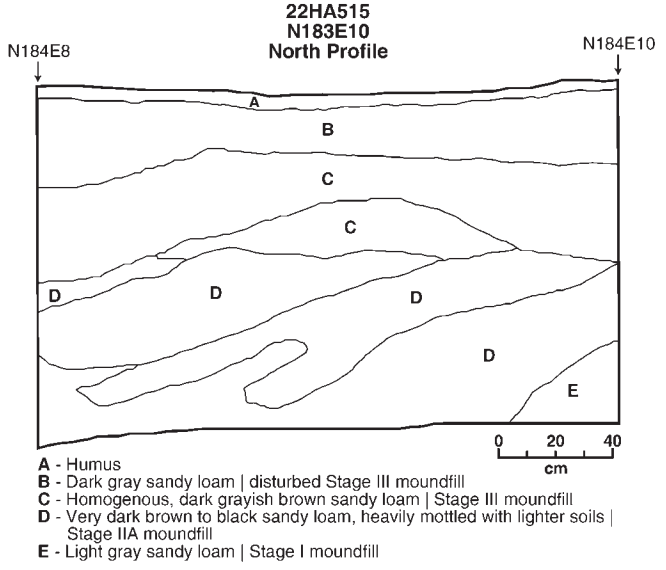


Figure 4-51. North profile of N183E10.

layer likely resulted from activities associated with modern house construction on the mound. A small posthole (Feature 1) was recognized at 20 cmbs at the base of Zone 1 in N183E12 (Figures 4-61 and 4-62). Based on its shallow depth, Feature 1 likely post-dates the site's Woodland occupation. This feature did contain a few pieces of Mississippi Plain pottery, so it may date to the site's eighteenth-century Native American occupation.

Zone 2 in N183E10 (20 cmbs) corresponds with Stratum C_1 in N183E12, a thin layer of lighter colored soil at the interface between mixed mound fill deposits and the presumably intact deposits of Mound Stage III. Zone 3 in N183E10 (ca. 20-60 cmbs) consisted of Stratum C in N183E12, which represents intact mound fill deposits associated with Mound Stage III. Zones 4 and 5 (ca. 60-120 cmbs) consisted of the mound fill deposits of Mound Stage IIA.

Two features were encountered in N183E12 at or near the base of Level 2 (Figure 4-63). Both of these features appear associated with the buried summit of Mound Stage IIB. Feature 4, a pit encountered at about 60 cmbs, measured about 55 cm in diameter and approximately 60-cm deep. This pit was bisected during excavation to document in cross section its four distinct strata (Figure 4-64). Feature 4 appears to have been a large posthole from which one, and possibly two, posts were removed. A stratum of dark soil and *Rangia* shells appears to be midden that filled in the initially removed post. An uppermost, dark brown, sandy loam stratum that intrudes the midden fill appears to be a second filled posthole. Artifacts from Feature 4 consist of Baytown Plain pottery. Burned pine cone fragments from Feature 4 produced an AMS date of AD 530±30 (cal AD 580-660) (Beta 300488).

Feature 6, another posthole encountered at about 60 cmbs, measured 30 cm in diameter and about 40 cm in depth (Figure 4-65). Feature 6 was not bisected during its excavation because its cross section was captured in the profile drawing of the unit's north wall. The fill of Feature 6 consisted of *Rangia* shells

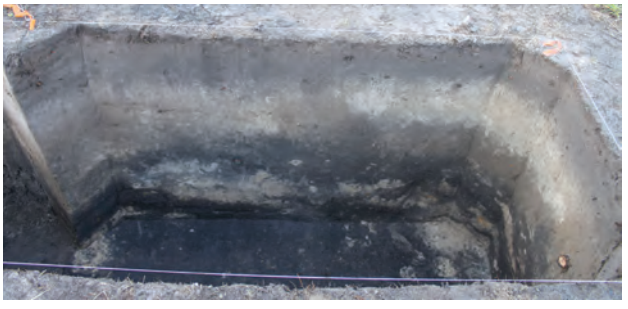


Figure 4-52. South profile of N183E10.

Figure 4-54. North profile of N183E10.

Figure 4-53. West profile of N183E10.

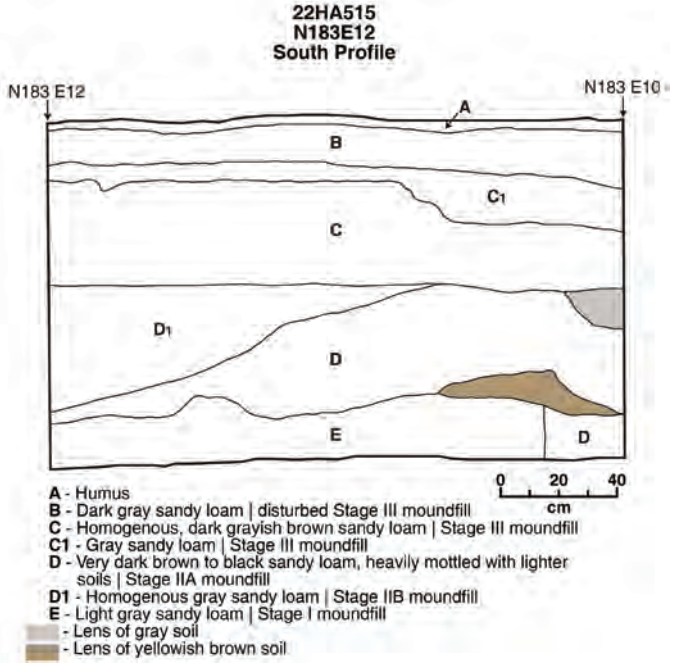


Figure 4-55. South profile of N183E12.

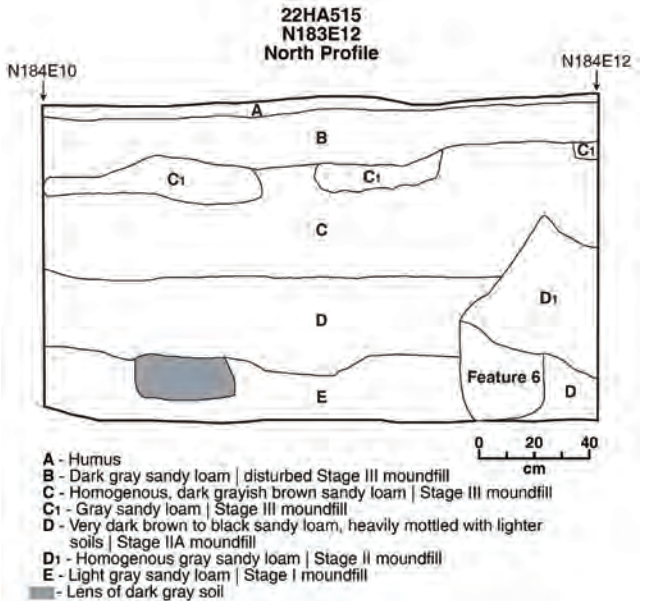


Figure 4-56. North profile of N183E12.

Figure 4-57. South profile of N183E12.

Figure 4-58. West profile of N183E12.

Figure 4-59. East profile of N183E12.

Figure 4-60. North profile of N183E12. Note Feature 6 near the base of the unit on the east side.

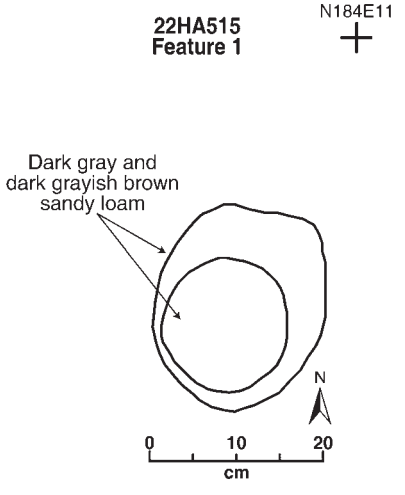


Figure 4-61. Plan view of Feature 1 in N183E12.

and dark midden soil. Wood charcoal from Feature 6 produced an AMS date of AD 240±30 (cal AD 255-405) (Beta 300489).

Excavations in N183E12 and N183E10 went slightly deeper than in other units in the central mound area, extending to 100.41 m in N183E12 and to about 100.35 m in N183E10. Excavations should have encountered Mound Stage I at approximately 100.5 m, based on where these deposits were encountered in the southern mound area in N171E6. Mound Stage I was apparently encountered in N183E12 as Stratum E, a light gray sandy loam, at the base of the unit. Interestingly, the soils of Stage I were not found at the same elevation in the adjacent unit, N183E10. Instead, the base of excavation unit N183E10 appears to have captured the western edge of the Stage I summit at its interface with the dark, multi-colored fill of Mound Stage IIA (Strata D and D_1). How did the dark, heterogeneous deposits of Stage IIA come to be both stratigraphically above and adjacent to the light-

Figure 4-62. Feature 1 in N183E12.

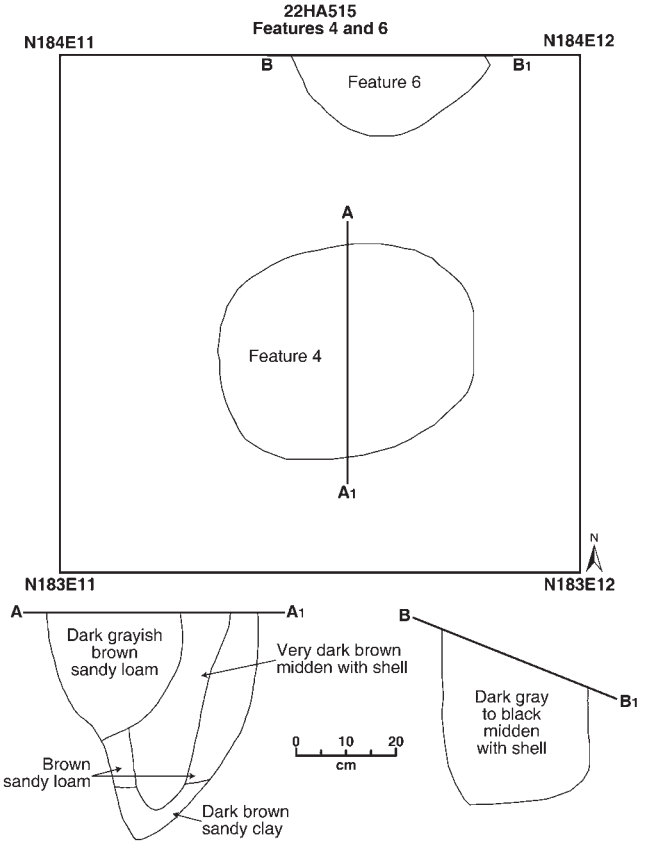


Figure 4-63. Plan views and cross sections of Features 4 and 6 in N183E12.

Figure 4-64. Feature 4 after excavation of west half, base of Level 2 in N183E12.

Figure 4-65. Feature 6 at the base of Level 2 in N183E12.

er, more clayey deposits of Stage I? Perhaps Stage I was present along the perimeter of the mound area, but was not built as a continuous platform mound across this area. Mound Stage I appears to have been constructed with an open, unfilled space near the center of the mound. Then the dark, multi-colored deposits of Mound Stage IIA were used to fill this space and to build up this portion of the mound. This scenario implies that deposition of Mound Stages IIA and IIB were coordinated and that they occurred in relatively quick succession. The depositional angles of several lenses of soil within Stage IIA in N183E10, which slope downward toward the center of the mound, are consistent with these soils having been used to fill the open space from the perimeter of the mound toward its center.

N183E15 was excavated in four 30-cm levels to a depth of 120 cmbs. This was the only unit in the central area still being excavated when Hurricane Alex hit, so profile drawings were not made before the walls collapsed. This unit was backfilled to stabilize the walls, then re-excavated in mid-July so the profiles could be drawn. Deposits in this unit were of particular interest because they would allow the stratigraphy of the units toward the center of the mound to be related to the stratigraphy of the CEI unit previously dug on the mound's eastern slope. Once the backfill was removed from N183E15, its damaged walls were cut back approximately 50 cm to obtain a flat, vertical face (Figure 4-66). Within minutes of the walls in N183E15 being trowelled and photographed, large sections of the water-logged profiles began to collapse (see Figure 4-12). Although not as informative as hoped for because of the conditions under which they were made, we did complete drawings of the north, south, and east walls (Figures 4-67 and 4-68).

Figure 4-66. South profile of N183E15.

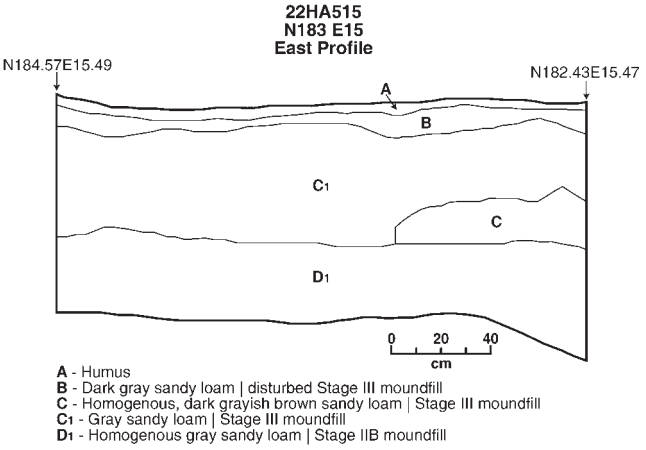


Figure 4-67. East profile of N183E15.

The upper 30 cm of N183E15 consisted of humus and disturbed layers like those encountered throughout the central mound area. Undisturbed, homogenous, dark grayish brown mound fill associated with Mound Stage III was encountered between about 30 and 60 cmbs. The homogenous gray to grayish brown sandy loam of Mound Stage IIB was present below about 60 cmbs.

The Investigation of Off-Mound Areas

The original 2010 research design called for identification and testing of off-mound deposits contemporaneous with mound use. The purposes of excavating off-mound deposits were to provide points of comparison with mound deposits and to more fully investigate activities that occurred across the site.

Excavations North of the Mound

The mound's flanks and the area immediately surrounding the mound were investigated through power-auger tests (Tables 4-8 and 4-9) and shovel tests (Tables 4-10 and 4-11) during the 2010 ECU fieldwork (Figures 4-69 and 4-70). As manpower allowed during the course of mound excavations, small crews accomplished these tests, which were placed on the flanks of the mound in an attempt to identify mound-flank midden deposits. Other tests were placed around the base of the mound to identify loca-

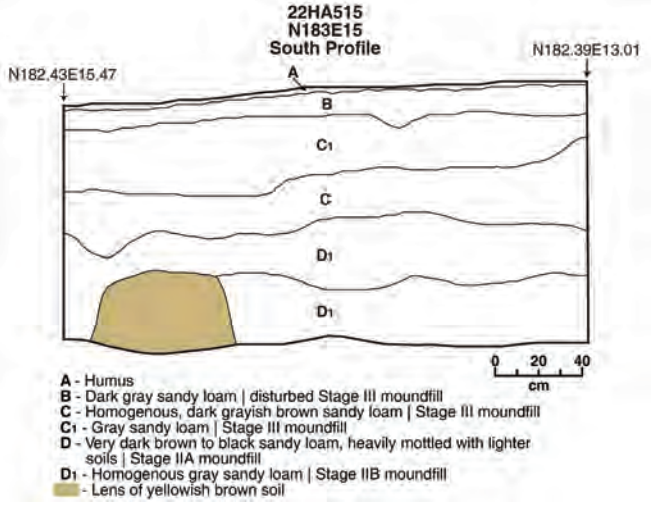


Figure 4-68. South profile of N183E15.

tions with evidence for off-mound cultural deposits. The mound sits upon a slightly elevated landform that is surrounded by low-lying wetlands. This landform was tested to the south, east, and north of the mound. Our ability to test to the west was limited because this area consists of a two-track road with highly compacted soils. Power-auger tests south and east of the mound recovered modern and prehistoric artifacts in low densities, but all from disturbed contexts.

Several power-auger tests just northeast of the mound (N210E20, N215E20, N220E15, N220E20) recovered Woodland period, Marksville series pottery in apparently intact deposits. The vicinity of power-auger test N220E20 was investigated with two 1.0-by-1.0-m units because this test encountered intact midden deposits with Woodland pottery buried about 50 cmbs (Figure 4-71). Artifacts found in these excavations are presented in Tables 4-4, 4-5, and 4-12. An exploratory 1.0-by-1.0-m unit was placed at N218.7E19.8, based on deposits encountered in the auger test (Figures 4-72 and 4-73). This unit was excavated to subsoil at approximately 90 cmbs (98.8 m) in nine 10-cm levels. Soil from this unit was dry-screened through ¼-inch hardware cloth.

Figure 4-70. Power-augering on the south side of the mound.

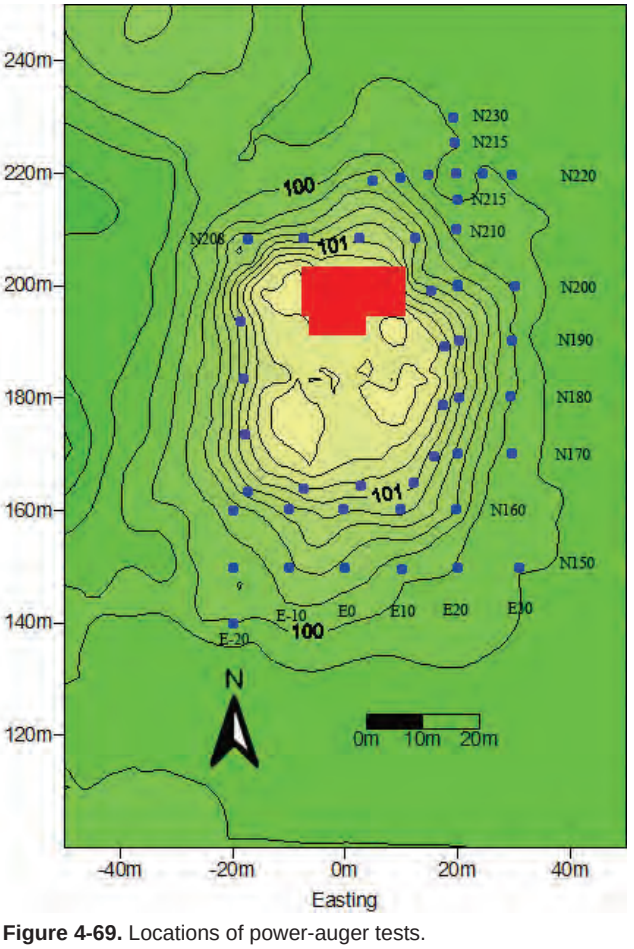


Figure 4-69. Locations of power-auger tests.

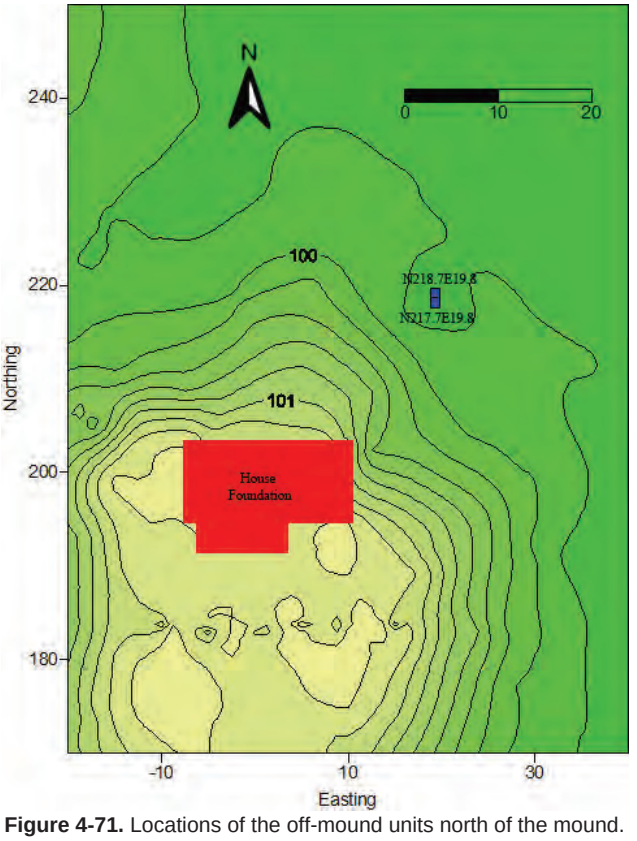


Figure 4-71. Locations of the off-mound units north of the mound.

Table 4-8. All Artifacts from ECU Power-Auger Tests.

	N150 E010		N150 E10		N150 E020		N150 E20		N150 E30		N160 E20		N160 E30		N163 E017		N164 E3		N164 E07		N170 E16		N170 E20		N170 E30		N173 E017	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Bone - Bone	-	-	-	-	5	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shell - Oyster	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.0	-	-	-	-	-	-	-	-	-	-
Shell - *Rangia*	-	811.5	-	9.0	-	22332.0	-	-	-	-	-	85.0	-	-	-	2.0	-	-	-	-	-	-	-	-	-	88.5	-	-
Ceramics - Aboriginal Pottery	1	0.5	-	-	8	20.0	3	21.0	1	14.5	6	5.5	-	-	-	-	3	11.0	1	2.5	9	29.0	5	16.5	1	9.0	2	3.0
Stone - Ferruginous Sandstone	-	-	-	-	-	-	1	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stone - Pebble	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stone - Shatter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brick - Fragments	-	-	4	14.0	-	-	-	-	-	-	4	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glass - Container	-	-	-	-	-	-	-	-	-	-	-	-	2	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glass - Flat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal - Lead cap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal - Fragments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal - Nail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous - Modern Debris	-	-	-	-	-	-	-	-	-	-	1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous - Unclassified	-	-	1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	**1**	**812**	**5**	**23.1**	**13**	**22356.5**	**4**	**25.0**	**1**	**14.5**	**11**	**93.6**	**2**	**5.0**	**-**	**2.0**	**3**	**33.0**	**1**	**2.5**	**9**	**29.0**	**5**	**16.5**	**1**	**97.5**	**2**	**3.0**

Table 4-8 (Continued).

	N179 E17		N180 E20		N183 E018		N189 E18		N190 E30		N199 E15		N200 E20		N208 E017		N210 E20		N210 E30		N215 E20		N220 E15		N220 E20		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Bone - Bone	1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	7	5.1
Shell - Oyster	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.5	-	-	-	-	-	-	-	-	-	-	-	34.5
Shell - *Rangia*	-	86.5	-	5.5	-	1164.5	-	1.5	-	46.0	-	-	-	1.5	-	4.0	-	30.0	-	1.5	-	537.5	-	1.0	-	92.0	-	25299.5
Ceramics - Aboriginal Pottery	1	8.0	-	-	2	3.0	-	-	-	-	1	2.0	-	-	-	-	3	11.0	-	-	2	6.5	1	9.5	4	24.0	54	196.5
Stone - Ferruginous Sandstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4.0
Stone - Pebble	7	35.0	2	2.0	4	5.5	-	-	-	-	-	-	1	2.0	-	-	-	-	-	-	-	-	-	-	-	-	14	44.5
Stone - Shatter	2	3.5	-	-	1	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5.0
Brick - Fragments	3	15.0	-	-	-	-	-	-	2	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	32.5
Glass - Container	-	-	-	-	-	-	-	-	-	-	2	7.5	4	8.5	-	-	-	-	-	-	-	-	-	-	-	-	8	21.0
Glass - Flat	-	-	1	1.0	-	-	-	-	-	-	-	-	1	4.0	1	0.1	-	-	-	-	-	-	-	-	-	-	3	5.1
Metal - Lead cap	-	-	-	-	-	-	-	-	-	-	-	-	1	7.5	-	-	-	-	-	-	-	-	-	-	-	-	1	7.5
Metal - Fragments	1	188.0	1	13.5	-	-	-	-	-	-	6	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	204.5
Metal - Nail	-	-	5	28.0	-	-	-	-	-	-	-	-	1	0.5	-	-	1	1.0	-	-	-	-	-	-	-	-	7	29.5
Miscellaneous - Modern Debris	-	-	13	10.5	1	0.1	-	-	1	0.1	-	-	4	1.0	-	-	-	-	-	-	-	-	-	-	-	-	20	11.8
Miscellaneous - Unclassified	-	-	-	-	3	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	0.6
Totals	**15**	**336.1**	**22**	**60.5**	**11**	**1175.1**	**-**	**1.5**	**3**	**46.6**	**9**	**12.5**	**12**	**25.0**	**1**	**16.6**	**4**	**42.0**	**-**	**1.5**	**2**	**544.0**	**1**	**10.5**	**5**	**116.5**	**143**	**25901.6**

Table 4-9. Aboriginal Pottery from ECU Power-Auger Tests.

	N150 E-10		N150 E-20		N150 E20		N150 E30		N160 E20		N164 E3		N164 E-7		N170 E16		N170 E20	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																		
Baytown Plain, *var. unspecified*	1	0.5	2	13.5	3	21.5	1	14.5	-	-	-	-	-	-	6	12.5	5	17.0
Marksville Incised, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	16.5	-	-
Gulf Historic Fineware																		
Plain, *var. unspecified*	-	-	-	-	-	-	-	-	1	2.5	-	-	1	2.5	-	-	-	-
Shell																		
Mississippi Plain, *var. unspecified*	-	-	-	-	-	-	-	-	2	2.5	3	11.5	-	-	-	-	-	-
Unclassified																		
Small Sherds	-	-	6	2.5	-	-	-	-	3	1.5	-	-	-	-	-	-	-	-
Totals	**1**	**0.5**	**8**	**16.0**	**3**	**21.5**	**1**	**14.5**	**6**	**6.5**	**3**	**11.5**	**1**	**2.5**	**7**	**29**	**5**	**17.0**

Table 4-9 (Continued).

	N170 E30		N173 E-17		N179 E17		N183 E-17		N199 E15		N210 E20		N215 E20		N220 E15		N220 E20		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																				
Baytown Plain, *var. unspecified*	1	9.5	2	3.5	1	8.0	2	3.5	-	-	3	11.0	2	7.0	1	9.5	2	10.5	32	142.0
Marksville Incised, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	14.0	1	14.0
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	16.5
Gulf Historic Fineware																				
Plain, *var. unspecified*	-	-	-	-	-	-	-	-	1	2.5	-	-	-	-	-	-	-	-	3	7.5
Shell																				
Mississippi Plain, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	14.0
Unclassified																				
Small Sherds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.5	10	4.5
Totals	**1**	**9.5**	**2**	**3.5**	**1**	**8.0**	**2**	**3.5**	**1**	**2.5**	**3**	**11.0**	**2**	**7.0**	**1**	**9.5**	**4**	**25.0**	**52**	**198.5**

Table 4-10. All Artifacts from ECU Shovel Tests in the Mound Area.

	N228E32		N239E-4		N249E-3		Totals	
	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt
Bone and Shell								
Bone	-	-	-	-	2	0.5	2	0.5
Rangia	-	-	-	2.5	-	1.5	-	4.0
Ceramics								
Aboriginal Pottery	1	6.0	-	-	4	3.5	5	9.5
Brick								
Fragments	-	-	-	-	2	2.0	2	2.0
Glass								
Unclassified	-	-	-	-	1	4.0	1	4.0
Metal								
Fragments	-	-	4	6.5	-	-	4	6.5
Miscellaneous								
Modern Debris	-	-	1	0.5	-	-	1	0.5
Unclassified	-	-	6	1.5	12	7.0	18	8.5
Totals	**1**	**6.0**	**11**	**11.0**	**21**	**18.5**	**33**	**35.5**

Table 4-11. Aboriginal Pottery from ECU Shovel Tests in the Mound Area.

	N228E32		N249E-3		Totals	
	Ct	Wt	Ct	Wt	Ct	Wt
Grog						
Baytown Plain, *var. unspecified*	1	6.0	1	3.0	2	9.0
Unclassified						
Small Sherds	-	-	3	0.5	3	0.5
Totals	**1**	**6.0**	**4**	**3.5**	**5**	**9.5**

Figure 4-72. Excavation unit N218.7E19.8 north of the mound.

Figure 4-75. Excavating N217.7E19.8 by using the south profile of N218.7E19.8 as a guide.

Figure 4-73. View of N218.7E19.8 excavation from the mound, facing northwest.

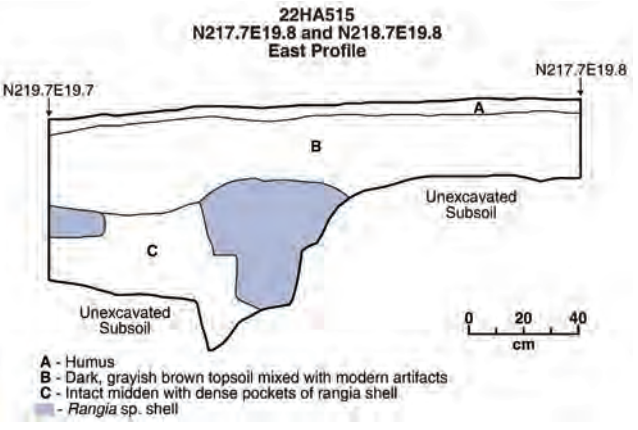


Figure 4-76. East profile of N217.7E19.8 and N218.7E19.8.

Figure 4-74. South profile of N218.7E19.8.

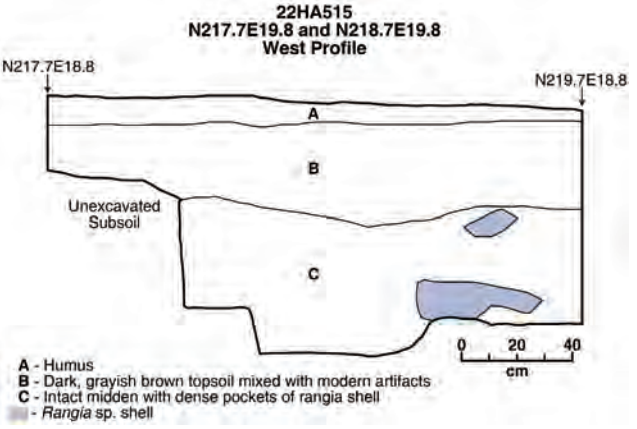


Figure 4-77. West profile of N217.7E19.8 and N218.7E19.8.

The upper 5-10 cm of N218.7E19.8 consisted of humus. The next 20-35 cm (Levels 1-4) consisted of a homogenous, very dark grayish brown loam with a few scattered *Rangia* shells. This turned out to be a heavily disturbed layer of prehistoric midden deposits mixed with modern artifacts, such as clear bottle glass and wire nails. The lower 30-45 cmbs (Levels 5-9) in this unit consisted of intact *Rangia* shells and earth midden deposits with very dark clayey loam. A distinct break was visible between the homogenous mixed deposits and the undisturbed midden deposits, which were slightly darker and contained significantly more *Rangia*, including some dense concentrations of shell. Several of these shell concentrations were truncated at the soil break between disturbed and undisturbed deposits (Figure 4-74). The intact midden deposits contained a large amount of pottery and animal bone. A sample of wood charcoal from Level 8, within the intact midden deposits, produced an AMS date of AD 530±30 (cal AD 580-660) (Beta 300351).

In order to isolate the intact off-mound midden deposits encountered in N218.7E19.8, a 1.0-by-1.0-m control unit was placed adjacent to its south wall at N217.7E19.8. This profile was used as a guide to excavate deposits in two discrete zones (Figure 4-75). Zone 1 consisted of humus and disturbed midden deposits; this zone was not screened due to the mixed nature of its contents (Figures 4-76 and 4-77). Zone 2 consisted of the lower 30-45 cm of undisturbed midden deposits. Zone 2 was waterscreened through nested screens (¼-, ⅛-, and 1/16-inch) and a 10-liter flotation sample was taken. Fragments of acorn from this flotation sample produced an AMS date of AD 630±30 (cal AD 650-770) (Beta 300483).

The north and south profiles of N217.7E19.8 and N218.7E19.8 indicate why the deposits of Zone 2 were undisturbed. The disturbed deposits of Zone 1 extend to the subsoil, which was encountered at 30 cmbs. The undisturbed midden deposits of Zone 2 were located below this elevation in a large pit that was dug into the subsoil. The walls and floor of this pit were highly irregular and it did not form any shape that could be easily characterized (Figures 4-78 and 4-79). The dimensions of this pit are unknown, as only its southern edge was defined during ECU excavations, but it is clearly larger than 1 m along both north-south and east-west dimensions. The relatively large size and irregular shape of this pit suggest it was a borrow pit, presumably for the mound, based on its proximity.

2010 Bluff Area Excavations

The bluff area, located on the west edge of the terrace on which the site is situated, was a non-mound portion of the site chosen for investigation. The relatively elevated bluff area (ca. 3.5 m) stands in sharp contrast to the adjacent marsh at sea level (Figure 4-80). Mark Williams (1987:24) placed excavation units in the bluff area during the MAA investigation of Jackson Landing in the early 1970s, but he was unable to tie these units into his grid due to the site's dense vegetation and the distance of bluff area units from mapping benchmarks. Our ability to tie the 2010 bluff excavations into the site grid was greatly simplified by the presence of a dirt road along the south side of the earthwork. This road provides a long, straight, open line-of-sight that was not present in the early 1970s (Figure 4-81).

The bluff area was chosen for testing because of the presence of a large midden that contains a Middle Woodland or early Late Woodland component. The presence of this midden was revealed by testing

Figure 4-78. View of the excavated portion of the large pit north of the mound in N217.7E19.8 and N218.7E19.8, facing south.

Figure 4-79. West profile of N217.7E19.8 and N218.7E19.8.

during 1972 MAA excavations (Williams 1987:23-24). In 2010, midden deposits were exposed on the surface of the bluff area in several locations, and shovel tests dug by CEI and ECU in the bluff area confirmed the presence of a dense, deep midden.

The MAA units in the bluff area, designated as Excavation Unit IV, had consisted of two 5.0-by-5.0-ft units and a small trench placed in an area of exposed *Rangia* shells (Williams 1987:23). While exact locations of the MAA units in the bluff area are not known, Williams (1987:23) noted they were placed about 76 m (250 ft) southeast of the western end of the earthwork. Those excavations recovered shell tempered sherds, which indicate a Mississippian or Historic period component in this area. The majority of ceramics, however, were grog tempered types of the Marksville series, such as Baytown Plain, Marksville Incised, and Marksville Stamped, all consistent with an occupation during the Middle Woodland to early Late Woodland periods.

ECU's systematic investigation of the bluff area in 2010 was directed by Michael Fedoroff, who began with excavation of 18 shovel tests (Figure 4-82; Tables 4-10 and 4-11). Shovel tests were used to identify intact and disturbed midden deposits. Based on these shovel tests, five 1.0-by-1.0-m units (N188.7E-416.6, N189.5E-410.7, N192.2E-423.7, N193.2E-423.7, and N195E-412) were placed across the bluff area (Figures 4-83 and 4-84). These test units were excavated in 10-cm levels to depths between 40-60 cmbs, depending on the depths of cultural deposits encountered. All deposits were dry-screened through ¼-inch hardware cloth. Artifacts recovered during these excavations are presented in Tables 4-4, 4-5, and 4-13. Based on the distribution of modern artifacts, deposits in the bluff area have been disturbed to a depth of at least 30 cm. Any number of activities could have resulted in the mixed deposits encountered in the bluff area, but disturbances due to logging or agricultural activities seem most likely.

Two 1.0-by-1.0-m test units—N189.5E-410.7 and N195E-412—were placed on top of the bluff. The upper 10-20 cm of deposits consisted of grayish brown organically-enriched humus and a slightly lighter layer of topsoil. In N189.5E-410.7, a reddish-brown layer, which either is the subsoil or was derived from it, appeared immediately below the humus and topsoil (Figures 4-85 and 4-86). In N195E-412, a light yellowish brown soil was encountered below the humus and topsoil (Figure 4-87). Excavations continued to a depth of 50 cmbs, but artifact density was relatively low throughout. Modern artifacts were found to a depth of 20 cmbs.

Figure 4-80. View from the bluff area towards the marsh, facing west.

Figure 4-81. Two-track road along the south side of the earthwork, facing west.

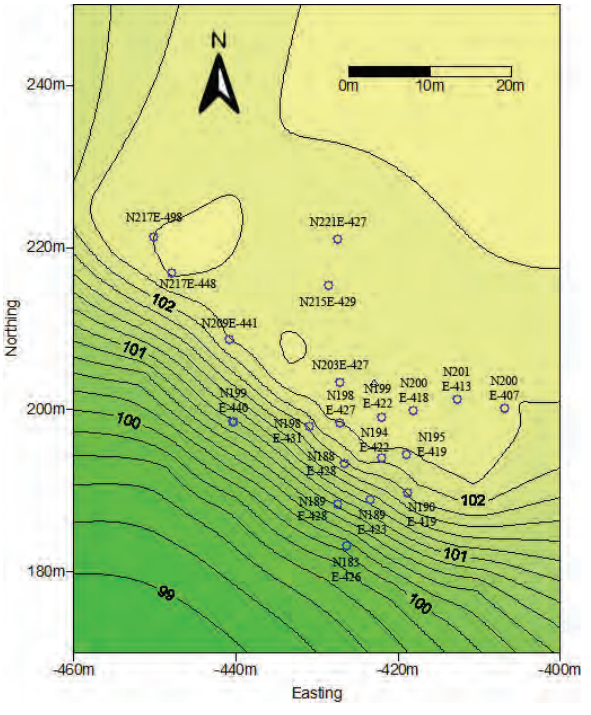


Figure 4-82. Locations of shovel tests in the bluff area.

Table 4-12. Aboriginal Pottery from the Off-Mound Pit.

	N217.7E19.8				N218.7E19.8																	
	East Profile		Zn 2		Lv 2		Lv 3		Lv 4		Lv 5		Lv 6		Lv 7		Lv 8		Lv 9		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																						
Baytown Plain, *var. unspecified*	1	28.5	85	795.5	-	-	2	12.5	16	138.0	27	179.5	7	61.5	11	137.5	16	176.0	5	88.0	170	1617.0
Marksville Incised, *var. Goose Lake*	-	-	1	19.0	-	-	-	-	2	19.0	-	-	-	-	1	7.5	-	-	-	-	4	45.5
Marksville Incised, *var. Spanish Fort*	-	-	1	35.0	-	-	-	-	-	-	3	41.0	-	-	-	-	2	59.0	1	60.0	7	195.0
Marksville Incised, *var. unspecified*	-	-	7	33.5	-	-	1	8.5	1	2.5	6	19.5	1	1.5	-	-	-	-	-	-	16	65.5
Marksville Incised, *var. Yokena*	-	-	-	-	-	-	-	-	1	44.0	1	6.0	-	-	-	-	-	-	-	-	2	50.0
Marksville Stamped, *var. Manny*	-	-	-	-	-	-	-	-	-	-	2	11.0	-	-	-	-	-	-	-	-	2	11.0
Unclassified Decorated	-	-	1	12.5	-	-	-	-	1	3.5	-	-	-	-	-	-	-	-	-	-	2	16.0
Unclassified Incised	-	-	-	-	-	-	-	-	-	-	1	8.0	-	-	-	-	-	-	-	-	1	8.0
Unclassified																						
Small Sherds	-	-	259	192.5	4	3.5	4	3	37	34.0	61	46.0	11	7.5	34	24.5	48	40.5	18	9.5	478	361.5
Totals	**1**	**28.5**	**352**	**1032.0**	**4**	**3.5**	**7**	**24**	**58**	**241.0**	**101**	**311.0**	**19**	**70.5**	**46**	**169.5**	**66**	**275.5**	**24**	**157.5**	**682**	**2369.5**

Table 4-13. All Artifacts from ECU Shovel Tests in the Bluff Area.

	N221 E-450		N198 E-427		N199 E-422		N200 E-418		N200 E-418		N201 E-413		N198 E-427+N10		N198 E-427+N15		N193 E-427		N188 E-428	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Bone	-	-	-	-	-	-	1	0.1	-	-	-	-	-	-	-	-	9	2.5	-	-
Shell - Oyster	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	-	-
Shell - *Rangia*	-	10.5	-	369.5	-	33.0	-	725.0	-	63.0	-	-	-	10.0	-	88.5	-	10293.0	-	222.5
Shell - Snail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
Ceramics - Aboriginal Pottery	1	0.5	1	4.0	4	2.0	1	0.5	-	-	3	3.5	-	-	-	-	15	6.0	2	38.5
Stone - Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0	-	-
Glass - Flat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous - Unclassified	-	-	8	59.5	1	0.5	-	-	-	-	-	-	-	-	-	-	14	7.0	5	4.0
Totals	**1**	**11.0**	**9**	**433.0**	**5**	**35.5**	**2**	**725.6**	**-**	**63.0**	**3**	**3.5**	**-**	**10.0**	**-**	**88.5**	**40**	**10317.1**	**7**	**265.0**

Table 4-13 (Continued).

	N198 E-431		N199 E-440		N194 E-422		N195 E-419		N189 E-423		N190 E-419		N217 E-448		N221 E-427		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Bone	-	-	-	-	-	-	-	-	1	0.1	5	1.0	-	-	-	-	16	3.7
Shell - Oyster	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5
Shell - *Rangia*	-	338.0	-	-	-	-	-	37.5	-	5408.5	-	6863.0	-	64.5	-	6.0	-	24532.5
Shell - Snail	-	0.1	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0.3
Ceramics - Aboriginal Pottery	2	0.5	-	-	1	0.5	-	-	29	20.0	21	22.0	2	6.5	-	-	82	104.5
Stone - Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.0
Glass - Flat	-	-	-	-	-	-	-	-	-	-	1	0.1	-	-	-	-	1	0.1
Miscellaneous - Unclassified	-	-	1	1.0	-	-	-	-	-	9.0	4	3.0	-	-	-	-	33	84.0
Totals	**2**	**338.6**	**1**	**1.0**	**1**	**0.5**	**-**	**37.5**	**30**	**5437.6**	**31**	**6889.2**	**2**	**71.0**	**-**	**6.0**	**167**	**24769.1**

Table 4-14. Aboriginal Pottery from ECU Shovel Tests in the Bluff Area.

	N221 E-450		N198 E-427		N199 E-422		N200 E-418		N201 E-413		N193 E-427		N188 E-428		N198 E-431		N194 E-422		N189 E-423		N190 E-419		N217 E-448		Totals	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Grog																										
Baytown Plain, *var. unspecified*	1	0.5	1	4.5	-	-	-	-	3	3.5	-	-	2	38.5	-	-	1	1.0	8	13.0	4	5.5	2	7.0	22	73.5
Marksville Incised, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2.5	5	13.5	-	-	6	16.0
Marksville Stamped, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	1	2.0	-	-	-	-	-	-	-	-	-	-	-	-	1	2.0
Unclassified																										
Small Sherds	-	-	-	-	4	3.0	1	0.5	-	-	12	4.0	-	-	2	0.5	-	-	20	6.0	12	4	-	-	51	18.0
Totals	**1**	**0.5**	**1**	**4.5**	**4**	**3.0**	**1**	**0.5**	**3**	**3.5**	**13**	**6.0**	**2**	**38.5**	**2**	**0.5**	**1**	**1.0**	**29**	**21.5**	**21**	**23.0**	**2**	**7.0**	**80**	**109.5**

Table 4-15. Aboriginal Pottery from the Bluff Units.

	N188.7E-416.6								N189.5E-410.7																	
	Lv 1		Lv 2		Lv 3		Lv 4		Lv 1		Lv 2		Lv 3		Lv 4		Lv 1		Lv 2		Lv 3		Lv 4		Lv 5	
	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt	Ct	Wt
Grog																										
Baytown Plain, *var. unspecified*	1	3.5	8	83.0	4	12.5	-	-	-	-	4	27.5	-	-	1	2.5	1	3.0	9	61.5	12	62.5	4	18.0	2	5.5
Marksville Incised, *var. Goose Lake*	-	-	-	-	-	-	-	-	-	-	1	5.5	1	4.5	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Incised, *var. Spanish Fort*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Incised, *var. Steele Bayou*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Incised, *var. unspecified*	-	-	2	6.0	-	-	1	3.5	-	-	-	-	-	-	-	-	-	-	2	5.0	5	30.5	1	14.5	-	-
Marksville Stamped, *var. Godsey*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. Manny*	1	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. Newsome*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	12.5	-	-	-	-
Marksville Stamped, *var. Troyville*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marksville Stamped, *var. unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.0	-	-
Unclassified Decorated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.5	-	-	-	-
Unclassified Eroded	-	-	-	-	1	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified Incised	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gulf Historic Fineware																										
Chickachae Incised, *var. unspecified*	-	-	-	-	-	-	-	-	1	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Port Dauphin Incised, *var. Port Dauphin*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unclassified																										
Small Sherds	4	4.0	25	18.0	19	12.0	3	1.0	2	0.5	3	3.5	-	-	-	-	2	1.5	14	13.0	18	17.5	15	12.0	4	2.5
Totals	**6**	**9.5**	**35**	**107.0**	**24**	**29.0**	**4**	**4.5**	**3**	**3.5**	**8**	**36.5**	**1**	**4.5**	**1**	**2.5**	**3**	**4.5**	**25**	**79.5**	**39**	**126.5**	**21**	**47.5**	**6**	**8.0**

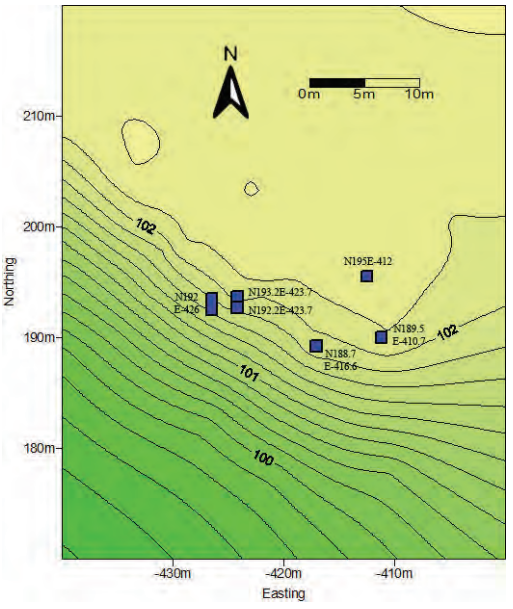


Figure 4-83. Locations of excavation units in the bluff area.

Figure 4-84. Excavations in the bluff area.

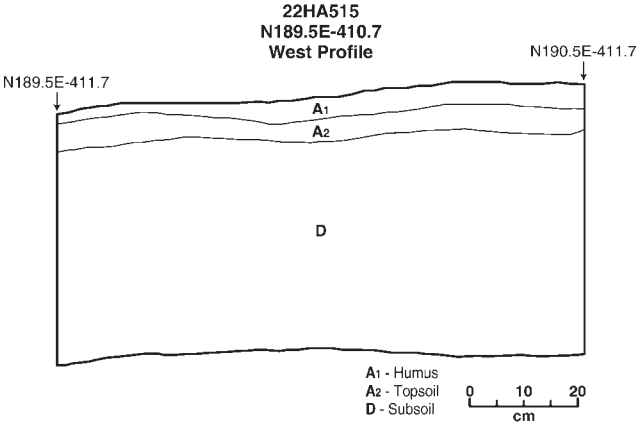


Figure 4-85. West profile of N189.5E-410.7.

Figure 4-86. West profile of N189.5E-410.7.

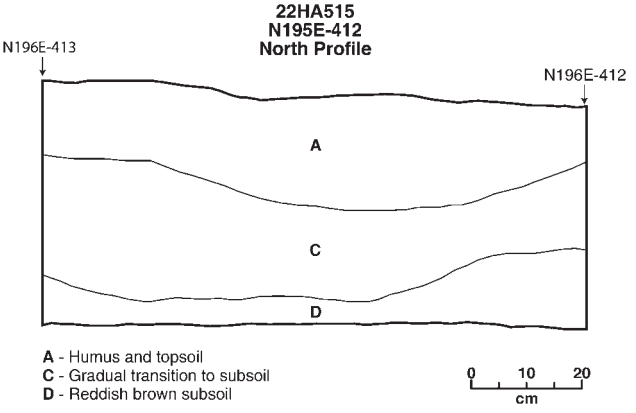


Figure 4-87. North profile of N195E-412.

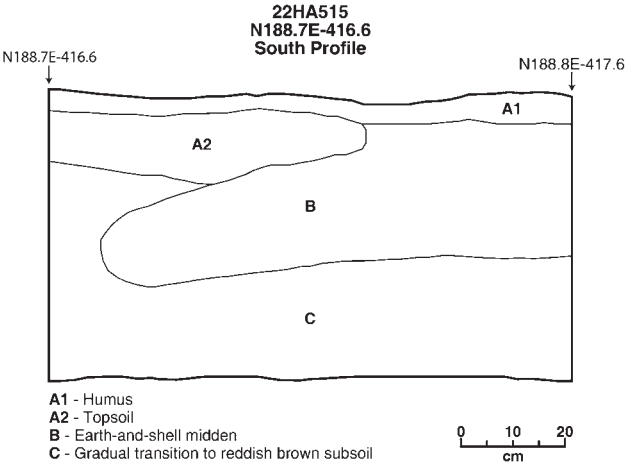


Figure 4-88. South profile of N188.7E-416.6.

Test units at the edge of the bluff established the presence of a 30-cm-thick, earth and shell midden deposit. This midden extended from the edge of the bluff downslope, toward the marsh, for approximately 2.0 m, but it did not extend onto the top of the bluff. This midden may represent trash dumped downslope from bluff-top activities. Alternatively, this midden may represent re-deposited materials pushed downslope by modern logging or agricultural activities.

Three 1.0-by-1.0-m test units—N188.7E-416.6, N192.2E-423.7, and N193.2E-423.7—were placed on the edge of the bluff, where it slopes down to the marsh. The upper 10 to 15 cm in these units consisted of a pale brown humus and topsoil layer (Figures 4-88 to 4-94). A 15-to-30-cm thick deposit of earth and *Rangia* shell midden extended beneath the topsoil layer to a depth of approximately 30 to 40 cmbs. Iron fragments were found to a depth of 30 cmbs, indicating that portions of this midden have been disturbed by modern activities. A relatively sterile layer of yellowish brown loam that transitions into reddish brown subsoil was encountered beneath the midden.

Midden deposits were further investigated through excavation of an additional 1.0-by-2.0-m unit, N192E-426. This unit was located at the edge of the bluff where it slopes down to the marsh. The unit's long axis was oriented from the top of the bluff downslope. This unit was excavated in three zones based on discrete soil layers; each zone was waterscreened through nested screens (¼-, ⅛-, and 1/16-inch), and 10-liter flotation samples were taken from each.

Figure 4-89. South profile of N188.7E-416.6.

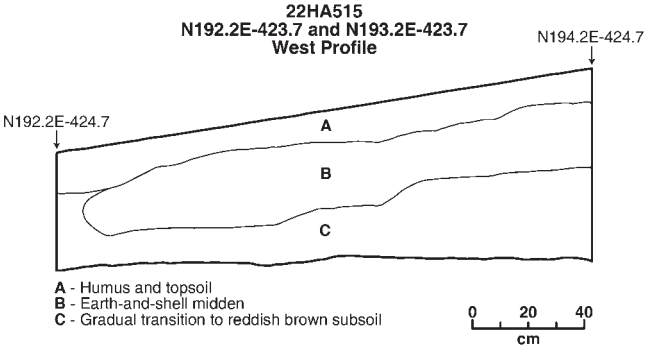


Figure 4-90. West profile of N192.2E423.7 and N193.2E-423.7.

Figure 4-91. West profile of N192.2E-423.7 and N193.2E-423.7.

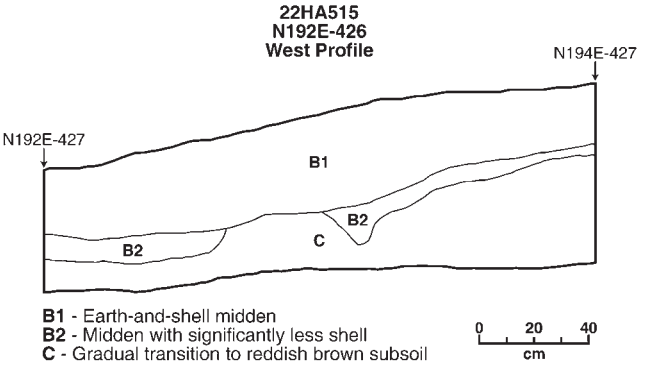


Figure 4-92. West profile of N192E-426.

Figure 4-93. East profile of N192E-426.

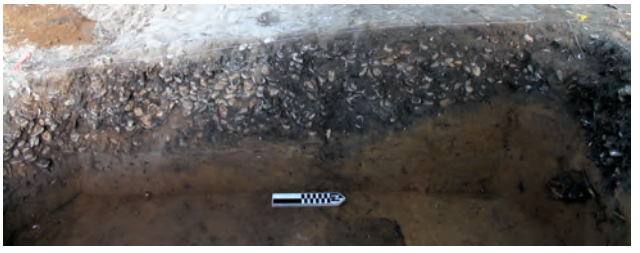


Figure 4-94. West profile of N192E-426.

Zone 1 consisted of midden deposits of dark grayish brown soil with very high densities of *Rangia* shell. The shells were so dense in Zone 1 that this layer, when viewed in cross section, seemed to consist entirely of shells with no soil. Zone 1 comprised the upper 30 cm of deposits in N192E-426. Zone 2, which included some yellowish brown soil, also appears to have been a midden deposit, but with significantly fewer *Rangia* shells than Zone 1. Zone 3 consisted of a layer of brownish yellow soil, a transitional layer between the overlying shell midden and the underlying subsoil. Two AMS dates were acquired from the bluff midden, but they are significantly earlier than the associated ceramics. Wood charcoal collected from Zone 2 produced an AMS date of 4910±40 BC (cal 5840-5665 BC) (Beta 300352). Wood charcoal collected from Zone 3 produced an AMS date of 4930±40 BC (cal 5870-5670 BC) (Beta 300352). These dates from charcoal in association with grog tempered pottery clearly indicate the disturbed nature of the midden deposits in the bluff area.

Summary

Archaeological fieldwork was undertaken at Jackson Landing during the summer of 2010 to address several research goals: establishing the site's history of occupation, determining when the mound had been built and used, and investigating the activities associated with the mound and other locations around the site. Jackson Landing's platform mound and off-mound areas, including the extensive area south of the earthwork, were investigated. Shovel testing and excavations in off-mound areas encountered deposits possibly contemporaneous with use of the mound, but this could not be confirmed because these deposits were not precisely dated. Also, the activities represented by these off-mound deposits still are not clear. Investigations determined that the sequence of early Late Woodland period activities in the mound area consisted of: (1) an event or multiple events that produced the pre-mound midden deposits on the original ground surface; (2) two stages of mound construction (Stages I and II) associated with various activities; and (3) a final episode of mound construction (Stage III) that appears to have buried the deposits from earlier activities. The mound area investigations yielded eight AMS dates that have provided important information about the timing and tempo of mound construction and use. These dates suggest that the mound's construction and use occurred during a very brief interval during the early Late Woodland period. Extensive midden deposits in the mound area indicate this was the location of events that involved preparation and consumption of food on a large scale.

Chapter 5
Artifacts

Key research goals of the ECU investigations at Jackson Landing included establishing the site's history of occupation, determining when the mound had been built and used, and investigating activities associated with the mound and other locations around the site. Toward this end, analysis of artifacts for both chronological and functional information was an important part of achieving project goals. In this chapter, I discuss methods of analysis for each artifact class and define the analytical categories upon which interpretations are based. Analyzed artifact classes include Native American ceramics, Native American lithics, and Historic period artifacts, which include eighteenth-century European trade goods and artifacts of more recent manufacture.

Native American Ceramics

The analysis of Native American ceramics from Jackson Landing was very informative, because of the significant amount of chronological information these artifacts can convey. Native American ceramics were classified (Table 5-1) according to several typologies established for the Mississippi Gulf coast (Blitz and Mann 2000), lower Mississippi Valley (Brown 1998b; Phillips 1970), and Mobile Bay areas (Fuller 1998; Waselkov and Gums 2000).

Native American ceramics from Jackson Landing were first sorted by size. In most cases, sherds smaller than 12.5 mm (0.5 inch) were considered "small sherds" and were not classified to type, but instead only counted and weighed. The one exception to this practice came with sherds from shovel tests, all of which were analyzed because few, if any, are larger than 12.5 mm. Sherds larger than 12.5 mm were sorted into temper-ware groups based on attributes of temper, surface finish, and ceramic fabric (see Blitz and Mann 2000:107). Temper-ware groups are important analytic units for establishing culture history because they generally correspond to distinct ceramic technologies used during different periods in the Native American occupation of the Mississippi Gulf coast (Blitz and Mann 2000:107-108).

Sherds were then classified into types based on attributes of temper, decoration, and surface treatment. Types represent clearly identifiable combinations of these attributes that usually have broad spatial and temporal distributions (see Phillips 1970:24-25). Some sherds were further classified into varieties based on attributes of temper, decorative treatment, or design motif (Blitz and Mann 2000:108; Phillips 1970:25). Typed sherds that could not be assigned to an established variety were classified as variety *unspecified*. Sherds that could not be assigned to any established types were placed in an "unclassified" category.

Grog Temper-Ware Group

Ceramics in the grog temper-ware group had crushed pottery added to their paste (Blitz and Mann 2000:107). These ceramics are diagnostic of the Woodland period (ca. 100 BC to AD 1200) along the Mississippi Gulf coast (Blitz and Mann 2000:98-99). In particular, grog tempered ceramics from Jackson Landing are consistent with the Troyville subseries of the Marksville ceramic series, as discussed by Blitz and Mann (2000:42). In the eastern Mississippi Sound region, the Troyville subseries comprises a major portion of the ceramic complex in use during the Graveline phase (AD 400-700). Another characteristic of the Graveline phase ceramic complex is the presence of small numbers of sherds that exhibit red, buff, or black pigmentation in the form of paint or slip (Blitz and Mann 2000:42). A small number (n=7) of grog tempered sherds—six Baytown Plain and one Marksville Incised, *var. unspecified*—from Jackson Landing show evidence of pigmentation (Table 5-2). Four are from an off-mound area near the northeast corner of the mound, where a large borrow pit was investigated. Three are from auger tests in this vicinity, one is from the pit itself, and the other three were recovered from mound contexts.

Baytown Plain

Baytown Plain consists of grog tempered pottery with a plain surface treatment. Phillips (1970:47-48) presents an overview of the history of this "super-type." Although a number of varieties have been defined within this type (Phillips 1970:48-57), all Baytown Plain sherds at Jackson Landing have been classified as variety *unspecified,* based on the practical difficulty of consistently sorting plainwares.

Marksville Incised

The Marksville Incised type encompasses several different kinds of incising (Phillips 1970:110-111). Several varieties of this type are represented at Jackson Landing.

var. Goose Lake. This variety consists of line-filled triangles of broad, U-shaped incisions forming a hor-

Table 5-1. All Pottery by Excavation Context.

	Mound	Off-Mound	Bluff	Shovel and Augers Tests	Totals
Grog					
Baytown Plain, *var. unspecified*	300	170	177	83	730
Marksville Incised, *var. Goose Lake*	-	4	7	-	11
Marksville Incised, *var. Spanish Fort*	4	7	1	-	12
Marksville Incised, *var. Steele Bayou*	1	-	1	-	2
Marksville Incised, *var. unspecified*	34	16	30	9	89
Marksville Incised, *var. Yokena*	1	2	-	-	3
Marksville Stamped, *var. Godsey*	1	-	1	1	3
Marksville Stamped, *var. Manny*	3	-	1	-	4
Marksville Stamped, *var. Newsome*	6	-	9	2	17
Marksville Stamped, *var. Troyville*	4	-	1	-	5
Marksville Stamped, *var. unspecified*	4	-	1	2	7
Unclassified Decorated	-	2	2	-	4
Unclassified Eroded	-	-	1	-	1
Unclassified Incised	3	1	2	-	6
Gulf Historic Fineware					
Chickachae Combed, \var. unspecified	3	-	1	-	4
Chickachae Incised, *var. unspecified*	1	-	-	-	1
Kemper Combed, *var. unspecified*	4	-	-	-	4
La Pointe Combed, *var. unspecified*	5	-	-	-	5
Leland Incised, *var. unspecified*	1	-	-	-	1
Plain	85	-	-	9	94
Port Dauphin Incised, *var. Port Dauphin*	10	-	1	-	11
Port Dauphin Incised, *var. unspecified*	2	-	-	-	2
Unclassified Decorated	1	-	-	-	1
Unclassified Engraved	1	-	-	-	1
Unclassified Incised	3	-	-	-	3
Sand					
Indian Pass Incised, *var. unspecified*	1	-	-	-	1
Plain	3	-	-	-	3
Shell					
Bell Plain, *var. unspecified*	6	-	-	-	6
Grace Brushed, *var. unspecified*	1	-	-	-	1
Mississippi Plain, *var. unspecified*	112	-	-	5	117
Unclassified Decorated	1	-	-	-	1
Unclassified Incised	7	-	-	-	7
Tchefuncte					
Lake Borgne Incised, *var. Lake Borgne*	1	-	-	-	1
Unclassified					
Small Sherds	850	476	454	73	1853
Totals	**1459**	**678**	**690**	**184**	**3011**

izontal band around the rim or upper body of jars (Figure 5-1) (Phillips 1970:112). This variety dates to the late Marksville period (AD 100-300) in the lower Mississippi Valley (Brown 1998b:58; Phillips 1970:113) and to the Graveline phase (AD 400-700) in the eastern Mississippi Sound region (Blitz and Mann 2000:112). At Jackson Landing, sherds were classified as *var. Goose Lake* if elements of triangles could be identified. Only three *var. Goose Lake* rims were recovered; they appear to be from jars with thickened rims.

var. Spanish Fort. This variety is characterized by broad, wet-paste, concentric, curvilinear incisions with a considerable burr on the margins of the incisions (Figure 5-2) (Blitz and Mann 2000:112; Phillips 1970:115). Three rims indicate that vessel types within this variety include large jars with thickened rims. This variety dates to the Graveline phase (AD 400-700) in the eastern Mississippi Sound region (Blitz and Mann 2000:112), and is thought to date to the late Marksville period (AD 100-300) in the lower Mississippi Valley (Brown 1998b:59; Phillips 1970:115).

var. Steele Bayou. Decorations consist of broad, U-shaped incised lines executed on a leather-hard surface (Figure 5-3). Distinctive characteristics of this variety include lobate designs and the presence of excisions at the ends of the incised lines (Blitz and Mann 2000:112; Phillips 1970:116). This variety dates to the late Marksville period (AD 100-300) in the lower Mississippi Valley (Brown 1998b:59; Phillips 1970:117) and to the Graveline phase (AD 400-700) in the eastern Mississippi Sound region (Blitz and Mann 2000:112).

var. Yokena. The decorative pattern of this variety consists of repetitive rectilinear and curvilinear motifs comprised of broad, U-shaped incised lines executed on a leather-hard surface (Figure 5-4) (Blitz and Mann 2000:112; Phillips 1970:119). At Jackson Landing, sherds with decorative motifs with widely-spaced lines were classified as *var. Yokena*. Three rims of this variety are enclosed bowls. One of these is a small, thin-walled vessel. These vessels are definitely not the large jars indicated by rims of *var. Spanish Fort* or the restricted bowls or jars with thickened rims of *var. Goose Lake*. *Var. Yokena* dates to the middle to late Marksville period (AD 1-300) in the lower Mississippi Valley (Brown 1998b:59). It dates to the Godsey (AD 200-400) and Graveline (AD 400-700) phases

Table 5-2. Grog Tempered Pottery with Pigmentation by Context.

Exterior-Interior Colors	PA N215E20	PA N220E20	N169E8- Zn 5, Lv 4	N181E6-Lv 2	N193.2E-423.7-Lv 3	Totals
Gray-Gray	2	-	-	-	-	**2**
Gray-None	-	1	-	-	-	**1**
Tan-None	-	-	1	-	-	**1**
Tan-Red	-	-	1	-	-	**1**
Black-Black	-	-	-	1	-	**1**
Red-None	-	-	-	-	1	**1**
Totals	**2**	**1**	**2**	**1**	**1**	**7**

Table 5-3. Gulf Historic Fineware Pottery with Pigmentation by Context.

Exterior-Interior Colors	N168E6-Lv 1	N169E8-Zn 1	N171E6-Lv 1	N183E7-Lv 1	N183E10-Zn 1	N183E12-Lv 1	Totals
Red-None	2	-	1	-	-	-	3
Red-Red	-	-	-	-	-	1	1
Red-Tan	-	-	1	-	2	-	3
Tan-Red	-	-	-	3	1	-	4
White (stripes)-None	-	-	-	-	1	-	1
None-Red	-	1	-	1	-	3	5
Totals	**2**	**1**	**2**	**4**	**4**	**4**	**17**

Figure 5-1. Marksville Incised, *var. Goose Lake*. Specimen numbers 2010.016: (a) .102.1; (b) .11.1; (c) .95.1; (d) .109.3; (e) .5.1; (f) .97.1; (g) .90.1 (actual size).

Figure 5-2. Marksville Incised, *var. Spanish Fort*. Specimen numbers 2010.016: (a) .9.1 and. 6.1; (b) .9.1 and.10.1; (c) .49.1; (d) .9.1; (e) . 40.1; (f) .64.1; (g) .11.1 (75% actual size).

Figure 5-3. Marksville Incised, *var. Steele Bayou*. Specimen number 2010.016.65.1 (actual size).

Figure 5-4. Marksville Incised, *var. Yokena*. Specimen numbers 2010.016: (a) .5.1; (b) .95.2; (c) .94.1; (d) .94.1 (75% actual size).

in the eastern Mississippi Sound region (Blitz and Mann 2000:112).

Marksville Stamped

Marksville Stamped consists of rocker stamping zoned by broad U-shaped incisions (Blitz and Mann 2000:112; Phillips 1970:119-120). Several varieties of this type are represented at Jackson Landing.

var. Godsey. Rocker stamping with a crenellated scallop-edge tool zoned by broad U-shaped incisions (Figure 5-5) (Blitz and Mann 2000:113). Only five very small sherds of this variety were found at Jackson Landing. This variety dates to the Godsey (AD 200-400) and Graveline (AD 400-700) phases in the eastern Mississippi Sound region (Blitz and Mann 2000:113).

Figure 5-5. Marksville Stamped, *var. Godsey*. Specimen numbers 2010.016: (a) .27.1; (b) .93.1; (c) .25.3; (d) .101.1; (e) .168.1 (actual size).

var. Manny. This variety is distinguished by crude dentate stamping (Figure 5-6) (Blitz and Mann 2000:113). At Jackson Landing, *var. Manny* was used to classify larger, sloppier dentate stamping applied when the vessel's surface was relatively wet. This variety dates to the middle to late Marksville period (AD 1-300) in the lower Mississippi Valley (Brown 1998b:59; Phillips 1970:124) and to the Graveline phase (AD 400-700) in the eastern Mississippi Sound region (Blitz and Mann 2000:113).

var. Newsome. This variety is characterized by zoned fine dentate stamping (Figure 5-7) (Blitz and Mann 2000:113). At Jackson Landing, *var. Newsome* classifies sherds with fine dentate stamping in small, neatly applied squares. Marksville Stamped, *var. Newsome* dates to the late Marksville period (AD 100-300) in the lower Mississippi Valley (Brown 1998b:59). Note that a number of sherds at Jackson Landing could have been classified as either *var. Newsome* or *var. Manny*. It is hard to imagine the subtle distinctions between these two varieties at Jackson Landing represent meaningful chronological differences; in some cases, both could be found on the same vessel.

var. Troyville. Decorations consist of bands of plain rocker stamping outlined by U-shaped incised lines (Figure 5-8) (Blitz and Mann 2000:113; Phillips 1970:127). All sherds of this variety at Jackson Landing are small body sherds; nothing can be said about vessel types. This variety dates to the middle to late Marksville period (AD 1-300) in the lower Mississippi Valley (Brown 1998b:59-60; Phillips 1970:127), and to the Godsey (AD 200-400) and Graveline (AD 400-700) phases in the eastern Mississippi Sound region (Blitz and Mann 2000:113).

Figure 5-6. Marksville Stamped, *var. Manny*. Specimen numbers 2010.016: (a) .48.1; (b) .54.1; (c) .31.1; (d) .6.1; (e) .61.1 (actual size).

Unclassified Stamped and Punctated

An unclassified decorative treatment is present on a rim from a small burnished vessel. Decorations include a rectilinear row of hemiconical punctations paralleling the rim just below the lip (Figure 5-9). A second row of hemiconical punctations is curvilinear and appears to be zone rocker stamping. This sherd may represent an undefined variety of the type Marksville Stamped.

Effigy Fragment

A grog tempered ceramic artifact from the mound (N168E6, Lv 5) appears to be a representation of a foot and ankle from a human figurine (Figures 5-10 and 5-11). A large break along the top and side of this artifact clearly indicates it is a

Figure 5-7. Marksville Stamped, *var. Newsome.* Specimen numbers 2010.016: (a) .63.1; (b) .109.3; (c) .124.1; (d-e, g) .101.1; (f) .231; (h) .180.1; (i) .95.1; (j) .41.1 (actual size).

Figure 5-8. Marksville Stamped, *var. Troyville.* Specimen numbers 2010.016: (a) .14.1; (b) .95.1; (c) .76.1; (d) .65.1; (e) .43.1 (actual size).

Figure 5-9. Unclassified Stamped and Punctated grog tempered sherd. Specimen number 2010.016.163.1 (actual size).

fragment of a larger object. An appliqué strip around the ankle area could be a depiction of footwear, which would be consistent with the fact that individual digits and other details of the foot are not depicted. The object is broken just above this appliqué strip. The surface on the base of the foot is chipped in several places, which may be due to repeated manipulation of the object. Apparent traces of black pigment are present in several places. This artifact was recovered from midden deposits on the south side of the mound, from either the mound-flank midden associated with Stage I or the pre-mound midden. The excavation level that produced it cross cut both deposits.

Human figurines have been found in Middle Woodland and early Late Woodland contexts at a number of sites across the Midwest and Southeast (Griffin et al. 1970:82-88; Keller and Carr 2005:429; Toth 1988:60-64). Measurable human effigies from the Midwest range in height from 1.5 to 12.0+ cm (Keller and Carr 2005: Table 11.2). Those human figurines realistically depict adult men and women (Keller and Carr 2005:428). In the Midwest, figurines have been recovered from both mound and domestic contexts (Keller and Carr 2005:457). Keller and Carr (2005:457) speculate that human figurines were ceremonial objects used in various rituals associated with mound, mortuary, and domestic spaces. The ceremonial nature of a figurine from the Baehr Mound in Illinois is indicated by its deposition in a woven bag along with a copper celt and a distinctive ceramic vessel (Griffin et al. 1970:82).

A small number of ceramic, human figurine fragments have been recovered from Middle Woodland or early Late Woodland contexts at several sites in the lower Mississippi Valley (Toth 1988:60-64). These figurines are all grog tempered with pastes comparable to contemporaneous pottery vessels. They have been recovered from mound and non-mound contexts (Toth 1988:60-64). The lower Mississippi Valley specimens are realistic depictions of people with small anatomical details visible (Toth 1988:64). No complete figurines have been found, which suggests that intentional destruction of these objects may have been a necessary part of their discard.

Gulf Historic Fineware Temper-Ware Group

Pottery of the Gulf Historic Fineware tradition dominates eighteenth-century Native American ceramic assemblages in the lower Mississippi Valley and along the northern Gulf coast (Fuller 1998:32), including along the Mississippi Gulf coast (Blitz and Mann 2000:71). Gulf Historic Fineware assemblages—which are consistent regarding attributes of ware, vessel shape, and decoration—are found throughout much of the region that comprised the French colony of *Louisiane* during the eighteenth century (Fuller 1998:33). Gulf Historic Fineware ceramics are hard, compact, and fine textured with surfaces that are smoothed and often burnished (Blitz and Mann 2000:107; Fuller 1998:33). They are often tempered with a wide variety of aplastics that include grog, sand, bone, and shell (Blitz and Mann 2000:107; Waselkov and Gums 2000:122). Although the range of tempering agents used in Gulf Historic Fineware ceramics is broad, a consistent attribute is that they are always quite fine (Fuller 1998:33). Gulf Historic Fineware assemblages are dominated by simple bowls with simple rims. Narrow, parallel-line, curvilinear incising is the dominant decorative technique (Fuller 1998:32), and small jars and simple bowls are the basic vessel forms. Unburnished vessels and vessels tempered with coarse shell represent the utilitarian wares that accompanied the more refined Gulf Historic Fineware vessels (Blitz and Mann 2000:71; Fuller 1998:33). Fuller (1998:33) suggests a simplification of vessel forms evident in the Gulf Historic Fineware group, compared with preceding Protohistoric vessel assemblages, reflects availability of European kettles and storage vessels that reduced the need for coarse tempered, native-made cooking pots and storage jars.

Figure 5-10. Grog tempered effigy fragment. Specimen number 2010.016.20.2 (actual size).

Figure 5-11. Grog tempered effigy fragment. Specimen number 2010.016.20.2 (actual size).

The use of colored slip or paint is a common, minority surface treatment in Gulf Historic Fineware assemblages (Blitz and Mann 2000:71; Fuller 1998:32). This treatment appears on 17 Gulf Historic Fineware plain sherds at Jackson Landing (Table 5-3). Red slip is most common, but white and tan pigments are present as well. Pigments are observed on vessel interiors and exteriors, although most occurs on exterior surfaces.

Figure 5-12. Chickachae Combed, *var. unspecified*. Specimen numbers 2010.016: (a) .57.1; (b) .70.1; (c) .27.1 (actual size).

Figure 5-13. Kemper Combed, *var. unspecified*. Specimen numbers 2010.016: (a) .65.1; (b) .42.1; (c) .64.1; (d) .14.1 (actual size).

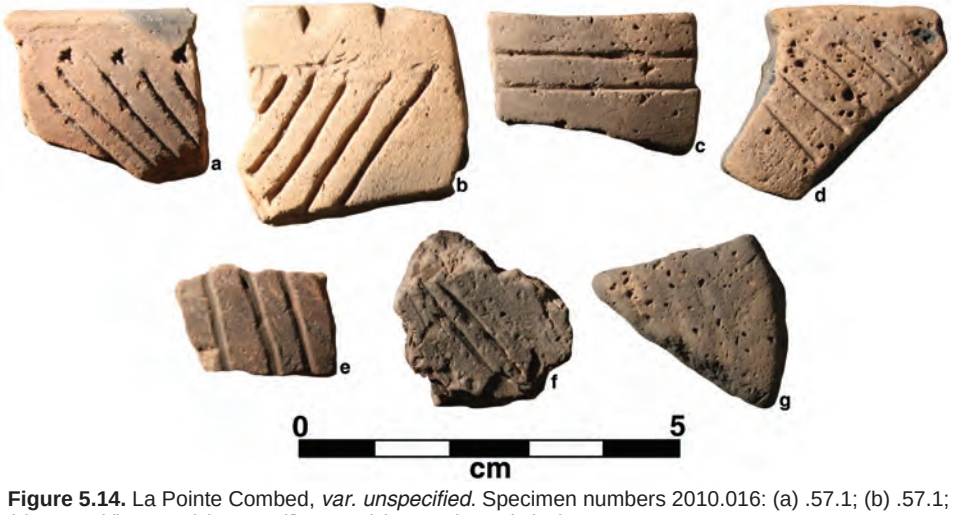


Figure 5.14. La Pointe Combed, *var. unspecified*. Specimen numbers 2010.016: (a) .57.1; (b) .57.1; (c) .14.1; (d) .64.1; (e) .14.1; (f) .57.1; (g) .64.1 (actual size).

Chickachae Combed

Chickachae Combed is characterized by bands of parallel fine lines applied with a toothed implement on a paste tempered with fine sand (Figure 5-12) (Blitz and Mann 2000:113; Phillips 1970:66). A rim of this type from Jackson Landing came from a small, burnished, thin-walled restricted bowl. All other examples of this type are small body sherds. This type dates to the La Pointe phase (AD 1699-1775) in the eastern Mississippi Sound region (Blitz and Mann 2000:113).

Chickachae Incised

Chickachae Incised is characterized by fine incised lines, usually applied as bands of parallel lines, on ware tempered with fine sand (Blitz and Mann 2000:113). The single example of this type from Jackson Landing is a very small, fine sand tempered sherd with a single, fine incised line. This type dates to the La Pointe phase (AD 1699-1775) in the eastern Mississippi Sound region (Blitz and Mann 2000:113).

Kemper Combed

Kemper Combed has bands of parallel fine lines applied with a toothed implement (Figure 5-13). Fine grog is diagnostic, but fine shell or sand may be present as well (Blitz and Mann 2000:114). Examples of this type at Jackson Landing are all small body sherds uninformative about vessel shape. This type dates to the La Pointe phase (AD 1699-1775) in the eastern Mississippi Sound region (Blitz and Mann 2000:114).

La Pointe Combed

La Pointe Combed is characterized by bands of fine parallel lines applied with a toothed implement on a paste tempered exclusively with fine shell (Figure 5-14) (Blitz and Mann 2000:114). This type dates to the La Pointe phase (AD 1699-1775). Blitz and Mann (2000:114) suspect it represents the introduction of combing after 1750. Two rims from Jackson Landing appear to be from small, thin-walled restricted bowls, while the other rim is from a thin-walled straight-sided vessel.

Leland Incised

Leland Incised exhibits broad lines incised on bur-

Figure 5-15. Leland Incised, *var. unspecified*. Specimen numbers 2010.016: (a) .161.1; (b) .57.1; (c) .163.1; (d) .14.1 (actual size).

Figure 5-16. Port Dauphin Incised, *var. Port Dauphin*. Specimen numbers 2010.016: (a) .70.1; (b) .78.1; (c) .57.1; (d) .57.1; (e) .53.1 (actual size).

Figure 5-17. Indian Pass Incised, *var. unspecified*. Specimen number 2010.016.51.3 (actual size).

nished vessels (Figure 5-15) (Blitz and Mann 2000:114; Phillips 1970:104). Examples on the Mississippi Gulf coast are tempered with fine grog and shell (Blitz and Mann 2000:114). Varieties of this type were used throughout the Mississippi through Historic periods in the lower Mississippi Valley (Brown 1998b:57-58; Phillips 1970:104).

Plain

This report follows the typology of Blitz and Mann (2000:107-108), within which plainwares of the Gulf Historic Fineware temper-ware group are not designated by a named type. As noted by Blitz and Mann (2000:107-108), the Gulf Historic Fineware plainwares concept subsumes the types Addis Plain and Chickachae Plain.

Port Dauphin Incised

Port Dauphin Incised is characterized by fine, incised lines in curvilinear or rectilinear designs on a ware tempered with fine shell (Figure 5-16) (Blitz and Mann 2000:114). Fine sand may also be present. The only defined variety for this type is *var. Port Dauphin*. Two rims of this type were found at Jackson Landing, and both could be from small, thin-walled, restricted bowls with burnished surfaces. This type dates to the La Pointe phase (AD 1699-1775) in the eastern Mississippi Sound region (Blitz and Mann 2000:114).

Fine Sand Temper-Ware Group

Ceramics placed in the Fine Sand temper-ware group contain sand that is 1 mm or less in size. A very small number of sherds tempered with fine sand were found at Jackson Landing.

Indian Pass Incised

This type exhibits decorations consisting of multiple, close-spaced, parallel fine lines that create a curvilinear design (Figure 5-17) (Blitz and Mann 2000:109; Willey 1998:425-427). This type dates to the Graveline phase (AD 400-700) in the eastern Mississippi Sound region, and its cognate type is Marksville Incised, *var. Leist* (Blitz and Mann 2000:109).

Plain

Plainware within the Fine Sand temper-ware group is not designated by a named type (Blitz and Mann 2000:107).

Shell Temper-Ware Group

Sherds in this temper-ware group came from vessels tempered with crushed shell. Shell tempering was commonly used on the Mississippi Gulf coast during the Mississippi, Protohistoric, and Historic periods (Blitz and Mann 2000:99-100). Based on the large amount of Gulf Historic Fineware sherds found at Jackson Landing, sherds tempered with coarse shell likely represent accompanying utilitarian wares (Blitz and Mann 2000:71; Fuller 1998:33).

Bell Plain

Bell Plain is tempered with finely ground shell and often exhibits a burnished surface (Blitz and Mann 2000:108; Phillips 1970:58-59). Sherds were classified as Bell Plain at Jackson Landing if they are tempered exclusively with shell generally 1 mm or smaller in size. Sherds in the Jackson Landing assemblage were not sorted into varieties of this type, although a number have been defined (Phillips 1970:59-61).

Grace Brushed

Grace Brushed is defined as crude brushing on the exterior of vessels tempered with coarse shell (Figure 5-18) (Blitz and Mann 2000:115; Williams and Brain 1983:165). The temporal distribution of this type on the Mississippi Gulf coast is unclear (Blitz and Mann 2000:115). Varieties of this type are present during the early (AD 1200-1350) and late (AD 1500-1650) Mississippi periods in the lower Mississippi Valley (Brown 1998b:55).

Mississippi Plain

Mississippi Plain is tempered with coarse shell (Blitz and Mann 2000:108; Phillips 1970:130-131). Sherds were classified as Mississippi Plain if temper particles are generally larger than 1 mm. Sherds in the Jackson Landing assemblage were not placed into varieties of this type, although a number have been defined (Phillips 1970:131-135).

Figure 5-18. Grace Brushed, *var. unspecified.* Specimen number 2010.016.57.1 (actual size).

Tchefuncte Temper-Ware Group

In many cases, no temper is apparent in sherds of the Tchefuncte temper-ware group (Blitz and Mann 2000:108). As a result, classifications are often based on the soft-textured and chalky feel of Tchefuncte sherds, in addition to distinctive surface treatments. Tchefuncte sherds are indicative of an occupation during the Gulf Formational period (1200-100 BC) (Blitz and Mann 2000:98).

Lake Borgne Incised

Lake Borgne Incised sherds exhibit linear designs formed by drag-and-stab incising (Blitz and Mann 2000:116; Phillips 1970:97).

var. Lake Borgne. This variety consists of drag-and-stab incised lines in rectilinear designs (Blitz and Mann 2000:116; Phillips 1970:97). The variety is diagnostic of the Apple Street (800-100 BC) and Greenwood Island (100 BC-AD 200) phases on the Mississippi Gulf coast (Blitz and Mann 2000:116) and the Tchula period (300-100 BC) of the lower Mississippi Valley (Brown 1998b:56; Phillips 1970:97). The single specimen of this variety from Jackson Landing is very eroded, so its decoration is barely visible.

Lithics

Analysis of lithic materials from Jackson Landing had two primary objectives. First, identifying raw material was important so that source areas and indications of long-distance exchange could be considered. Second, distributions of lithic artifacts could be used to investigate differences among contexts regarding the kinds of activities represented. Toward this end, different classes of artifacts were identified, with each class assumed to reflect the performance of different kinds of activities. For example, different classes of debitage are assumed to reflect different stages of stone tool production and maintenance, just as different types of formal tools presumably were associated with different kinds of activities. Unfortunately, the lithic assemblage recovered during the ECU excavations is very small, so its potential to provide information about activities performed in different parts of the site is limited.

Raw Materials

A limited range of raw materials is present among the stone artifacts from Jackson Landing; nearly all of these materials are locally available (Table 5-4). The flaked stone assemblage is dominated by gravels of the Citronelle Formation, an abundant local material that caps the hills north of the coast and is exposed in drainage basins of coastal Mississippi's rivers and

Table 5-4. All Lithics by Raw Materials.

	Mound	Bluff	Off Mound	Shovel Tests	Totals
Chipped Stone					
Citronelle Gravel	35	30	2	6	**73**
Tallahatta Chert	1	-	1	-	**2**
Tallahatta Sandstone	-	-	-	6	**6**
Unclassified Sandstone	2	-	-	-	**2**
Ground Stone					
Ferruginous Sandstone	4	4	-	1	**9**
Ochre	1	2	-	-	**3**
Unknown	1	-	-	-	**1**
Totals	**44**	**36**	**3**	**13**	**96**

Table 5-5. Lithics by Class and Excavation Area.

	Mound	Bluff	Off Mound	Shovel Tests	Totals
Chipped Stone					
Bifacial Tools					
Projectile Point	3	-	-	-	**3**
Unclassified Biface	2	3	1	-	**6**
Flake Tools					
Retouched Bladelets	-	-	-	2	**2**
Retouched Flake	1	1	-	-	**2**
Core					
Unidirectional Core	-	-	-	1	**1**
Debitage					
Flake	27	25	2	9	**63**
Shatter	2	1	-	-	**3**
Ground Stone					
Celt Fragment	1	-	-	-	**1**
Unclassified Ground Stone	4	5	-	-	**9**
Unmodified Stone					
Unclassified Unmodified Stone	-	1	-	-	**1**
Totals	**40**	**36**	**3**	**12**	**91**

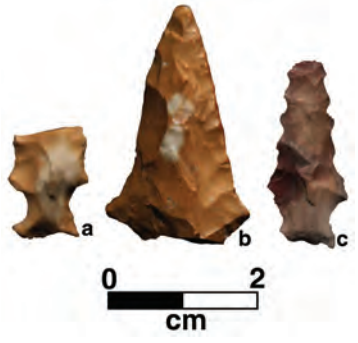


Figure 5-19. Projectile points. Specimen numbers 2010.016: (a) .14.16; (b) .15.1; (c) .58.6 (actual size).

streams (Brown et al. 1944:70; Collins 1984:8; Russell 1987:7). Citronelle gravels comprise 88 percent (n=73) of the overall flaked stone artifacts and 95 percent of those from mound, off-mound, and bluff area excavations. Two flakes from an unclassified kind of sandstone probably represent local materials, as well, since sandstone is found within the Citronelle Formation. Other stone raw materials represented are ferruginous sandstone and ocher, both of which are present within the Citronelle Formation.

The only non-local lithics from Jackson Landing are six flakes of Tallahatta Sandstone and two flakes of Tallahatta Chert, which constitute 7.2 percent and 2.4 percent, respectively, of the flaked stone assemblage. Tallahatta Sandstone and Tallahatta Chert both occur within the Tallahatta Formation of southwestern Alabama and east-central Mississippi (Dunning 1964:50; Haywick and Carr 2004).[1] Another stone raw material that may be non-local in origin is a possible celt fragment. This very dark gray to black stone remains unidentified, but is assumed to be non-local because it differs from the yellow and brown materials common within the Citronelle gravels.

Stone Tool Production and Use

All lithic artifacts were classified according to a typology comprised of functional categories related to manufacture and use of stone tools (Table 5-5). The classes within this typology are defined in the following sections.

Chipped Stone Artifacts

Chipped stone includes all lithic materials modified by percussion or pressure flaking (Andrefsky 1998:12). These include bifacial tools, flake tools, and debitage.

Bifacial Tools

Bifaces are defined as extensively modified artifacts that have two sides that meet to form a single edge that circumscribes the entire artifact (Andrefsky 1998:77).

Projectile Points. Four projectile points were found in ECU excavations. Interestingly, one of these was made from dark olive green bottle glass and is discussed in the following section on Historic period artifacts. The other three projectile points were made from Citronelle gravel. Two of these are very small, side-notched arrow points (Figure 5-19a and c). These points are 9 and 11 mm in width, but length measurements are incomplete because the tips of both points are broken. These specimens are indicative of the small arrow points made in the region from the Late Woodland period through the eighteenth centu-

ry (McGahey 2000:198). The base of the third projectile point is missing, so it cannot be attributed to an established type (Figure 5-19b). This point is larger than the other two, measuring 20 mm in width, and it has pronounced barbs at the shoulders. Based on size and shape, this may be a broken Collins point, a side-notched arrow point that dates to the Late Woodland period (AD 500-1000) (McGahey 2000:198).

Unclassified Bifaces. Unclassified bifaces are artifacts that have bifacially worked edges, but are too fragmentary or irregular in shape to be attributed to a formally defined tool type. Some of these may represent unfinished projectile points, while others may be finished tools (Figure 5-20).

Flake Tools

Flake tools are non-bifacial tools produced by modifying flakes (Andrefsky 1998:78).

Retouched Bladelets. These artifacts were made from blade flakes that were steeply retouched along two sides (Figure 5-21). The result is a long (20 and 22 mm), thin (5 and 6 mm) tool with parallel sides that could have been used as a drill or perforator. Artifacts of this type are commonly part of the microlithic tool industry associated with Poverty Point-era sites in the lower Mississippi Valley and along adjacent parts of the Gulf coast (Haag and Webb 1953; Webb 1968:303, C. Webb 1982:50). A number of microliths identical to these artifacts were recovered from the Poverty Point-era Claiborne site, located approximately 1.0 km north of Jackson Landing (Boudreaux 1999:70). The two retouched bladelets from Jackson Landing were found in shovel tests (nos. 70 and E) during CEI's survey of the area south of the earthwork. These shovel tests were located at the southern end of a small peninsula adjacent to the marsh in the south-central part of the site, on the west side of the canal, well away from mound and bluff midden areas. One of the retouched blades came from Shovel Test 70, the source of the site's only Tallahatta Sandstone debitage, some of the only non-local stone found during the 2010 investigations. Tallahatta Sandstone, along with a substantial amount of other non-local raw materials, was recovered from the nearby Claiborne site (Boudreaux 1999). Recovery of this material with one of the retouched bladelets at Jackson Landing suggests that these artifacts are part of an early occupation during either the Late Archaic or Gulf Formational period.

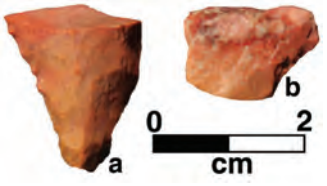


Figure 5-20. Unclassified bifaces. Specimen numbers 2010.016: (a) .107.4; (b) .112.5 (actual size).

Figure 5-21. Retouched bladelets. Specimen numbers 2010.016: (a) .184.1; (b) .189.2 (actual size).

Retouched Flakes. These expedient tools are flakes with edges sharpened by pressure flaking.

Core

Cores are artifacts that were used primarily as sources of raw materials (Andrefsky 1998:144). A very small (12-by-22 mm) example from an auger test near the mound is a unidirectional core that exhibits a flat striking platform and multiple parallel flake scars (Andrefsky 1998:145).

Debitage

Debitage refers to unused pieces of lithic material, the by-products of stone tool manufacture (Andrefsky 1998:82). Manufacture of stone tools should be reflected in the distribution of debitage. One class of debitage at Jackson Landing are flakes, defined as pieces of debitage with recognizable dorsal and ventral surfaces (Andrefsky 1998:82). Another class of debitage recognized during analysis is shatter, which consists of angular, blocky pieces of debitage.

Manufacture of stone tools at Jackson Landing was investigated through additional analyses of debitage. Unfortunately, small sample sizes limit the utility of these analyses. Debitage was classified into four size classes: (1) >12.5 mm; (2) 12.5-6.4 mm; (3) 6.3-4.0 mm; and (4) <4 mm, by sorting with nested geologic sieves (Table 5-6). Size class is important because debitage size is assumed to reflect different stages in stone tool manufacture, as larger pieces are thought to come from earlier stages of tool production and smaller pieces from late stage production or tool maintenance (Andrefsky 1998:98). Another measure of artifact size is weight, and all artifacts were weighed.

Stone tool manufacture also can be investigated through comparisons of the amount of cortex present on flakes. Citronelle gravel is available as cobbles that are completely covered in a distinctive cortex. The amount of cortex present on Citronelle flakes should reflect the stage of production at which the flake was removed, based on the assumption that knappers

Table 5-6. Debitage by Size Class.

	N168E6		N169E8						N171E6										N183E7		N183E10		N183E15		N183E19	
	Lv 1		Zn 1		Zn 3/4		Zn 5		Lv 1		Lv 2		Lv 3		Lv 5		Lv 6		Lv 1		Zn 5		Lv 4		Lv 5	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Size Class (mm)																										
> 4	5	0.6	2	0.3	-	-	-	-	-	-	-	-	1	0.2	-	-	1	0.1	-	-	1	0.05	-	-	-	-
> 6.3	2	0.4	2	0.7	1	0.6	-	-	2	1.6	3	2.3	-	-	-	-	-	-	1	0.1	-	-	1	0.2	1	0.5
> 12.5	-	-	-	-	-	-	1	3.9	-	-	-	-	-	-	1	5.9	-	-	-	-	-	-	-	-	-	-
Totals	**7**	**1.0**	**4**	**1.0**	**1**	**0.6**	**1**	**3.9**	**2**	**1.6**	**3**	**2.3**	**1**	**0.2**	**1**	**5.9**	**1**	**0.1**	**1**	**0.1**	**1**	**0.05**	**1**	**0.2**	**1**	**0.5**

Table 5-6 (Continued).

	N192E-426						N192.2 E-423.7		N193.2 E-423.7		N218.7 E19.8		CEI Shovel Tests		ECU Shovel Tests		Totals	
	Zn 1		Zn 2		Zn 3		Lv 3		Lv 5		Lv 6		75		N193E-427			
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Size Class (mm)																		
> 4	-	-	-	-	-	-	-	-	-	-	1	0.1	-	-	-	-	11	1.35
> 6.3	3	2.7	4	3.2	4	3.9	1	0.7	-	-	-	-	1	0.2	2	0.9	28	18
> 12.5	1	5.3	8	38.3	3	16.1	-	-	1	3.8	-	-	-	-	-	-	15	73.3
Totals	**4**	**8**	**12**	**41.5**	**7**	**20**	**1**	**0.7**	**1**	**3.8**	**1**	**0.1**	**1**	**0.2**	**2**	**0.9**	**54**	**92.65**

began with a cortex-covered cobble and this cortex was progressively removed throughout production (Andrefsky 1998:103-104). Based on this assumption, Citronelle flakes with more cortex are assumed to come from early in the production process, while those with less cortex are assumed to come from late in the process or from tool maintenance. Determining presence or absence of cortex is relatively straightforward for Citronelle gravels, with their distinctive weathered exterior surfaces. Flakes were placed into one of four cortex classes: (0) no cortex present; (1) less that 50 percent of dorsal side covered in cortex; (2) more that 50 percent of dorsal side covered in cortex; and (3) entire dorsal side covered in cortex (Table 5-7) (Andrefsky 1998:106).

Ground Stone Artifacts

Ground stone tools are artifacts that were shaped through abrasion (Andrefsky 1998:256). Very few artifacts from Jackson Landing fall into this category.

Celt Fragment. This specimen is a small piece of unclassified, dark gray to black stone that may be a fragment of a celt (Figure 5-22). Most of the exterior surface of this artifact is smooth, but one end is battered, which is consistent with its use as a celt.

Unclassified Ground Stone. These objects (n=9) were modified through grinding, but little else can be said about them.

Historic Period Materials

This section discusses Historic period artifacts made from materials that are non-native in origin. Artifacts are organized by raw materials, and classes used in the analysis are defined below (Table 5-8). The presence of a robust eighteenth-century component at Jackson Landing is indicated by the abundance of Gulf Historic Fineware ceramics and European trade goods (Williams 1987). Many of the Historic period artifacts recovered during ECU's 2010 excavations are eighteenth-century European items presumably acquired by Native Americans through trade with European colonists. The French first established themselves in the region in 1699 with construction of Fort Maurepas at present-day Ocean Springs (Blitz and

Figure 5-22. Possible celt fragment. Specimen number 2010.016. 19.4 (actual size).

Table 5-7. Citronelle Gravel Flakes by Cortex Class.

	N168E6		N169E8						N171E6										N183E7		N183E10		N183E15	
	Lv 1		Zn 1		Zn 3/4		Zn 5		Lv 1		Lv 2		Lv 3		Lv 5		Lv 6		Lv 1		Zn 5		Lv 4	
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Cortex Class																								
0	4	0.3	1	0.6	1	0.6	-	-	2	1.6	2	1.1	1	0.2	-	-	1	0.1	1	0.1	1	0.05	1	0.2
1	2	0.5	2	0.3	-	-	1	3.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	1	0.2	-	-	-	-	-	-	-	-	1	1.2	-	-	1	5.9	-	-	-	-	-	-	-	-
Totals	**7**	**1.0**	**4**	**1.0**	**1**	**0.6**	**1**	**3.9**	**2**	**1.6**	**3**	**2.3**	**1**	**0.2**	**1**	**5.9**	**1**	**0.1**	**1**	**0.1**	**1**	**0.05**	**1**	**0.2**

Table 5-7 (Continued).

	N183E19		N192E-426						N192.2 E-423.7		N193.2 E-423.7		N218.7 E19.8		CEI ST		ECU ST		Totals	
	Lv 5		Zn 1		Zn 2		Zn 3		Lv 3		Lv 5		Lv 6		75		N193E-427			
	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.	Ct.	Wt.
Cortex Class																				
0	1	0.5	-	-	1	0.7	3	2.4	1	0.7	-	-	1	0.1	-	-	-	-	22	9.25
1	-	-	3	2.7	4	11.4	4	17.6	-	-	-	-	-	-	1	0.2	2	0.6	19	37.2
2	-	-	1	5.3	5	17.7	-	-	-	-	1	3.8	-	-	-	-	-	-	8	26.9
3	-	-	-	-	2	11.7	-	-	-	-	-	-	-	-	-	-	-	-	5	19
Totals	**1**	**0.5**	**4**	**8.0**	**12**	**41.5**	**7**	**20.0**	**1**	**0.7**	**1**	**3.8**	**1**	**0.1**	**1**	**0.2**	**2**	**0.6**	**54**	**92.35**

Mann 2000:65), after which they established settlements at Mobile, New Orleans, and Biloxi (Giraud 1974). Additionally, French plantations were scattered across the northern Gulf coast during the eighteenth century (Waselkov and Gums 2000:63). The region changed hands politically, from French to British in 1763, from British to Spanish in 1780, and from Spanish to American in 1810. There was considerable fluidity to the Native American occupations, as well.

Jackson Landing was used throughout the Historic period after the eighteenth-century Native American occupation. The site was occupied during the nineteenth century, when it was a sea-island cotton plantation and a cattle ranch (Giardino and Guerin 1996; Giardino and Jones 1996). At various times during the twentieth century, buildings on the mound functioned as a residence, a hunting lodge, and as a corporate retreat. With some artifacts, such as metal fragments and flat glass, a precise period of use cannot be determined. Other artifacts—such as wire nails, .22 caliber bullets, and shotgun shells—clearly date to recent periods of the site's occupation.

Ceramics

Coarse Earthenware, Green Lead-Glazed

Green lead-glazed coarse earthenwares are commonly found at French colonial sites in North America (Waselkov and Gums 2000:136). These ceramics were manufactured during the eighteenth century by potteries of the Saintonge region in southwestern France and were common in the French colonies because they affordably served the needs of ships' crews and of colonists upon arrival in North America (Steponaitis 1979:44). They continued in use along the Gulf coast until around 1800 (Waselkov and Gums 2000:136).

The ceramic bodies of the sherds from Jackson Landing are light red or buff-colored (Figure 5-23). All fragments have a light green or green glaze on both interior and exterior surfaces. A layer of white slip is visible on many sherds beneath the green glaze (see Steponaitis 1979:57). Nothing can be said about the types of vessels represented at Jackson Landing, because all of the recovered sherds of this type are very small, the largest fragment being 2.5 cm long.

Faience

Faience refers to fine-quality earthenwares with white tin-glazed surfaces that were manufactured in France (Brain 1979:34; Waselkov and Gums 2000:137). The general term faience subsumes a great deal of variability, which has been addressed by the development of more refined classifications (Waselkov and Walthall 2002). Faience was used throughout the entire eighteenth century at French colonial settlements on the Gulf coast, although different proportions of faience styles correlate with different periods of occupation (Waselkov and Gums 2000:137).

Two small pieces of faience were recovered during the ECU excavations (Figure 5-24). Both are examples of *faience blanche,* which has white tin glaze on both interior and exterior surfaces (Waselkov and Walthall 2002:63). Both pieces of faience appear to be examples of the type Normandy Blue on White, based on the designs painted on their interior surface (Waselkov and Walthall 2002:65-67).

Pearlware

Ten sherds are classified as British-made pearlware (Figure 5-25), produced primarily from the late eighteenth to early nineteenth centuries. It is the most common kind of ceramic found on sites of the early nineteenth century (Noel Hume 1969:130). Looking at other sites along the northern Gulf coast, little pearlware is found on sites in the Mobile area prior to 1780 (Waselkov and Gums 2000:147). One piece of pearlware from Jackson Landing is plain, but the other specimens exhibit hand-painted blue floral designs. Two fragments are from the base of a piece of hollowware, but other fragments are too small to give any indication of vessel type.

White Salt-Glazed Stoneware

A single, very small fragment of plain white salt-glazed stoneware was found. This type of English stoneware was produced from the 1730s to the 1770s (Waselkov and Gums 2000:144), and it was the typical English tableware of the mid-eighteenth century (Noel Hume 1969:115).

Glass

Container Glass

Several fragments of container glass were found during the ECU excavations. Clear, white, and brown container glass likely came from modern activities, but dark olive green glass fragments probably come from bottles manufactured during the eighteenth or nineteenth centuries to hold wine, distilled liquors, or other beverages (Brain 1979:85; Waselkov and Gums 2000:153). The two fragments of dark olive green glass are both small body sherds, so nothing can be said about vessel shape or method of manufacture.

Flat Glass

A number of fragments of clear flat glass were found. Most, possibly all, of these artifacts came from modern structures on the mound or modern debris in other areas. Williams (1987:53) recovered a fragment of mirror glass from his excavations in the eighteenth-century midden, so some flat glass may be older.

Projectile Point

A projectile point made from glass is an interesting example of the native tradition of stone tool making

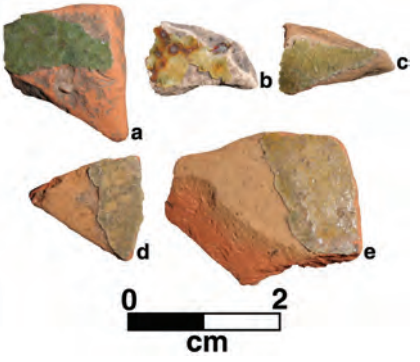


Figure 5-23. Green lead-glazed coarse earthenware. Specimen numbers 2010.016: (a) .57.5; (b) .57.5; (c) .14.12.; (d) .64.6; (e) .64.6 (actual size).

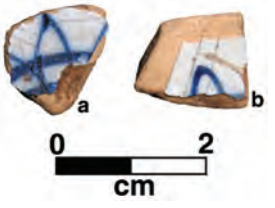


Figure 5-24. *Faience blanche*, Normandy Blue on White. Specimen numbers 2010.016: (a) .14.12; (b) .64.6 (actual size).

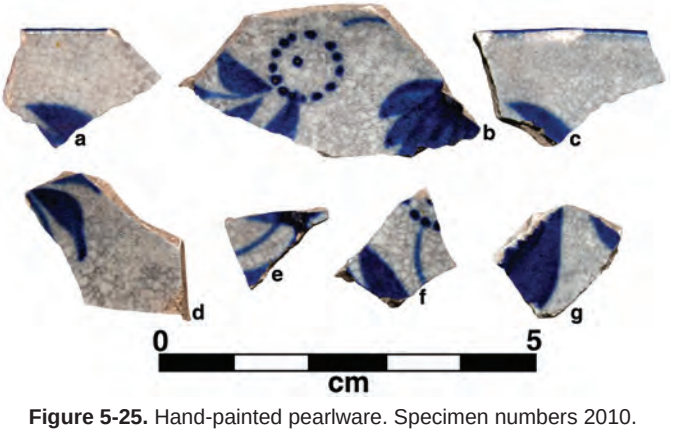


Figure 5-25. Hand-painted pearlware. Specimen numbers 2010.016: (a) .57.5; (b) .57.5; (c) .57.5; (d) .57.5; (e) .53.3; (f) .53.3; (g) .57.5 (actual size).

Table 5-8. Euroamerican Artifacts by Class and Excavation Area.

	Mound	Off Mound	Bluff	Totals
Ceramics				
Coarse Earthenware, Green Lead-Glazed	7	-	-	7
Faience Blanche, Normandy Blue-on-White	2	-	-	2
Pearlware	1	-	-	1
Pearlware, Hand-Painted	9	-	-	9
Stoneware, White Salt-Glazed	1	-	-	1
Glass				
Container	11	18	-	29
Flat	2	3	69	74
Projectile Point	1	-	-	1
Bead, Type IIA1	4	-	-	4
Bead, Type IIA6	1	-	-	1
Bead, Type IIA7	4	-	-	4
Bead, Type IIB	1	-	-	1
Bead, Type IIB2	1	-	-	1
Bead, Type IVB1	1	-	-	1
Bead, Type WIE4	1	-	-	1
Metal				
.22 Caliber Slug	1	1	-	2
Lead Ball	1	-	-	1
Brass Button, Type B-111A	1	-	-	1
Iron Blade	1	-	-	1
Square Nail	2	1	-	3
Wire Nail	12	18	-	30
Unclassified Nail	-	2	7	9
Shotgun Shell	4	-	-	4
Iron Fragments	5	15	43	63
Lead Fragments	3	-	-	3
Tin Fragments	-	1	-	1
Unidentified Fragments	20	-	-	20
Stone				
Gunspall, French Flint	1	-	-	1
Totals	**98**	**59**	**119**	**276**

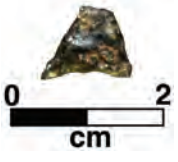


Figure 5-26. Projectile point made from dark olive green glass. Specimen number 2010.016.14.10 (actual size).

applied to a raw material acquired through trade with Europeans (Figure 5-26). This artifact is a small triangular arrowpoint with a concave base. The specimen measures 12 mm wide at the base and 10 mm in height, but its tip is broken, so it would have been slightly longer when complete. It appears to be a small example of a Madison point, a type of point made from the Late Woodland period through European contact (McGahey 2000:200-201). This point was made from dark olive green bottle glass, but is so thin (1.5 mm) that it appears light green in color.

Glass Beads

Twelve glass beads representing seven types were recovered during the ECU excavations. The recovery of such a small number of beads is not surprising, because the eighteenth-century component in the mound area is present in the uppermost, disturbed deposits of humus and topsoil, which were screened through ¼-inch hardware cloth. Some small beads may not have been recovered. Glass beads were classified according to the typology developed by Kidd and Kidd (1970) and modified by Brain (1979).

All of the glass beads from Jackson Landing are drawn beads, made by blowing and pulling molten glass into long tubes that were broken into sections and modified further into beads (Kidd and Kidd 1970:49). Most of these are simple beads made from one color of glass, but some are compound beads with layered decorations (Kidd and Kidd 1970:50). Several beads are striped, an effect produced when rods of different colored glass were laid around the molten glass before being blown and drawn (Brain 1979:97; Kidd and Kidd 1970:49). Drawn beads of simple construction with striped inlays are called complex, while compound beads with striped inlays are called composite (Brain 1979:97).

Type IIA1. These are simple beads made of opaque white glass (Figure 5-27a-e). The specimens from Jackson Landing are round, oval, and barrel-shaped, and they range in length from 6 to 13 mm. Type IIA1 beads have been found on a number of sites that date between 1700 and 1836 (Brain 1979:101).

Type IIA6. A simple bead made of translucent dark blue glass (Figure 5-27f), this single example from Jackson Landing is oval in shape and 8.5 mm in length. These beads were available from 1600 to 1890 (Brain 1979:102). They are commonly found on sites that date to between 1700 and 1740, and are less common after 1740 (Brain 1979:102).

Type IIA7. These simple beads are made of opaque turquoise glass (Figure 5-27g-i). The Jackson Landing specimens are oval or doughnut-shaped, and measure

3 to 4 mm wide. These beads were available from 1600 to 1836 (Brain 1979:103).

Type IIB. Type IIB beads are complex in construction, with stripes produced by inlaying rods of different colored glass around the bead's core (Brain 1979:97; Kidd and Kidd 1970:49). One example from Jackson Landing is clearly a Type IIB bead based on construction, but it cannot be assigned a more precise category because several of its longitudinal stripes are missing (Figure 5-27j). This bead has an opaque white body with six longitudinal inlays, three of which are of blue glass. These blue inlays alternate with shallow grooves, where inlays were once present. This bead is 8 mm long and oval in shape.

Type IIB2. This is an opaque white bead with four longitudinal stripes of dark blue glass (Figure 5-27k). These beads were available from 1699 to 1833 (Brain 1979:104). The specimen from Jackson Landing is 13 mm in length.

Type IVB1. These are composite beads, compound beads decorated with striped inlays (Brain 1979:97), in this case longitudinal stripes of white glass between two layers of clear glass, a style referred to as "gooseberry" beads (Figure 5-27l) (Brain 1979:106). They were available between 1699 and 1836, but were most common between 1670 and 1760 (Brain 1979:106). The specimen from Jackson Landing is 6 mm long.

Metal

Musket Ball

A single unfired lead ball was found during the ECU excavations (Figure 5-28). It is a .51 caliber ball (13 mm in diameter) likely intended for use in a .55 to .62 caliber weapon (Waselkov and Gums 2000:161). According to Waselkov and Gums (2000:161), muskets of that size were mainly trade guns with smaller bores than the standard French military muskets, which fired a .65 caliber ball.

Brass Button

A solid cast brass button with a convex crown and stamped, flat edges (Figures 5-29) is 18 mm in diameter. Brazed on the back is a flat, wedge-shaped attachment with a drilled eye. According to Brain (1979:189) this is a military coat button, his Type B-IIIa, used between 1716 and 1763 in the *Louisiane* colony.

Iron Blade

A thin flat piece of iron is tentatively classified as a knife blade. This artifact is extremely rusted and may prove to be something else entirely once it is cleaned.

Nails

A number of iron nails were recovered during excavations. Many are unidentifiable, and many more are recent wire nails. Square nails (n=3) may derive from early occupations that pre-date the widespread use of wire nails at the end of the nineteenth century (Edwards and Wells 1993:13). These square nails are too fragmentary and rusted to determine if any are handwrought (rather than cut), which would indicate an origin during the eighteenth century.

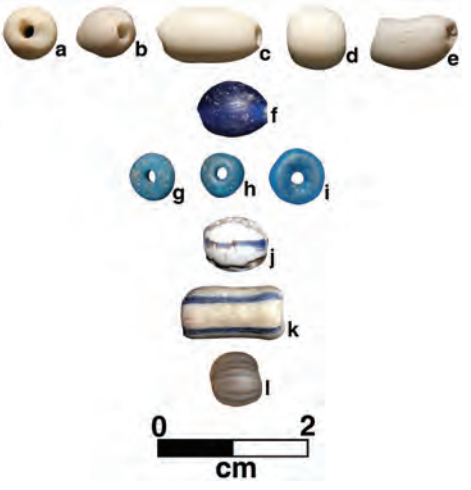


Figure 5-27. Glass Beads: (a-e) Type IIA1, specimen numbers 2010.016: (a) .14.11; (b) .14.11; (c) .17.3; (d) .27.3; (e) .42.3. (f) Type IIA6, specimen number 2010.016.64.4. (g-i) Type IIA7, specimen numbers 2010.016: (g) .27.3; (h) .45.3; (i) .42.3. (j) Type IIB, specimen number 2010.016.64.4. (k) Type IIB2, specimen number 2010.016.64.4. (l) Type IVB1, specimen number 2010.016.54.2 (actual size).

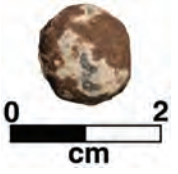


Figure 5-28. Musket ball. Specimen number 2010.016.14.8 (actual size).

Figure 5-29. Brass button, front (a) and back (b). Specimen number 2010.016.57.7 (actual size).

Metal Fragments

This catch-all category contains unidentifiable scraps of iron, lead, tin, and unidentified metal, undoubtedly including materials from the eighteenth century through modern times.

Stone

Gunspall

A single gunspall made of French blond chert (see Hamilton 1960:73) was found during mound excavations (Figure 5-30). This gunspall is wedge-shaped in cross section and its back has been shaped by secondary flaking (see Noel Hume 1969:219-220). The working edge of this speciment is irregular and slightly concave, presumably from use. This gunspall measures 33 mm from side-to-side and 24 mm from working edge to heel. Gunspalls of French blond chert were used almost exclusively during the French colonial period (Waselkov and Gums 2000:161).

Summary

Analysis of artifacts for both chronological and functional information was an important part of achieving the goals of the ECU investigations at Jackson Landing. This chapter has discussed the methods of artifact analysis and the analytical categories used to classify Native American ceramics and lithics, and Historic period artifacts that include eighteenth-century European trade goods and artifacts of more recent manufacture. Chronologically, the artifacts recovered during fieldwork are diagnostic of several cultural periods that span several thousand years. Artifact quantities are consistent with the Jackson Landing site's established culture history, which includes minor occupations during the Late Archaic (ca. 3000-1200 BC) and late Late Woodland (AD 700-1200) to Mississippi periods (AD 1200-1550), a more substantial Historic Indian component that dates to the eighteenth century (Williams 1987), and a significant occupation during the early Late Woodland period (AD 400-700) when the site's earthen monuments were built.

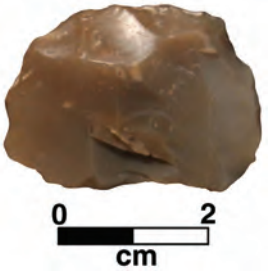


Figure 5-30. Gunspall of French blond chert. Specimen number 2010.016.14.9 (actual size).

Endnotes

[1] Tallahatta Sandstone and Tallahatta Chert are, respectively, the materials formerly known as Tallahatta Quartzite and Coastal Plain Agate (see Haywick and Carr 2004).

Chapter 6
Conclusions

Fieldwork was undertaken at Jackson Landing in 2010 to address several research goals. These included establishing the site's history of occupation, determining when the mound had been built and used, and investigating activities associated with the mound and other locations around the site. Previous excavations established that the earthwork and mound were built some time during the early Late Woodland period, AD 400-700 (Boudreaux 2011a). The earthwork appeared to have been present by sometime between AD 440 and 650, but a more precise construction date for the mound was not known.

Research objectives for the 2010 investigations included: (1) determining the spatial distribution of archaeological deposits between the earthwork and Mulatto Bayou; (2) recovering sufficient archaeological materials from excavated mound and non-mound contexts to address questions about site function and the spatial distribution of activities during the early Late Woodland period; and (3) developing a detailed chronology for construction and use of the mound. This chapter addresses these research objectives in light of information produced by the 2010 investigations.

Jackson Landing does not appear to have been a permanently occupied settlement, but the space delineated by its earthwork was not vacant. Extensive investigations of the mound have allowed development of a detailed chronology of mound construction, which shows the mound was built and used during a very brief period around AD 655. Additionally, investigation of multiple pre-mound and mound summit contexts has led to inferences about activities that took place in the mound area. Hosting large-scale feasting events, which presumably involved large group gatherings, appears to have been the most prominent activity that occurred in the mound area throughout its use during the early Late Woodland period.

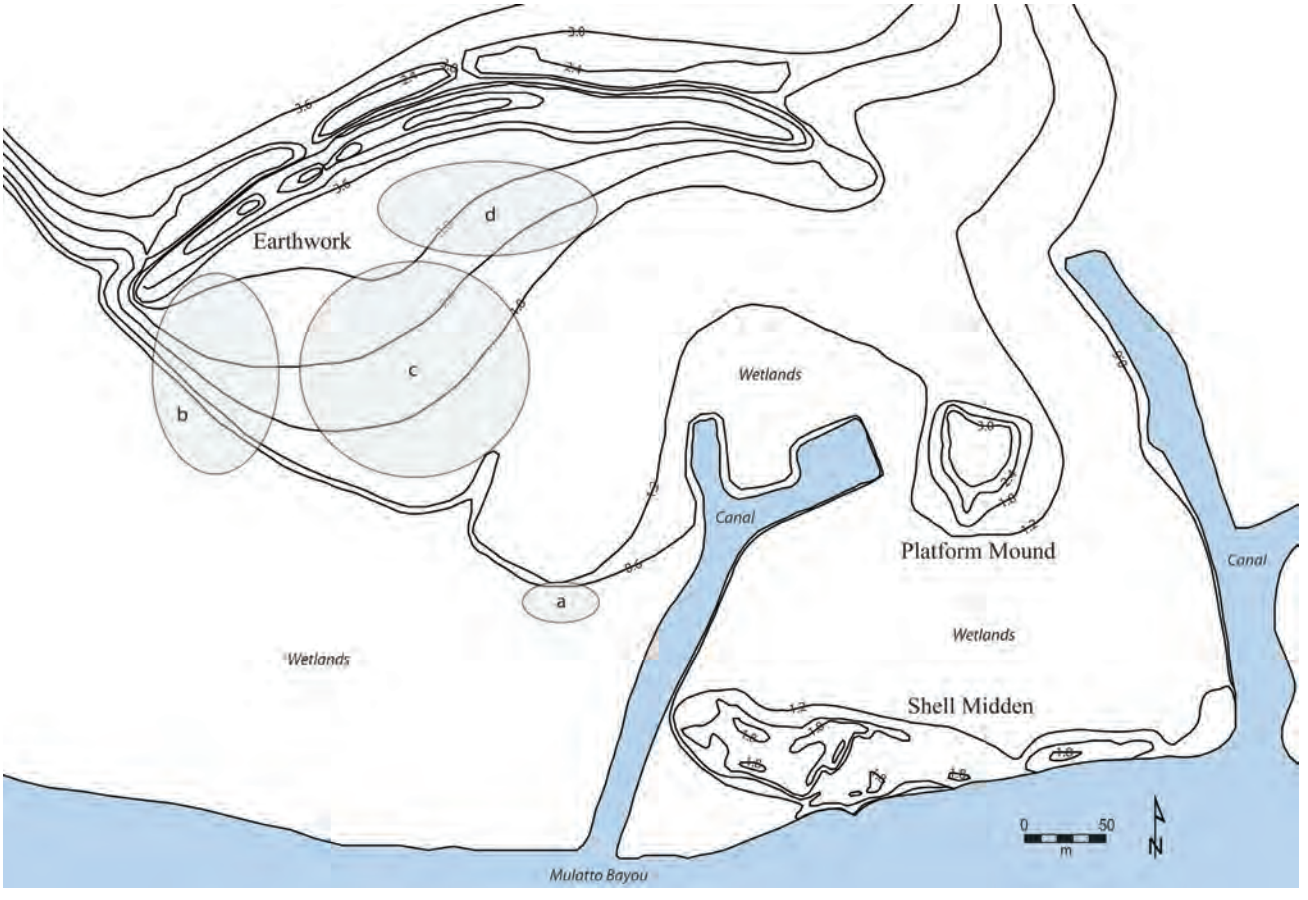


Figure 6-1. The spatial distribution of cultural material identified through shovel testing: (a) Late Archaic or Gulf Formational; (b) extent of midden deposits in the bluff area; (b-d) areas with ceramics from the Marksville series.

Spatial Distribution of Archaeological Deposits

Jackson Landing is a large site, and most of it had not been systematically surveyed until this project. Archaeological deposits were known to be present in several areas based on the highly visible presence of a shell midden along Mulatto Bayou on the south side of the site, a shell midden in the bluff area on the western edge of the site, the earthwork to the north, and the mound on the eastern end of the site (see Figure 1-1).

Nothing, however, was known about the large space between these areas. Investigating the spatial distribution of archaeological deposits was important to determine the presence of discrete areas associated with different components of the site's nearly 4,000 years of human occupation. Also, from the perspective of investigating the site as a significant location during the early Late Woodland period, it was important to know if any deposits were contemporaneous with use of the earthwork and mound. In particular, how does Jackson Landing relate to two site types defined for Woodland platform mounds that pre-date AD 700? A number of early platform mounds appear to have been located either within vacant ceremonial centers (Cobb and Nassaney 2002:534-535; Knight 2001:313; Mainfort and Sullivan 1998:9; see also Lewis 1988:115) or adjacent to permanently occupied villages (Knight 2001:313; Pluckhahn 2000, 2003).

Previous investigations of Jackson Landing had shown it has a long occupational history spanning the Late Archaic through Historic periods. A shovel test survey of the area south of the earthwork to Mulatto Bayou recovered evidence for activities that took place during the Late Archaic or Gulf Formational periods, the Middle or Late Woodland periods, and the eighteenth century (Figure 6-1) (see Tables 4-1 and 4-2). Recovery of retouched bladelets and Tallahatta Sandstone debitage may indicate the presence of a Late Archaic or Gulf Formational period component. Retouched bladelets are commonly part of the microlithic tool industry associated with Poverty Point-era sites (Haag and Webb 1953; Webb 1968:303, C. Webb 1982:50). The nearby Claiborne site, located approximately 1 km north of Jackson Landing, has produced Tallahatta Sandstone and other non-local materials (Boudreaux 1999). Shovel tests that yielded the bladelets and Tallahatta Sandstone at Jackson Landing were located at the southern end of a small peninsula adjacent to the marsh, in the central part of the site. These materials, along with a Late Archaic component in the Mulatto Bayou midden (Giardino and Jones 1996), indicate that deposits contemporaneous with the nearby Cedarland and Claiborne sites are present at Jackson Landing.

The distribution of grog tempered pottery shows that the northern, western, and southern parts of the site were utilized during the Middle or Late Woodland period, although exactly when during this approximately 1,300-year span is not clear. Woodland deposits on the west side of the site include three clusters of positive shovel tests covering an approximately 125-by-200-m area that produced low densities of grog tempered pottery. A shell midden is located along the bluff edge on the western edge of the terrace adjacent to these positive shovel tests. Shovel testing, remote sensing (Johnson et al. 2011), and excavations indicate that these shell midden deposits cover an approximately 75-by-150-m area. Pottery from this midden is almost exclusively from the Marksville series, indicating that portions of it could have been deposited when the mound and earthwork were in use. This midden has been disturbed, though, and is at least partially mixed with older and more recent deposits.

A small number of Gulf Historic Fineware sherds recovered from shovel tests in the western and southern parts of the site indicate those areas were utilized by Native Americans during the eighteenth century. These materials are presumably part of the same eighteenth-century component represented by extensive midden deposits around the east end of the earthwork (Williams 1987) and by scattered European artifacts, Gulf Historic Fineware pottery, and a burial in the mound area.

Early Late Woodland Period Site Use

One objective of the 2010 fieldwork was to place the earthwork and platform mound into a broader context by investigating additional site areas and developing a site-wide perspective of Jackson Landing during the early Late Woodland period. Investigations focused on the space "inside" Jackson Landing's semicircular earthwork, the area between it on the north and Mulatto Bayou on the south. The presence of ceramics from the Marksville series in multiple locations—the mound area, the Mulatto Bayou midden, and the bluff midden—indicates the area south of the earthwork was not a vacant space. But the exact chronology and nature of activities that occurred there still is not clear. The presence of Marksville Incised and Marksville Stamped ceramics indicates that some of the bluff midden and Mulatto Bayou midden deposits date to either the Middle Woodland or early Late Woodland periods. It is not known, however, if these deposits were contemporaneous with the earthwork and mound because the ceramic types and varieties that comprise the Marksville series were in use for as long as 700 years in some areas (McGimsey

2010:132; McGimsey et al. 1999:92). Attempts to radiocarbon date the Woodland component of the bluff midden were unsuccessful because it is mixed with earlier materials. Testing (Giardino and Jones 1996) and surface collections (Boudreaux 2009:31) make clear that the large, dense shell midden along Mulatto Bayou contains materials from Jackson Landing's entire 4,000-year span of human occupation. Testing near the eastern edge of this midden encountered a layer of Middle or early Late Woodland materials, based on the presence of Marksville series ceramics, in stratified deposits between Late Archaic and Mississippian layers (Giardino and Jones 1996:17). This limited testing indicates that only a portion of the Mulatto Bayou shell midden is even possibly contemporaneous with the mound and earthwork (Giardino and Jones 1996:17), although it is not known how representative the area tested is of the entire deposit.

Portions of the bluff midden and the Mulatto Bayou midden may represent domestic debris contemporaneous with the mound and earthwork. If so, then Jackson Landing could be like several other Middle Woodland and early Late Woodland mound sites (e.g., Walling, Garden Creek, Kolomoki), in which mounds were built adjacent to villages (Knight 2001:313; Pluckhahn 2000:149). The presence of a permanent settlement at Jackson Landing during the early Late Woodland period seems unlikely, however, based on the low density of artifacts away from the mound area and the lack of any formal structure to the spatial distribution of non-mound deposits. Also, based on analogy with other Middle Woodland and early Late Woodland sites in the Southeast, the presence of a semicircular earthwork is not consistent with long-term habitation because linear earthworks appear to have been monuments that delineated ritual rather than domestic spaces (Anderson and Mainfort 2002; Cobb and Nassaney 2002:532; Mainfort and Sullivan 1998:12).

Many sites in the Eastern Woodlands with linear earthworks have been interpreted as places where people from multiple communities gathered to participate in large-scale public rituals (Byers 1998:139; Cobb and Nassaney 2002:532; Knight 2001:321; Mainfort and Sullivan 1998:9-12). Midden deposits south of the earthwork at Jackson Landing could have accumulated when groups came there to participate in ceremonial activities performed on the mound or at other locations across the site. If the space south of the earthwork was used for rituals, then some of the Woodland period midden deposits identified through shovel testing may be the remains of these rituals. Also, some of these materials could be the refuse of people who temporarily gathered at Jackson Landing to participate in ceremonial activities associated with the site's monuments. These activities would have included construction of the monuments themselves, undertakings that must have involved substantial investments of labor. This especially would have been the case with the earthwork, which is one of the largest earthen monuments in the region. Although midden deposits away from the mound did not provide strong indicators of season of use, faunal and ethnobotanical remains from the mound indicate it was used during the fall (Hollenbach 2011:305; Scott 2011:277; Appendices B and C, this volume), which could have been the time of year when normally dispersed groups gathered at the site. For the most part, the Woodland portions of both the bluff midden and Mulatto Bayou midden contain fairly quotidian refuse consisting of pottery, stone tools, and food remains. Faunal remains from the bluff midden include a variety of food species and deer elements consistent with butchering refuse (Scott 2011:277). Interestingly, the presence in the bluff midden of two elements from an eagle, a rare taxon, could indicate the presence of residues from ritual activities (Scott 2011:286).

Although activities in some non-mound areas may or may not be contemporaneous with the mound or earthwork, large portions of the site between the earthwork and Mulatto Bayou were not utilized at all during the Woodland period. The terrace west of the mound and south of the earthwork, which stands approximately 3.5 m above the adjacent marsh, either was not used at all or was not intensively used during the Woodland period. In particular, the central portion of the terrace was completely unoccupied, which results in a large gap in archaeological materials between the mound area on the east side of the site and the clusters of positive shovel tests and the bluff midden on the west side of the site. The mound is separated from the shell midden along Mulatto Bayou by a low-lying area that also was not utilized. Why the mound area is set apart is not known, but it may be no accident that the mound is located some distance from other possibly contemporaneous areas of activity—approximately 440 m from the bluff midden and 200 m from the Mulatto Bayou midden.

One can speculate that this reflects an intentional segregation of activities in the mound area from those in other parts of the site during the early Late Woodland period. It also may be no accident that a bayou and wetland separated the bluff midden from the mound and a wetland separated the mound from the Mulatto Bayou midden. Water features were important ritual elements at other Woodland sites in eastern North America, where they both delineated and internally divided ceremonial spaces (Carr and Case 2005:44; Sunderhaus and Blosser 2006:141). Water features were important possibly because of their

association with ideas about supernatural barriers, origin stories, purity, or the underworld (Carr and Case 2005:44; Hall 1976; Sears 1982:165; Sunderhaus and Blosser 2006:141). I have argued elsewhere that the northern edge of ceremonial space at Jackson Landing was delineated by both the earthwork and a bayou-and-wetlands area on the northeast side of the site (Boudreaux 2013b), and it appears that water and wetlands may have segregated space within this ceremonial area as well (see Sunderhaus and Blosser 2006).

Mound Construction and Use

Archaeological deposits in the mound area consist of a pre-mound midden, a mound-flank midden, and three stages of mound construction (Stages I-III). A large pit located approximately 20 m north of the mound also is relevant to the discussion of mound construction, because it appears to have been a borrow pit. Ten radiocarbon dates—eight from mound contexts and two from the borrow pit—have been obtained from deposits in the mound area (see Table 2-1). The two-sigma, calibrated age ranges for most of these dates overlap between AD 600 and 660, which brackets the mound's construction and use (Figure 6-2). Four dates (Beta 240801, 240802, 300486, 300489) do not fit this pattern because they pre-date the AD 600-660 interval. All of these earlier dates are based on *Rangia* clam shells or wood charcoal, materials that can be problematic because they can produce dates significantly older than the depositional events by which they entered the archaeological record (Taylor 1987:52-53). Two of these dates clearly are too early because they came from contexts stratigraphically above deposits that produced later dates. If these four problematic dates are dismissed, then a consideration of the two-sigma, calibrated age ranges for the remaining dates, in combination with stratigraphic relationships, suggests that the mound's construction and use occurred mostly, perhaps entirely, during a brief interval, from approximately AD 655 to 660, during the early Late Woodland period.

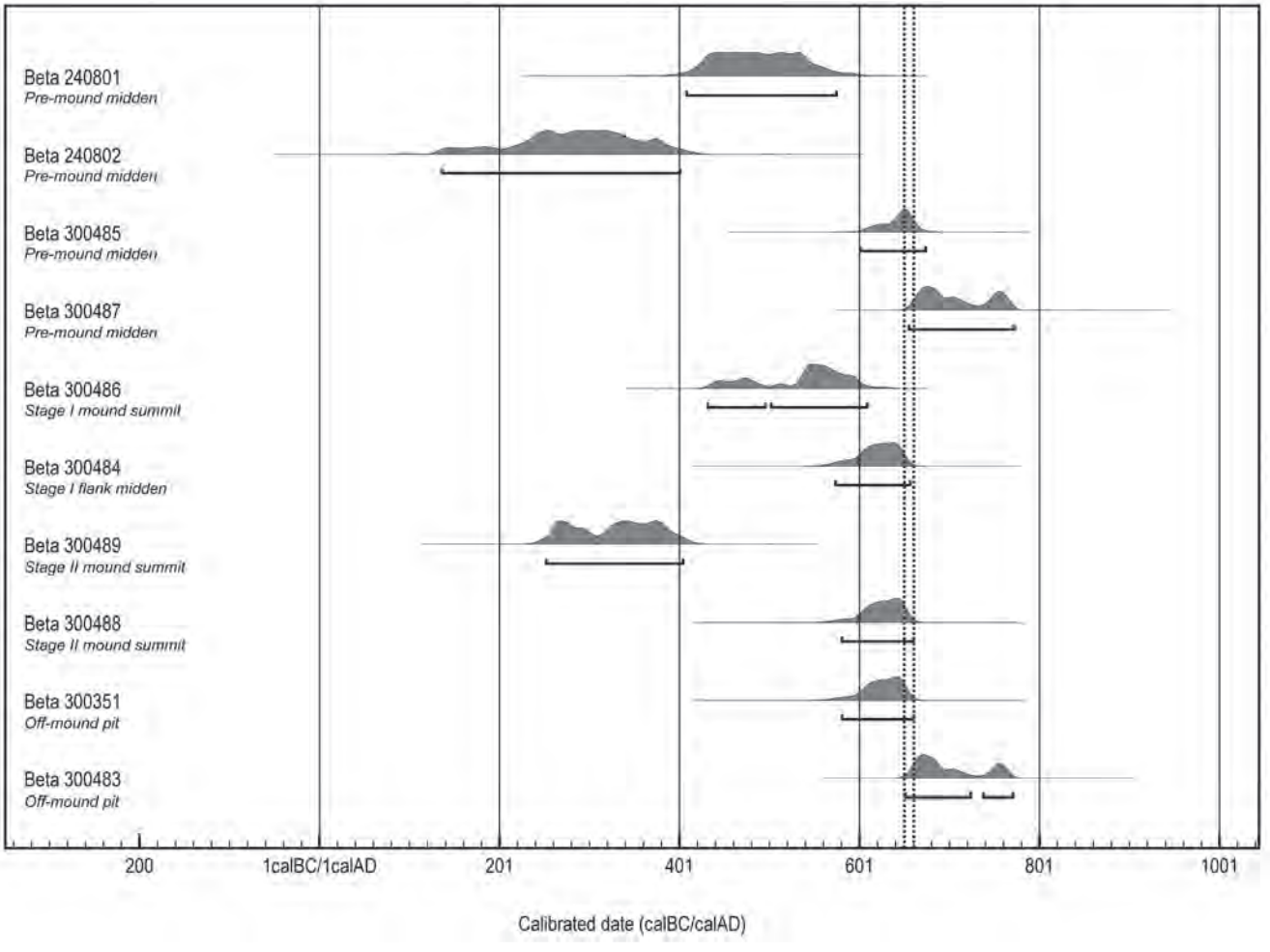


Figure 6-2. Calibrated radiocarbon dates from the mound area. *Note:* the dashed lines demarcate the interval AD 650-660. Figure derived from OxCal 4.1 calibration software (Bronk Ramsey 2009).

The sequence of early Late Woodland period activities in the mound area consisted of: (1) an event or multiple events that produced the pre-mound midden deposits on the original ground surface; (2) two stages of mound construction (Stages I and II) associated with various activities; and (3) a final episode of mound construction (Stage III) that appears to have sealed and effectively buried deposits from earlier activities.

Pre-Mound Midden

Excavations encountered an approximately 10-cm-thick pre-mound midden in two places, on the eastern edge of the mound in the 2007 CEI unit N183E19 and in ECU's southern mound units (Figures 6-3 to 6-6). Materials associated with this midden—*Rangia* shells, animal bone, pottery from the Marksville series, and two surface hearths—suggest the pre-mound midden is refuse from a large event or events that included food preparation and consumption. Two AMS dates (Beta 300485, 300487), one based on hickory nutshell and the other on acorn, from the southern mound units indicate deposition of the pre-mound midden occurred around AD 655. Calibrated, two-sigma age ranges for these dates overlap between AD 655 and 675, but radiocarbon dates from overlying mound deposits indicate the pre-mound midden does not postdate AD 660.

Although excavation units in the center of the mound did not reach pre-mound deposits due to profile collapses following Hurricane Alex, coring did not find midden deposits beneath the entire mound (URS 2011). Pre-mound midden deposits are present under the periphery of the mound—on its eastern (Cores 1, 2, 6), southern (Core 7), and western (Core 5) edges—but they are absent from beneath the center of the mound (Figure 6-7) (Cores 3, 4, 8) (URS 2011:22-33). It is difficult to tell from the cores exactly what is present beneath the mound in the midden-free central area, but two of the cores (Cores 3, 8) show a burned surface in this area (URS 2011:24, 29). The north side of the mound could not be cored due to the presence of substantial modern house remains.

Mound Stage I

Mound Stage I represents the first episode of mound construction at Jackson Landing. Two radiocarbon dates were acquired from contexts associated with Stage I. One of them (Beta 300486), from a midden lens on the Stage I summit, pre-dates the pre-mound midden dates, but it is based on wood charcoal and could be the result of dating old wood. The latter end of the calibrated two-sigma age range for the other one—an AMS date (Beta 300484) on acorn from a flank midden on the south side of Stage I—suggests the flank midden was deposited around AD 660.

Exactly what is represented by Stage I still is not clear. On the west and south sides of the mound, excavation units showed that Stage I was built directly on top of the pre-mound midden. In these areas, Stage I is a low platform approximately 60 cm tall. Although excavations could not reach pre-mound deposits in the central part of the mound, evidence from coring and the profiles of excavation units indicates that Stage I was not present at the center of the mound. For example, the base of excavation unit N183E10 appears to document the western edge of the Stage I summit, at its interface with the distinctive dark fill of subsequent Stage IIB at the center of the mound (see Figures 6-5 and 6-6). This suggests that Stage I was present along the perimeter of the area where the mound would be built, but Stage I was not built as a continuous platform mound across this area. Instead, a large open space—which appears to coincide with the space where coring indicates pre-mound midden deposits were absent—existed at the center of Stage I.

The original purpose of Stage I is not clear. Perhaps Stage I was an enclosure that delineated a pre-mound ritual space. This explanation has been proposed for the initial earthwork at Graveline Mound, an early Late Woodland site located on the shore of Mississippi Sound approximately 90 km east of Jackson Landing (Sherwood et al. 2013:356). At Graveline Mound, an earthen structure that eventually would become a platform mound appears to have begun as an enclosure around ritual space where feasting and consumption of medicines occurred (Blitz and Downs 2011:60; Sherwood et al. 2013:356).

Another possibility, from an engineering perspective, is that the embankment of Stage I, which delineated the perimeter of the area that would eventually become a platform mound, provided a necessary foundation that structurally supported subsequent stages of moundbuilding.[1] Stage I consists mostly of alternating layers of brown and yellow clayey sand, quite distinct from the relatively homogenous sandy loam that comprises much of Stage II and all of Stage III. Stage I's alternating layers of fill are consistent with a method of mound construction called "zoned fill," where alternating layers of soil provide structural advantages by reducing slope stress and increasing shear strength (Sherwood and Kidder 2011:78). Sherwood et al. (2013:352-353) argue that the zoned fill method would have been particularly advantageous when sandy soils were the raw materials for mound construction, as is the case in coastal Mississippi. Also, once in place, the summit of the Stage I embankment would have provided an excellent platform for filling the open space at its center.

A large midden deposit—at least 6 m long and 60 cm thick—on the southern flank of Stage I suggests a large feasting event was associated with Stage I (see Figures 6-5 and 6-6).[2] If Stage I was an enclosure, then the flank midden could be remains of activities that took place inside the enclosure but were deposited on its exterior, an interpretation also offered for initial moundbuilding activities at Graveline Mound (Blitz and Downs 2011:60; Sherwood et al. 2013:352). Alternatively, the flank midden at Jackson Landing could be refuse from summit activities that was discarded downslope (see Lindauer and Blitz 1997:173; Smith and Williams 1994:32). Although Stage I does not appear to form a continuous platform that covered the entire mound area, it did have a broad, flat summit many meters long and several meters wide. Features were not found on the summit of Stage I, but multiple lenses of midden were present on its surface. Moundbuilding is one activity that appears to have been associated with the summit of Stage I. The open, interior area of Stage I was filled with dark black soils (Stage IIA), within which multiple, discrete loads of fill were discernible. The depositional angles of these loads slope downward toward the center of the mound, indicating they were deposited from the eastern side of the Stage I summit toward the center of the mound.

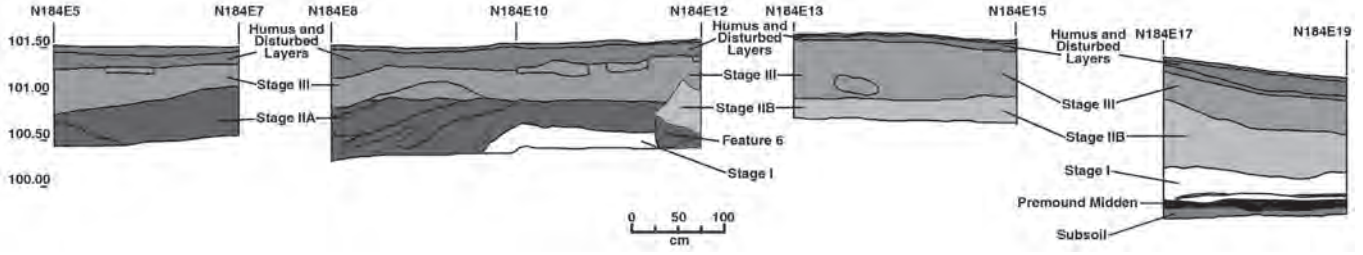


Figure 6-3. Composite profile on the N184 line (north walls of units) in the central mound area.

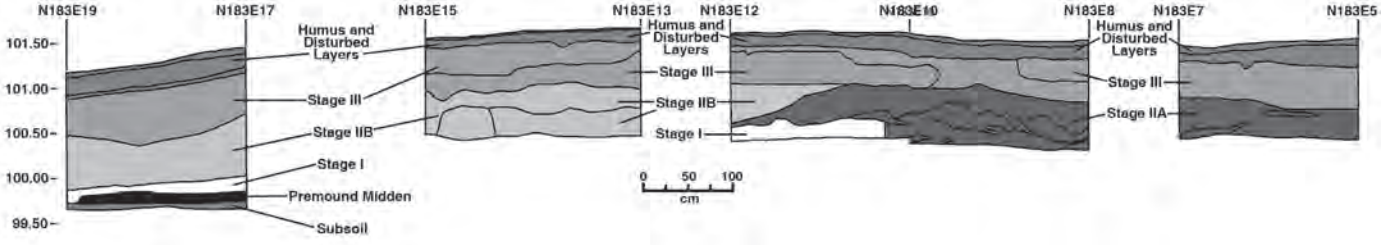


Figure 6-4. Composite profile on the N183 line (south walls of units) in the central mound area.

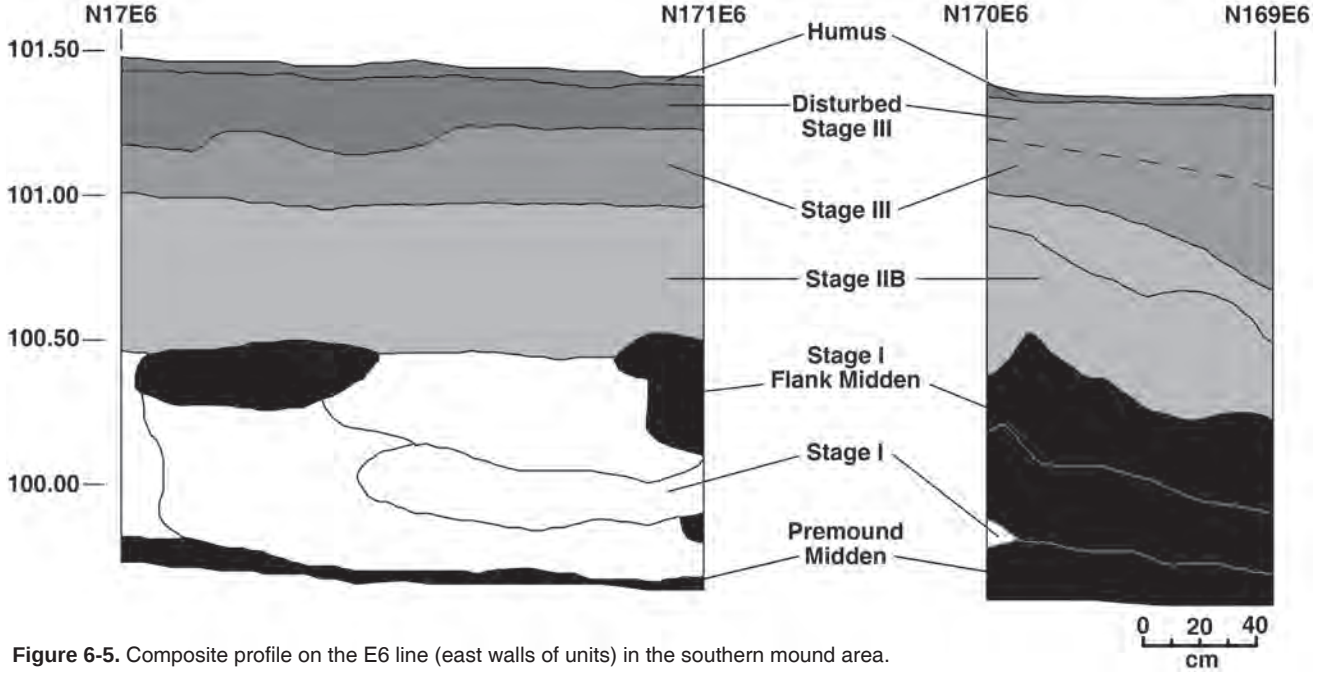


Figure 6-5. Composite profile on the E6 line (east walls of units) in the southern mound area.

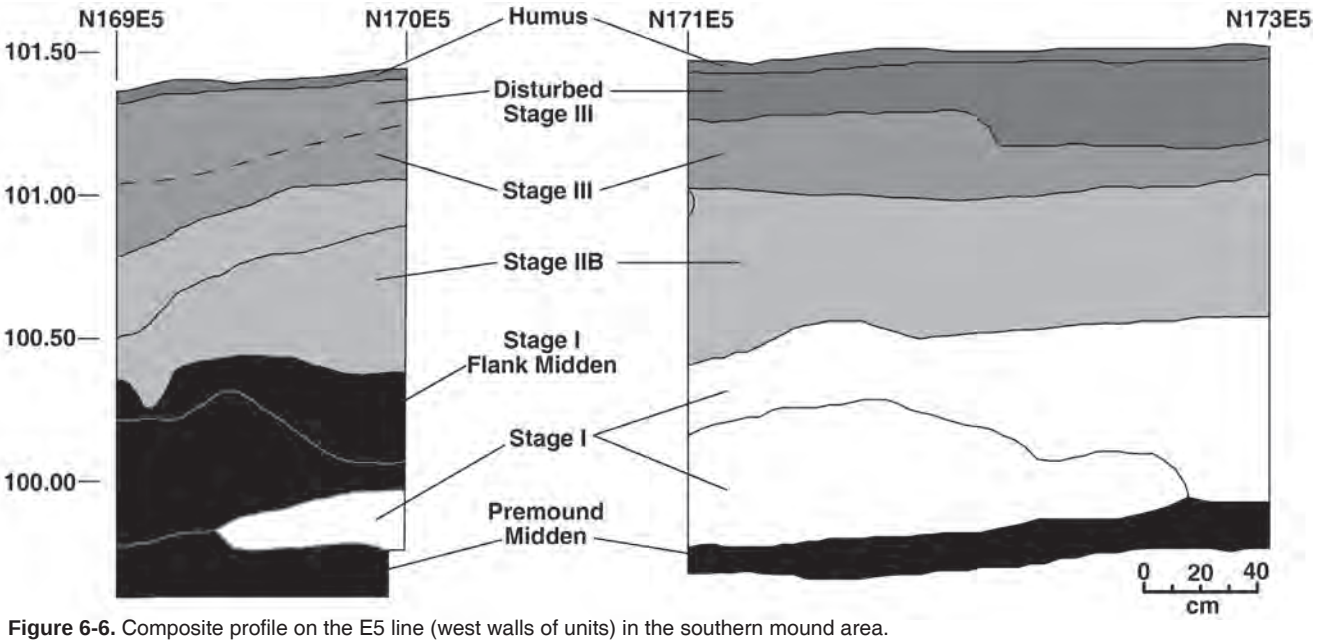


Figure 6-6. Composite profile on the E5 line (west walls of units) in the southern mound area.

Mound Stage IIA

Excavations and coring indicate the flat summit of Stage II was created by deposition of dark soils (Stage IIA) to fill a large area near the center of the mound, followed by a homogenous gray fill (Stage IIB) along the mound's periphery to construct the remainder of the stage. Stage IIA, the second episode of mound construction, consisted of filling with dark, black sandy soil an area that minimally was 10 by 20 m—based on information from coring and hand-augering (Figure 6-8)—within the open space at the center of Stage I. This dark fill is not organically-enriched midden because, unlike other midden deposits encountered at Jackson Landing, the fill at the center of the mound contained no shell and very few artifacts. The north, east, and south walls of N183E12 show the dark soil of Stage IIA stratigraphically beneath the homogenous gray soil of Stage IIB on the mound's periphery (see Figures 4-58 to 4-64), indicating the former was deposited before the latter. This suggests that moundbuilding first involved filling the open area at the center of Stage I with the dark fill of Stage IIA to a height of approximately 50 cm above the Stage I summit. Then the gray soil of Stage IIB was added to the perimeter of the mound to create a flat summit that was about 1.1 m tall.

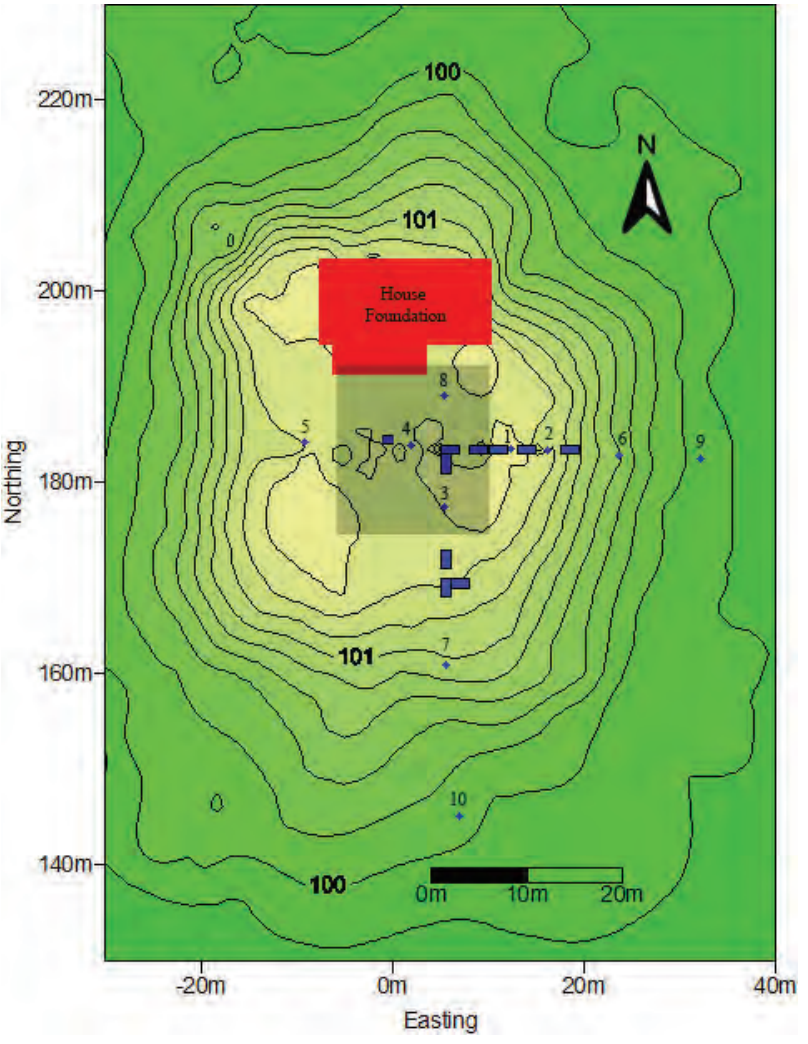


Figure 6-7. The area where pre-mound midden deposits may not be present (shaded rectangle).

Excavations demonstrated that a large open space in the central part of the mound on its east side was filled with distinctive dark soils. Remote sensing suggests that filling of a large open area or pit may have occurred on the west side of the mound as well. A ground penetrating radar (GPR) survey of the mound conducted by the University of Mississippi (Johnson et al. 2011) identified a square anomaly on the west side of the mound at depths of 80 and 200 cmbs (Figure 6-9). Johnson et al. (2011) speculate that this anomaly is related to the modern house formerly located on the mound summit. This is a possibility as the house was located only a few meters away, and a number of features associated with this structure were encountered during excavations. Johnson et al. (2011) note, however, that the anomaly is not quite aligned with the house, and it may, instead, be a large feature associated with early Late Woodland construction or use of the mound. This anomaly could be part of the open area filled with dark soil or it could represent another feature entirely. In either case, GPR data are consistent with earthmoving activities at the mound center that filled large areas with different soils.

Mound Stage IIB

Stage IIB is an approximately 50-cm thick layer of homogenous light gray sandy loam found along the perimeter of the mound. Stage IIB is not associated with a flank midden, but seven postholes of various sizes were found on its summit. All of these postholes had been filled with midden after the posts were pulled. The postholes on the Stage IIB summit do not appear to be part of any larger architectural pattern, although too little contiguous surface area was exposed to be certain of this. Dimensions of these postholes span a broad range of diameters (10-55 cm) and depths (25-60 cm). Knight (2001:319) has noted that the summits of many Woodland platform mounds pre-dating AD 700 exhibit irregular scatters of postholes of various sizes. He attributes this lack of patterning to repeated erecting and dismantling of scaffolds (with small postholes) and monumental poles (with large postholes) within the context of communal ceremonies and feasting events. Scaffolds may have been used to display important items, while monumental poles may have been furniture needed for ceremonial events (Knight 2001:319).

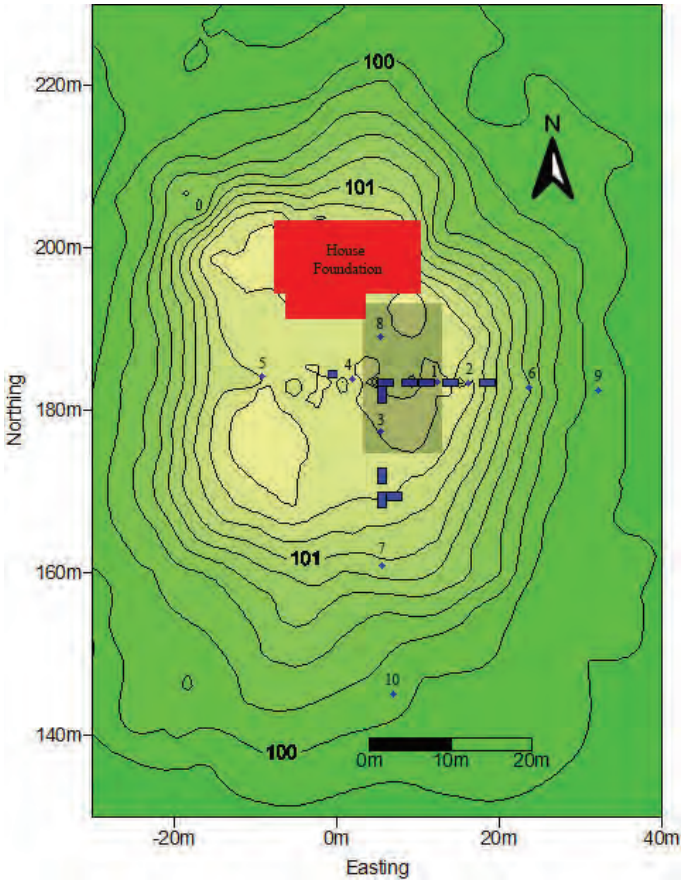


Figure 6-8. Minimal extent of dark fill of Stage IIA (shaded rectangle).

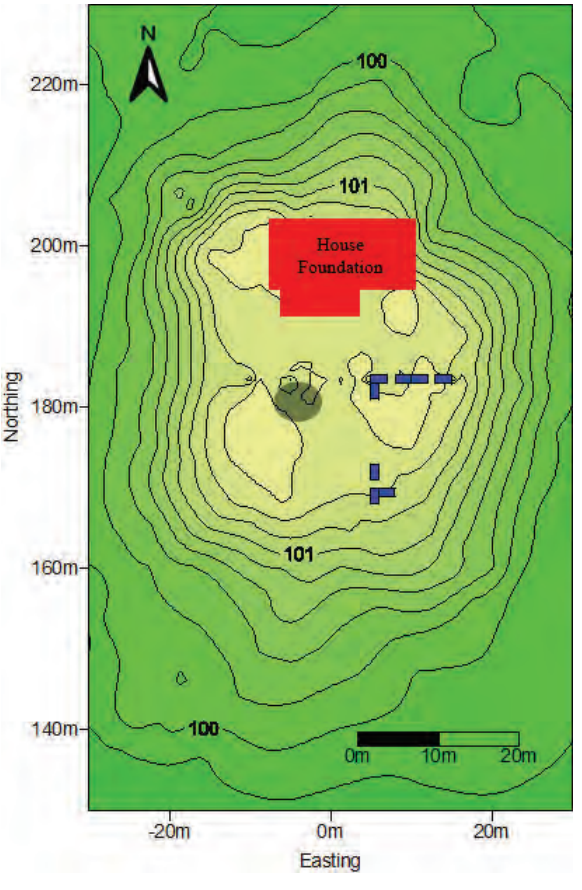


Figure 6-9. The location of the GPR anomaly (shaded oval).

Radiocarbon dates were acquired from the fill of two features on the summit of Stage IIB (Features 4 and 6). The date from Feature 6 (Beta 300489) is at least 200 years too early, based on dates from underlying layers, but this date is based on wood charcoal and may reflect use of old wood. The Feature 4 date (Beta 300488) is based on pine cone fragments, an ephemeral material that probably more closely reflects the period of Stage II use. A consideration of this date, relative to dates from underlying deposits, indicates the summit of Stage IIB was in use around AD 660.

Mound Stage III

The final episode of mound construction, Stage III, consists of an approximately 50-cm-thick homogenous layer of dark grayish brown loam (see Figures 6-3 to 6-6). The upper 30 cm of this final stage have been disturbed by subsequent activities. Nearly all eighteenth-century artifacts from the mound area were found either in the disturbed portion of Stage III or in the overlying humus. The lower 20 cm of Stage III consist of undisturbed mound fill. No radiocarbon dates were obtained from Stage III, but artifacts—primarily Marksville series ceramics from undisturbed mound fill—are consistent with deposition during the early Late Woodland period.

Stage III is not associated with features or midden deposits, in contrast to Stages I and II. Although the upper 30 cm of Stage III have been disturbed by more recent activities, one would expect the lower portions of some deep postholes to remain intact if, for example, Stage III had been used in a way similar to Stage II. The fact that no features are associated with Stage III suggests that something other than the effects of more recent disturbances must account for their absence. This difference suggests that Stage III differed in function from the two previous stages. Whereas Stages I and II appear to have created spaces for performance of various activities, Stage III, as the final episode of mound construction at Jackson Landing, may have served as a mantle intended to completely cover earlier mound deposits. The fact that the mound likely was a very important ceremonial location may have necessitated an abandonment ritual that required complete covering of earlier mound surfaces as a way to decommission this highly charged ritual space at the end of its use-life (see Knight 2006:428; Schnell et al. 1981:138).

Discussion

Some activities that took place in the mound area at Jackson Landing are reminiscent of patterns seen at other early platform mounds, while others are distinctive. Early platform mounds in southeastern North America appear to have served as regional centers, where large groups gathered for performance of communal ritual activities that included erection of monumental posts, manipulation of special objects, production and exchange of objects from nonlocal materials, and preparation and consumption of food as part of feasting events (Knight 1990:166-172, 2001; Lindauer and Blitz 1997:173). In some regards, Jackson Landing is similar to other early platform mounds in the Southeast, including placement of the site's mound within a semicircular earthwork, the presence of large posts on one stage of the mound summit, the use of distinctive fills in mound construction, and abundant evidence for feasting. These similarities indicate that the ritual activities associated with moundbuilding and mound use at Jackson Landing were part of a much larger phenomenon—a general sharing of ideas about ceremony, ritual, and social integration that occurred across much of eastern North America during the Middle Woodland and early Late Woodland periods. While it is valuable to recognize Jackson Landing as part of a much larger tradition, it is also critical to understand mound area activities here in their own right, to incorporate local histories and regional variability into our study of broadly shared ritual practices.

Mound construction at Jackson Landing must have been a prominent activity that likely involved large groups of people. Mound construction appears to have been associated with feasting, based on the presence of midden in the borrow pit just north of the mound. As previously discussed, the initial episode of earthmoving at Jackson Landing (Stage I) appears to have created an earthen enclosure with an open interior. The enclosure may have delineated a ceremonial space at its center or the enclosure may have served as a foundation for subsequent mound construction, scenarios that are not mutually exclusive.

The open area at the center of Stage I, possibly the locus of ritual activities, was filled with a distinctive dark soil. Its deposition was the first of a two-part process that, along with Stage IIB, produced the flat summit of Stage II. The use of different kinds of fill in moundbuilding for functional and symbolic purposes has been noted at many places in eastern North America during several time periods (Anderson and Sassaman 2012:171; Rodning 2010; Sherwood and Kidder 2011). These include a number of Middle Woodland and early Late Woodland mounds, where it has been argued that different kinds of soil were chosen for their symbolic value (Byers 1998:147-148; DeBoer 2005:85; Van Nest et al. 2001). Most relevant to Jackson Landing is the use of dark fills in a number of Woodland period mounds (Hall 1997:18). The source of the dark soil used in the mound at Jackson

Landing is not known, but it likely came from adjacent wetland areas, either from the surrounding marshes or from the banks or beds of a nearby bayou. This dark fill at the center of the mound is not organically enriched midden because, unlike other midden deposits at the site, the fill is virtually free of cultural materials, containing no shell and very few artifacts. Regarding the ubiquity of dark fills in Woodland period mounds, Robert Hall (1997:22) speculated that dark fills from wetland sources may have been used to invoke through moundbuilding a creation myth—the Earth Diver story or possibly another myth altogether—as a part of world renewal ceremonies (see also Sunderhaus and Blosser 2006:141-145). While the symbolic meaning of the dark fill at the center of Jackson Landing mound is not known, the use of distinctive fills suggests that rather than just being a means to produce an elevated platform for ritual activities, moundbuilding itself was an important element of the ceremonial activities that occurred in the mound area (see Sherwood and Kidder 2011:84; Knight 2006; Van Nest et al. 2001:645-646).

Midden deposits in the mound area indicate that food preparation and consumption on a large scale—activities consistent with preparation and hosting of feasting events—was an important activity during the early Late Woodland period at Jackson Landing, both before and after the mound was built. Remains of feasting events in the mound area include: (1) the pre-mound midden, which represents one or more events that occurred prior to construction of Stage I; (2) the Stage I flank midden, which represents a large event associated with Stage I; and (3) an event or events that resulted in the midden-filled postholes on the summit of Stage II. Midden fill in the borrow pit just north of the mound presumably resulted from an event associated with construction or use of either Stage I or Stage II. Multiple seasonal indicators from plant and animal remains suggest these feasting events took place in the fall, when normally dispersed groups of people gathered at Jackson Landing to construct monuments and participate in ceremonies (see Appendices B and C).

Mound-area midden deposits contain ample evidence for food preparation and consumption. This evidence includes pottery from ceramic vessels, presumably used for cooking and serving, and food remains in the form of *Rangia* shells, animal bone, and carbonized plant remains. Evidence for food preparation also includes the presence of at least two surface hearths near the base of the pre-mound midden and a high proportion of wood charcoal relative to other plant remains in the mound-area middens, which is consistent with them containing debris from cooking fires. The presence of midden deposits with evidence for food preparation and consumption in multiple contexts—beneath the mound, in the borrow pit, on the mound flank, and on two mound summits—indicates that food-related activities occurred frequently in the mound area. Furthermore, the size of these deposits suggests the occurrence of events at a relatively large scale. Midden deposits beneath the mound are at least 10 cm thick and minimally cover much of a 30-by-30-m area. The Stage I flank midden is approximately 60 cm thick and minimally covers a 3-by-6-m area. The full extent of the borrow pit north of the mound is unknown, but the 1-m^2 portion investigated contained midden deposits at least 40 cm thick. Midden deposits in the mound area are not only large and ubiquitous, but they appear to have formed rapidly rather than by gradual accumulation, suggesting they were produced by a few large-scale activities of short duration, a scenario consistent with communal feasting events. Radiocarbon dates for the mound area indicate that activities there may have occurred during a short period of time and are consistent with a rapid tempo for deposition of materials.

While the ubiquity and size of midden deposits in the mound area indicate the importance of food preparation and consumption on a large scale, the kinds of food were typical of everyday fare.[3] Plant foods consisted primarily of wild fruits and nuts, especially acorn. Faunal remains indicate consumption of deer and bear, freshwater and marine fish, and brackish-water *Rangia* clams. Thus, while the scale of consumption associated with mound area events may have been distinctive, the kinds of foods consumed there were not.

It is no surprise that feasting activities were associated with platform mound construction and use during the early Late Woodland period at Jackson Landing, because a number of other early platform mounds in the Southeast were the loci of feasting events (Knight 2001). Cross culturally, communal feasting is often associated with important ritual, social, and political activities that occur at specially constructed facilities (Dietler and Hayden 2001; Hayden 1990:60-61). It is a bit surprising, however, that Scott's (Appendix B) faunal analysis indicates evidence for butchering in multiple contexts in the mound area. The prevalence of less desirable skeletal elements from the feet, skull, and vertebrae suggests that butchering of white-tailed deer is an activity well-represented in both pre-mound and Stage I flank middens. Also, direct evidence for butchering of deer—in the form of cut marks on bone—and skeletal elements consistent with butchering of black bear came from the borrow pit. Abundant evidence for butchering in mound-area midden contexts is somewhat unexpected, because discussions about remains of feasting events typically emphasize the archaeological signa-

tures of serving large groups, the presence of unusual items, or the presentation of favored foodstuffs (Blitz 1993; Hayden 1996:136-140, 2001: Table 2.1; Jackson and Scott 1995:107-108; Knight 2001:325; Pauketat et al. 2002:274).

Butchering debris at Jackson Landing is consistent, however, with other indicators of food preparation in mound-area middens. Evidence for butchering in pre-mound, Stage I mound-flank, and borrow pit middens suggests that these deposits contain the full range of refuse from preparation and hosting of feasting events to the discard of materials afterwards. In contrast, Scott argues that deer remains from features on the summit of Stage IIB were biased towards meatier elements, especially the hindquarters, which suggests the summit of Stage II was a place where more desirable portions of venison were consumed. This variability relative to pre-mound, Stage I, and borrow pit middens—where butchering refuse is prevalent—suggests that different kinds of feasting events may have occurred at different times in different contexts in the mound area.

Public feasting contexts have been associated with manipulation of craft items and unusual objects in both the ethnographic and archaeological cross cultural records (Hayden 2001). In particular, Knight (2001:321) has discussed the association of crafting activities, non-local materials, and unusual objects with feasting events located on the summits of several early platform mounds in the Southeast. At Jackson Landing, in contrast, there is very limited evidence for any of these activities. The only unusual artifact found in a mound context is a fragment of an apparent human figurine. This ceramic object is tempered with grog, as was contemporaneous, locally-made pottery of the Marksville series. The figurine fragment was recovered from a level that cross-cut both mound-flank and pre-mound midden deposits on the south side of the mound, so it could be associated with Stage I or the pre-mound midden. Middle Woodland and early Late Woodland figurines have been recovered from both mound and domestic contexts at a number of sites across the Midwest and Southeast (Griffin et al. 1970:82-88; Keller and Carr 2005:429, 457; Toth 1988:60-64). While their purposes are unclear, figurines likely were ceremonial objects (Griffin et al. 1970:82) used in various rituals associated with mound, mortuary, and domestic spaces (Keller and Carr 2005:457). In addition to being discarded in a mound context, there are other indications the Jackson Landing figurine was a special object. Traces of black pigment appear to be present on portions of this object, and the bottom surface of the foot is abraded and chipped in several places, which may indicate repeated use, possibly as part of ritual practices.

Jackson Landing also differs from some other early platform mounds in the minimal importance of craft item production and use of non-local materials in mound contexts. Very few artifacts—10 flakes, one bone awl, and a possible celt fragment—indicative of production activities came from undisturbed mound contexts at Jackson Landing. And there is very little evidence, if any, for the presence of non-local materials. Stone recovered from the mound is almost exclusively locally-available Citronelle gravel. The only exception is a possible celt fragment, whose raw material is unidentified but appears to be non-local in origin. If so, this is the only artifact made from exotic material recovered from any early Late Woodland context across the entire site. Ceramics also provide virtually no evidence for long-distance interactions. The only ceramic type that arguably reflects non-local influence is a small sherd of Indian Pass Incised, a type more commonly found along the Gulf coast to the east of Jackson Landing (Blitz and Mann 2000:109; Willey 1998:425-427). The near absence of non-local materials at Jackson Landing is not surprising, however, because contemporaneous sites in the lower Mississippi Valley and adjacent Gulf coast generally lack evidence for non-local exchange (Blitz and Mann 2000:41; Greengo 1964; Kidder 2002:73-74; Phillips 1970:757-858). Much like their neighbors to the east and west, the people who built the earthwork and mound at Jackson Landing—even though they incorporated ideas about monument construction and site layout that were broadly shared across eastern North America (Boudreaux 2013b)—appear to have focused their social, political, and economic actions on local or intra-regional interactions.

Conclusions

Jackson Landing is one of the Mississippi Gulf coast's most important remaining archaeological sites. Unfortunately, it is significant partially because it is one of the last major archaeological sites in the area not yet destroyed by development, looting, or erosion (Boudreaux 2009). Jackson Landing is the only one of three major sites located on Mulatto Bayou to escape destruction or significant disturbance by construction or looting during development of the port and harbor complex that currently occupies the area (Boudreaux 2009:27-35; Gagliano et al. 1982:41; Jackson 1989; Neumaier 1985:161-162). Jackson Landing is also significant because its archaeological deposits contain components that span several thousand years. The site's occupational history includes minor occupations during the Late Archaic (3000-1200 BC) and late Late Woodland (AD 700-1200) to Mississippi (AD 1200-1550) periods (Giardino and Jones 1996), and a substantial eighteenth-century Native Amer-

ican component (Williams 1987). Although it was not a primary concern of the 2010 fieldwork, future research should focus on better defining Jackson Landing's eighteenth-century component and relating it to recent studies of the Contact period in the Southeast in general and French colonial *Louisiane* in particular (see Ethridge and Shuck-Hall 2009; Mann 2010; Waselkov 2002). The eighteenth century was an extraordinary time of European and Native American interaction, but few intact sites from this time have been identified along the Mississippi Gulf coast (Blitz and Mann 2000: Table 6-2), which makes further investigation of this component at Jackson Landing all the more important.

A significant episode in Jackson Landing's long sequence of human occupation occurred during the early Late Woodland period (AD 400-700) when the site was a large ceremonial center.[4] Although regional settlement data are limited, the early Late Woodland period along the Mississippi Gulf coast likely was characterized by small settlements dispersed across the landscape (Blitz and Mann 2000:44; Kidder 2002:75; Lee 2010:138; Lewis 1988:115; McGimsey 2010:127, 131). The presence of a large site with monumental architecture within a cultural landscape of small, scattered settlements suggests that Jackson Landing's monuments were built through cooperative efforts of residents from multiple settlements and the activities associated with these monuments may have served to integrate a dispersed population (Mainfort and Sullivan 1998:15; Smith 1992:243; Thunen 1988:110).

Normally scattered groups gathered seasonally at Jackson Landing during a very brief period around AD 655 to participate in large-scale public events that included building monuments and hosting feasts. The absence of dense, extensive early Late Woodland deposits in the area south of the earthwork suggests that a large, permanent settlement was not present at the site. Instead, Jackson Landing appears to have been a vacant ceremonial center, similar to other sites across the Southeast (Boudreaux and Johnson 2000:87; Faulkner 1988:85; Jackson 1998:217; Mainfort 1988:162; McGimsey 2010:124; Rafferty 1990:101; Sears 1982:188). Although Jackson Landing was vacant, in the sense that it was not associated with a settlement, the space delineated by the site's earthwork was not empty as the platform mound and possibly other midden deposits were contemporaneous with the earthwork. Much of the space south of the earthwork was unused, however, and early Late Woodland activities within this space may have been intentionally segregated for ritual reasons, widely spaced and separated by water features, such as bayous and wetlands.

Jackson Landing mound is an early platform mound, one of a number found across southeastern North America that pre-date AD 700 (Knight 1990:166-172, 2001; Lindauer and Blitz 1997:173). It is similar to other early platform mounds in its location within a space delineated by an earthwork, the mound's association with abundant evidence for feasting, evidence for the placement of small and large posts on the mound summit, the use of distinctive fills with possibly symbolic significance in moundbuilding, and at least one example of the manipulation of a special object in a mound context. These similarities with other early platform mounds presumably reflect a broad sharing, across eastern North America during the Middle Woodland and early Late Woodland periods, of ideas about public ceremony, ritual, and social integration (Anderson and Mainfort 2002:9; Griffin 1967:183).

Jackson Landing mound also differed in several ways from other early platform mounds. There is little evidence, for instance, that manipulation of exotic materials and craft production were important in mound contexts at Jackson Landing. But butchering large mammals—presumably in preparation for feasting events—is well represented. These differences demonstrate the importance of considering variability—which could have resulted from the effects of local variation in social relationships, cultural traditions, environmental conditions, or stochastic events—within our study of broadly shared ritual practices (see Anderson and Sassaman 2012:136; Carr and Case 2005:21).

The scale of activities at Jackson Landing, especially the construction of the site's earthen monuments and hosting of feasts, reflects significant changes in the nature and scale of public ritual, and presumably the scale of social interaction and integration, along the Mississippi Gulf coast during the early Late Woodland period. The site's location at the interface of two archaeological regions suggests it was used by groups at the inter-regional level as well. The magnitude of Jackson Landing's earthwork, the size of the space it defined, and the presence of a large platform mound all suggest that the ceremonies performed there were large-scale public events that involved large groups of people. Additionally, the labor represented in the site's earthwork and mound indicates a degree of group organization and interaction that was locally unprecedented (Blitz and Mann 2000:98).

Recognizing Jackson Landing as a major, early Late Woodland ceremonial center is important, but identifying the construction of monuments to create a space that was regionally impressive and locally unprecedented begs many additional questions. Topics that still need to be addressed include investigating

the role Jackson Landing played in the surrounding region vis-à-vis contemporaneous, early Late Woodland settlements. For example, how did the activities that took place at Jackson Landing articulate with the other activities of the people who built and used the site's earthen monuments? What processes were involved in mobilizing the labor necessary to build the mound and the truly massive earthwork? Additionally, why did monumental construction occur at this place and at this time? What combination of social, environmental, and historic factors caused people during the early Late Woodland period to build these earthen monuments at this particular place? Regarding the place, access to transportation routes and visibility likely were important, because Jackson Landing is located near the intersection of the region's most significant waterways, the Pearl River and Mississippi Sound. Also, it may be no accident that the monuments at Jackson Landing are situated near the Cedarland and Claiborne sites, places that even during early Late Woodland times would have represented ancient locales on the landscape.

Regarding the timing of Jackson Landing's construction and use, its mound was built and used as the locus of large-scale feasting events for a very brief time around AD 655. Accurately determining when the site's mound and earthwork (see Boudreaux 2011a) were built is important because Jackson Landing can now be related temporally to other changes occurring during the late Middle Woodland (AD 200-400) and early Late Woodland periods (AD 400-700). Clearly the creation of monumental ceremonial space at Jackson Landing was not an isolated event. The increased scale of public ritual seen at Jackson Landing corresponds with other early Late Woodland period cultural developments in other parts of the Southeast—including Weeden Island societies to the east and Baytown/Troyville societies to the west (Anderson and Sassaman 2012:127-128; Kidder 2002; Lee 2010; Milanich 2002)—that also involved creation of monumental ritual spaces through construction of earthen monuments. At a more local level, Jackson Landing is just one, albeit the largest, of several sites with early platform mounds located along the Mississippi Gulf coast and near the mouth of the Pearl River in Louisiana. These early platform mound sites include Graveline Mound located 90 km to the east near the mouth of the Pascagoula River (Blitz and Downs 2011; Blitz and Mann 2000:35-38); Ramsey Mound at the mouth of Bay St. Louis about 25 km to the east (Boudreaux 2009:51-53); and the Indian Camp site located about 12 km to the northwest on the West Pearl River in Louisiana (Blitz and Mann 2000:44; M. Webb 1982). The presence of these other early platform mounds in the vicinity indicates that the increased scale of public ritual and social integration manifested at Jackson Landing was part of a larger phenomenon that involved, at a minimum, coastal societies from the mouth of the Pearl River on the west to the mouth of the Pascagoula River on the east. While the social and environmental conditions that may have influenced these changes along the Mississippi Gulf coast have not been fully explored, an examination by Blitz and Mann (2000: Table 8.1) of occupation intensity in the eastern Mississippi Sound region to the east of Jackson Landing shows that the late Middle Woodland and early Late Woodland periods—the time when these early platform mounds were built—corresponds with a substantial increase in site density relative to earlier periods. Assuming that site density is a rough indicator of past population density, then the appearance of early platform mounds along the Mississippi Gulf coast and near the mouth of the Pearl River in Louisiana may reflect changes in scale of public ritual related to more frequent interactions among adjacent social groups. Ceremonial activities that were part of moundbuilding and mound use at these early platform mound sites may have been part of a strategy to negotiate relationships among larger social groups whose members were increasingly coming in contact with each other. Furthermore, the monuments they built may have served as physical symbols to commemorate relationships negotiated and alliances formed in this coastal region.

Endnotes

[1] See Coe (1995:81) for use of a perimeter embankment in construction of a Mississippian platform mound at the Town Creek site in North Carolina.

[2] Augering indicates the presence of Stage I flank midden only along the south side of the mound.

[3] Several possible corn fragments were identified during initial paleoethnobotanical analysis (Hollenbach 2011:301), an interpretation that fits well with expectations about the special nature of mound contexts at Jackson Landing (Boudreaux 2011b:255). This preliminary identification has been retracted, however, because other paleoethnobotanists could not determine with certainty that the remains in question were corn. Therefore, the possible presence of corn in mound contexts at Jackson Landing is not discussed in this monograph. It may be worthwhile to investigate further the mound area at Jackson Landing to see if corn or other grain-type food remains are positively identified in additional flotation samples.

[4] Determining that Jackson Landing was built during the early Late Woodland period has emphasized the importance of constructing local ceramic sequences in the Mississippi Gulf coast region and obtaining more absolute dates in clear association with ceramic assemblages. At Jackson Landing, varieties of ceramic types Marksville Incised and

Marksville Stamped were recovered from contexts that produced AMS dates from the AD 400s to 600s. These ceramics are often assumed, however, to date to the Middle Woodland period (200 BC-AD 400), although their persistence for centuries beyond this time has been recognized in several areas (Blitz and Mann 2000:38-41; Jeter and Williams 1989:152; Lee 2010; McGimsey 2010:132-133; McGimsey et al. 1999). Even Phillips (1970:960-961)—the architect of the ceramic typology and cultural chronology used across the lower Mississippi Valley and beyond—struggled with trying to reconcile an association between late radiocarbon dates and Marksville ceramics by proposing an alternative chronology that accommodated Marksville ceramics as late as AD 800 (Phillips 1970: Figure 450). The difference of several centuries between an assumed Middle Woodland date for Marksville ceramic types and the actual AMS dates at Jackson Landing underscores both the importance of acquiring more absolute dates and the hazards of an over-reliance on ceramic cross-dating with ceramic sequences from other regions.

Appendix A
Field Notes for the Jackson Landing/Mulatto Bayou Site

by Kelsey M. Lowe

Introduction

This field report presents the notes of a Phase I archaeological survey of the Jackson Landing/Mulatto Bayou site (22HA504-515) in southwestern Hancock County, Mississippi. Coastal Environments, Inc. (CEI) was contracted by Eastern Carolina University (ECU) to perform a cultural resources survey of a large portion of the Jackson Landing site, specifically the area south of the large earthwork that extends towards Mulatto Bayou (Figure A-1). This project had the following goals:

(1) to investigate the landform directly south of the large earthwork using standard shovel testing procedures;

(2) to identify and delineate those areas containing cultural material; and

(3) to provide aerial and topographic maps showing resource findings from shovel tests.

The Jackson Landing/Mulatto Bayou site is a large prehistoric site, about ca. 54 acres (21.85 hectares) in size, situated on the north bank of Mulatto Bayou. Phase I archaeological survey for this project was completed in July 2010 by a three to four person crew (Kelsey Lowe, Evan Garner, Amber Johnston, Brent Patton, and Sally Morehead). The survey was conducted in accordance with the National Historic Preservation Act (36 CFR 800), using guidelines set forth by the Mississippi Department of Archives and History (MDAH) for Phase I cultural resources survey. Recommendations for further investigation and interpretations concerning identified archaeological resources were also made.

Field Investigations and Results

Approximately 207 30-meter interval shovel tests were plotted for this project; however, only 136 were completed by CEI. ECU completed a majority of the shovel tests located south of the platform mound and on the east side of the site. All tests were pre-plotted in an ArcGIS program and imported to a portable Trimble global positioning systems (GPS) device and attached to a Toughbook laptop. Pre-plotting shovel tests increased field efficiency, which, in turn, general-

Figure A-1. Location of the Jackson Landing site.

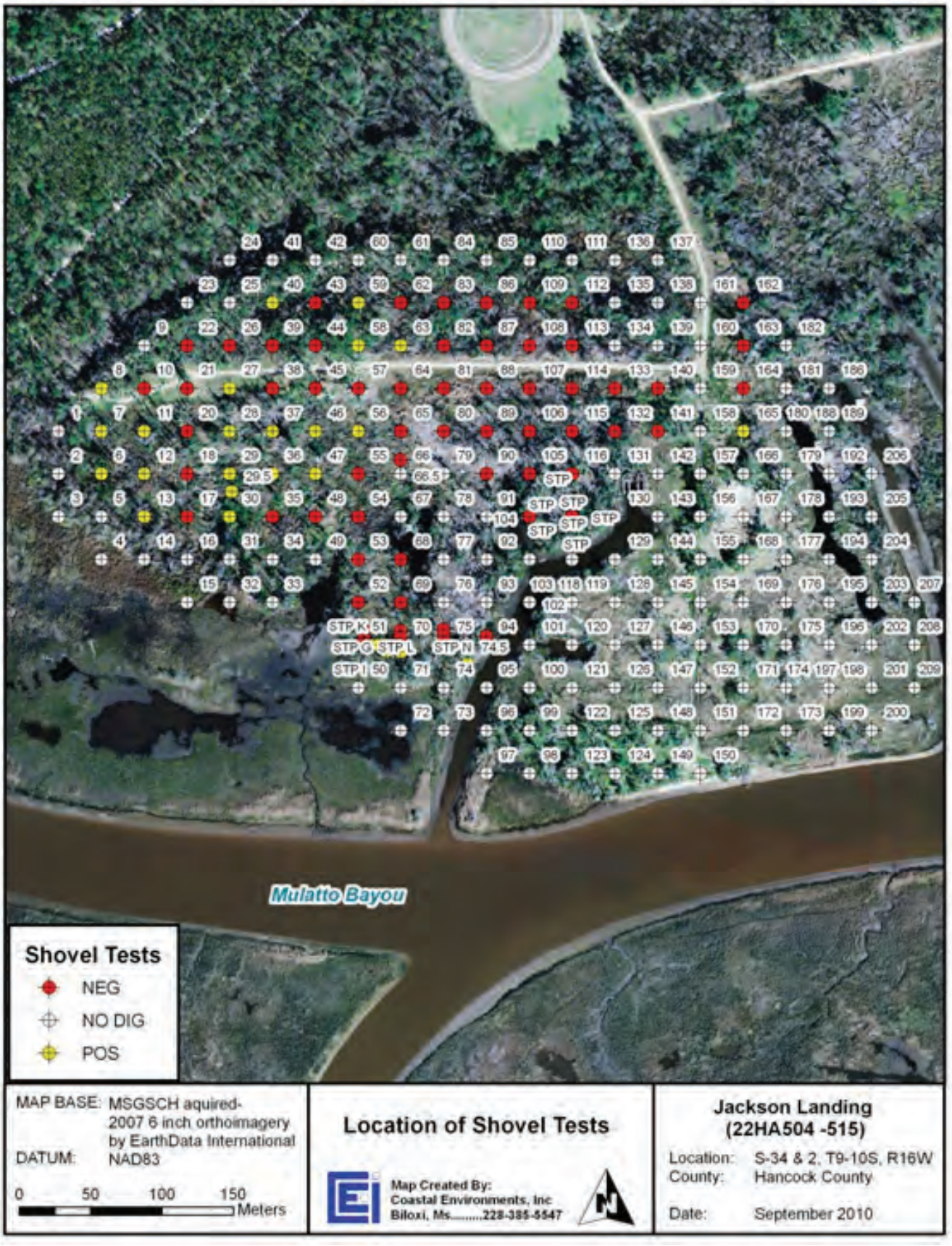


Figure A-2. Locations of pre-plotted and completed shovel tests. Note: A majority of the No Dig tests located on the east side of the site and south of the platform mound were completed by ECU.

ly allowed for a quicker survey. Shovel test pits (STP) were excavated to sterile soil, roughly 50 to 80 cm below surface (bs). All tests were dry-screened through a ¼-inch wire mesh. Collected artifacts were brought to a laboratory and cleaned for analysis and curation. Artifact analysis was completed by ECU, not CEI, so no artifact tables have been generated for this report.

Of the 136 plotted shovel tests, only 90 were excavated. This was largely due to the extent of marshland and standing water in the southern portion of the project area. Of the 90 shovel tests completed, 28 were positive for cultural material (Figure A-2). Three of these tests contained historic materials (a mix of iron nails and metal fragments), while the remaining tests contained prehistoric material (mainly ceramics, a few lithics, possibly some burnt clay balls, and *Rangia cuneata* shells. Two tests, STP 6 and 37, encountered intact shell deposits.

This is not a typical CEI report. The following section is the daily journal portion of the field notes made for this project. These notes highlight daily activities completed during the Phase I survey.

Daily Field Notes

(Taken From the Field Notes of Kelsey Lowe)

Date: Tuesday, 7/13/2010
Field crew: K. Lowe, E. Garner, A. Johnston
Hot and Humid, 96 degrees.

First day of shovel testing. I went over with Dr. Tony Boudreaux, professor at ECU, on what we needed to accomplish in the next few weeks. Our focus was the area and bluff directly south of the earthwork that extends to the marsh. We decided to start the shovel tests near the western part of the site, near the *Rangia cuneata* shell midden that Mark Williams excavated in the 1970s, and work our way east towards the platform mound. To make things go along more quickly we had help from Tony's ECU field crew. They helped with the clearing, shovel testing, in which they used two power augers and screening.

All shovel tests were pre-plotted with a Trimble global positioning systems (GPS) device and attached to a Toughbook laptop. Establishing shovel tests was cumbersome due to the thick five-year Post-Hurricane Katrina growth/vegetation (Figure A-3). I had an idea that the vegetation was going to be bad, but not this bad! It took about 45 minutes to clear out paths for 4 30 m-spaced shovel tests; something unnerving when one hopes to use technology as a way for fast and efficient field use (Figure A-4). It turned out that this could be quite time consuming for two people. Therefore, our efforts were geared towards two people clearing and one person laying out the shovel tests. With this pace, I had hoped to get most of the site laid out in the early part of next week.

Only 11 shovel tests were completed on Tuesday. Shovel Test Pits (STP): 6-8, 10-13, and 17, 18, 20 and 21. STP 8, 7 and 12 contained only historic artifacts (metal and nail fragments), while STP 6, 11 and 13 contained prehistoric artifacts (*Rangia* shell and ceramics). STP 6 was the only test that encountered intact *Rangia* shell.

Date: Monday, 7/19/2010
Field crew: K. Lowe, E. Garner, S. Morehead
Hot, cloudy in morning, 93 degrees mid morning.
Hot and sunny by afternoon.

Today we went ahead and located STPs 27-29, 38, 37, 47-48 and 51-53. Most of this was completed in

Figure A-3. Vegetation at the Jackson Landing site, looking south from the gravel road.

Figure A-4. Shovel test transect line.

the morning with a few more tests added in the afternoon. Vegetation was really thick (actually too thick for clearing) around STP 30; therefore, we had to plot a shovel test halfway between STP 29 and STP 30, designated as STP 29.5. Our goal was to head down south to STP 36, set up those remaining tests (STP 35-34) and work our way back north on the previous line to lay out STP 31 and 30. This was virtually impossible, as a small area surrounding STP 30 was extremely thick (a thick mass of *Ilex vomitoria*). The project area clears out around STP 48, which was very nice and easy in terms of locating other shovel tests. Because it was so open, we went ahead and plotted the shovel tests running south towards a small peninsula, also designated as the western peninsula or landform that extends out (STP47-48 and 51-53). It would be great if the rest of the site were open like that.

After the Toughbook's battery died, we spent the rest of the afternoon shovel testing.

Six shovel tests were completed: STP 27-29, 37, 38 and 47. Almost all of these shovel tests, with the exception of STP 38, were positive for prehistoric material. Intact *Rangia* shell was encountered in STP 37. The particular area where positives were encountered was very nice in terms of topography (it is higher than the surrounding area, especially that area east and southeast of the earthwork). The soils are very dry, loam to loamy sand and easy to screen. Most of the artifacts appear to be coming out around 10 to 30 cmbs.

Date: Tuesday, 7/20/2010
Field crew: K. Lowe, E. Garner, S. Morehead
Hot and sunny, 95 degrees.

I had a doctor's appointment that morning, so we did not arrive to the site until about 9:30 a.m., as opposed to our usual time. As with Monday, we spent a good part of the morning laying out shovel tests starting where we left off yesterday. Eight tests were established.

In the afternoon, we continued with our routine and shovel tested the area south of the east-west road. These tests were STP 29.5, 35, 45, 46, 48, 51, 53, 55, 64, 89, 106, and 107. Only two tests were positive for prehistoric material, STP 29.5 and 46. In addition to our shovel testing, we had a glimpse of our first wild boar towards the end of the day, which scared both Sally and me. Several grunts and stomps informed me that it was time to pack up and head home.

Date: Wednesday, 7/21/2010
Field crew: K. Lowe, E. Garner, S. Morehead, B. Patton
Very hot, sunny, 98 degrees, heat advisory.

Had an extra crew member today to help with the clearing and shovel testing, which turned out to be a big help in terms of getting things done. We continued setting up shovel tests south of the east-west gravel road, heading east towards the mound. In the morning, I had three people clearing, since some of this area was very overgrown, and one person plotting the shovel tests. Tests were extended all the way out to the first, most western peninsula/land form (the one we started on the previous day) (STP 69, 70, 75, 94 and 74.5). Like STP 30, we could not get to STP 74 (the test was located in a marsh), so we set up one between STP 94 and STP 74 and designated it STP 74.5. STP 67, 76, 77, 78, 79, 91, 92, and 93 were in low lying marsh areas or water and were not plotted. A good deal of the area was wet or surrounded by low lying marshes (evidence of tall grasses and soggy ground). It does not appear to be as wet in the aerial image; however, this has been a wetter summer season and the aerial was taken in the early spring of 2007. It appears that much of the land that may typically not be this wet, is in fact more wet or saturated than usual.

The afternoon was spent shovel testing the southern half peninsula area where four positives containing prehistoric material were discovered, STP 70, 74.5, 75, and 94. Both lithics and pottery were recovered from this area. The area directly south of the road was also investigated, STP 55-57, 64-66. Only one positive, STP 56, was encountered and it contained pottery.

Date: Thursday, 7/22/2010
Field crew: K. Lowe, S. Morehead, B. Patton, A. Johnston
Hot and humid, 96 degrees, no clouds. Heat index in the triple digits.

Today we finished plotting shovel tests (13 total) near the southeast end of project area: STP 80-81, 88-90, 104-107 and 114-117. Again, much of the area heading south of STP 80, 90, and 105 was either wet or marshland, or part of the bayou. STP 39, 40, 43, 44, 58 and 59, located directly south of the earthwork and north of the east-west gravel road, were also plotted.

The afternoon was spent shovel testing this area. It was a rather boring day as no artifacts were discovered. The lack of artifacts in this area was probably related to the low topography and numerous drains that head southwards towards the marsh and bayou. Soils were also indicative of wetland soils (i.e., lots of iron concretions and depletions about 30 cmbs) and very difficult to screen. Vegetation in this area was also indicative of wetlands: cattails, ferns, and tall marsh grasses. A good deal of the area surrounding STP 80, 89, and 90 contained Katrina debris, which bordered the edges of the marshland. This was noted throughout the surface of this locale.

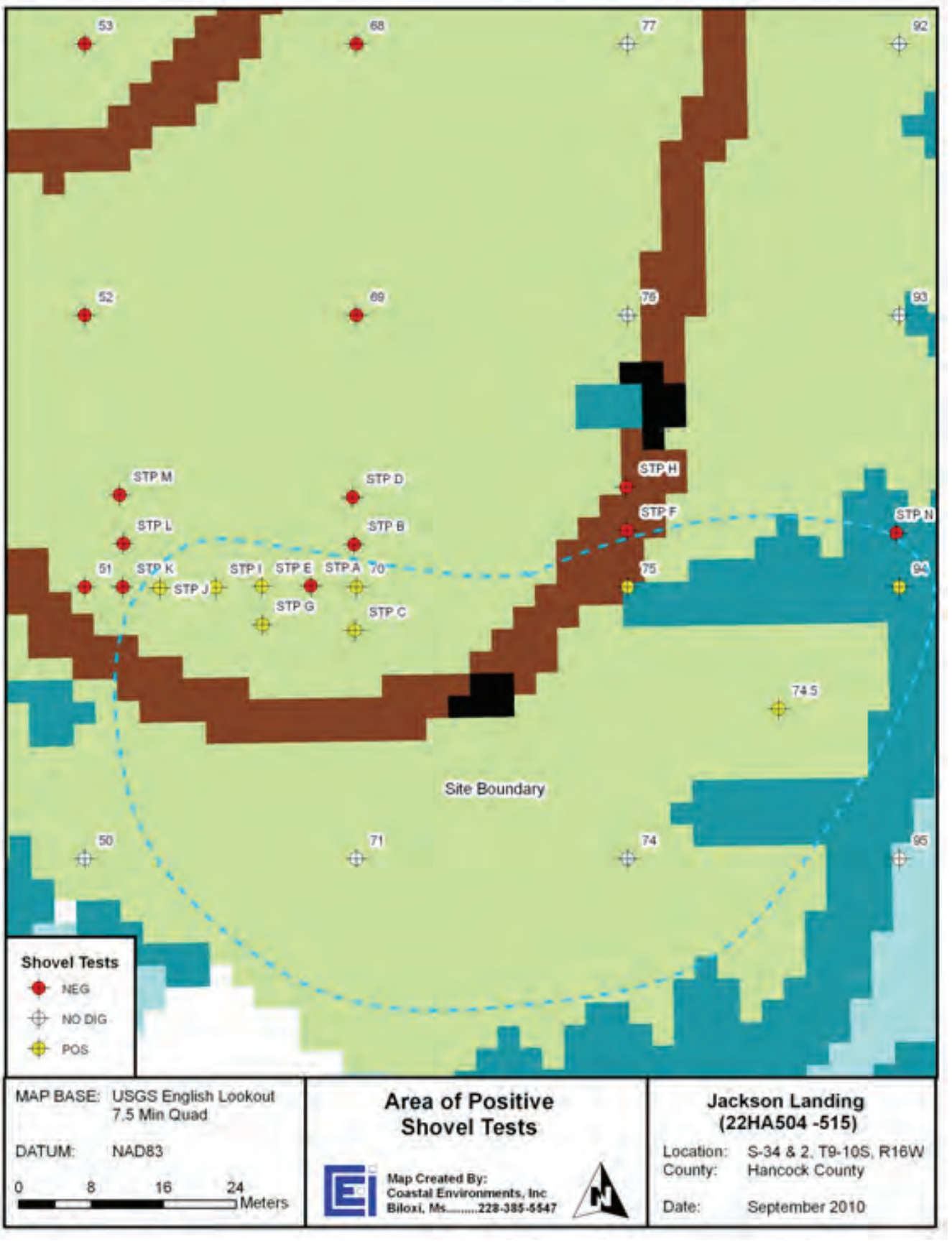


Figure A-5. Zoomed map showing locations of positive and negative shovel tests for the southwestern site delineation.

Date: Friday, 7/23/2010
Field crew: K. Lowe, S. Morehead, B. Patton, A. Johnston
Very humid and hot, 98 degrees. High heat index in triple digits. Wettest day yet in terms of humidity.

To speed the project along, in the morning, Amber, Brent, and Sally worked on plotting the remaining shovel tests east of the north-south gravel road, while I went ahead and shovel tested those tests south of the east-west gravel road. STP 132, 133, 140, 141, 162, 163, 164, and 165 were plotted in the early part of the morning. Once those were finished, shovel tests STP 26 and 22, located directly south of the earthwork, were plotted.

Again, the afternoon was spent shovel testing the newly plotted tests. With four people, we could pair up to speed the Phase I work. Already, a good portion was tested in the morning and one positive, STP 165, was discovered directly north of the mound. However, a clay sewer pipe was encountered about 30 cmbs; therefore this test was marked as disturbed. The remaining tests on the eastern portion of the project area were negative (STP 132, 133, 140, 141, 162, 163, and 164). Tests directly south of the earthwork and north of the east-west gravel road produced four positives (STP 40, 58, 59, and 63). Most of these contained ceramics, with the exception of STP 58, which contained only *Rangia* shell fragments. As close as we were to the earthwork, I anticipated that more material would be found in this area. Like the shovel tests directly south of these, the soil was dry and easy to screen. One can see that this area is topographically higher than the area east of STP 82, 86, and 87. It appears that there is a concentration of artifacts in the western portion of the site, directly north of the west shell midden and south of the earthwork.

Date: Tuesday, 7/27/2010
Field crew: K. Lowe, S. Morehead, B. Patton, E. Garner
Very humid and hot, 90-something degrees. High heat index in triple digits.

Only a few more shovel tests needed to be plotted today. As with Friday, three people worked on plotting the remaining tests in the project area (STP 62, 63, 82, 83, 87, and 113). STP 134 and 135 were too difficult to get to and were not plotted. Much of that area is wet and surrounded by dense vegetation (unbelievably this was the densest part of the project area). Tomorrow, in an attempt to reach this area, we will walk eastwards along the earthwork in hopes of reaching STP 112 and 135.

All of the newly plotted six shovel tests were completed in the morning and afternoon. Since vegetation was thicker towards the western part of the project area, they took a bit longer in terms of plotting. The only positive shovel test encountered (STP 63) contained a single grog-tempered ceramic fragment. The remaining tests were negative. The area directly west of STP 82 gradually becomes topographically lower as you move eastward. Soils encountered in this area were, again, indicative of wetland soils. These soils were often more grayish brown, wet, and contained both iron concretions and depletions (dark reddish brown and gray mottles). Screening was also difficult, as much of the material would stick to the screen.

Date: Wednesday, 7/28/2010
Field crew: K. Lowe, S. Morehead, B. Patton
Humid and hot, 96. High heat index in triple digits.

Today is the last day of fieldwork at Jackson Landing. Since all of the shovel tests were completed in the area, with the exception of STP 112 and 135, we put our efforts into delineating the area located on the southwestern peninsula where four positives were discovered on 7/21/2010 (STP 70, 75, 94, and 74.5) (Figure A-5). Using MDAH guidelines for delineating a site, we placed shovel tests every 5 m in the cardinal directions from STP 70. Thirteen shovel tests were completed in this area with five containing positives (STP C, E, G, I, J). Tests were also completed north of STP 75 and 94. Because there was marshland directly south of STP 70, 75, and 94, we could not extend our shovel tests beyond 5 m. Based on our findings, it appears that there is a concentration/occupation of artifacts in this vicinity that likely extends south towards the bayou. It also appears that this area may perhaps date to an earlier period. A number of lithic artifacts were recovered here, of both Citronelle Chert and Tallahatta Sandstone. In addition, many of the ceramics appear to be either sand, grit, or fiber tempered (possibly Tchefuncte, as a few ceramics in STP G look laminated and fibrous).

After this area was delineated, we moved northward towards the earthwork to walk westward along the top in hopes of reaching STP 112 and 135. We made it to STP 112, but STP 135 was impossible, as much of that area was extremely overgrown. STP 112 was tested negative for cultural material.

The afternoon was spent delineating the shell boundaries in those STP that contained *Rangia* shell deposits (these were STP 6 and 37). A combination of coring and probing was used to determine the extent of the shell deposits, and GPS readings were taken marking each shell boundary. While STP 6 is located near the west shell midden, it is not understood why shell deposits were encountered in STP 37.

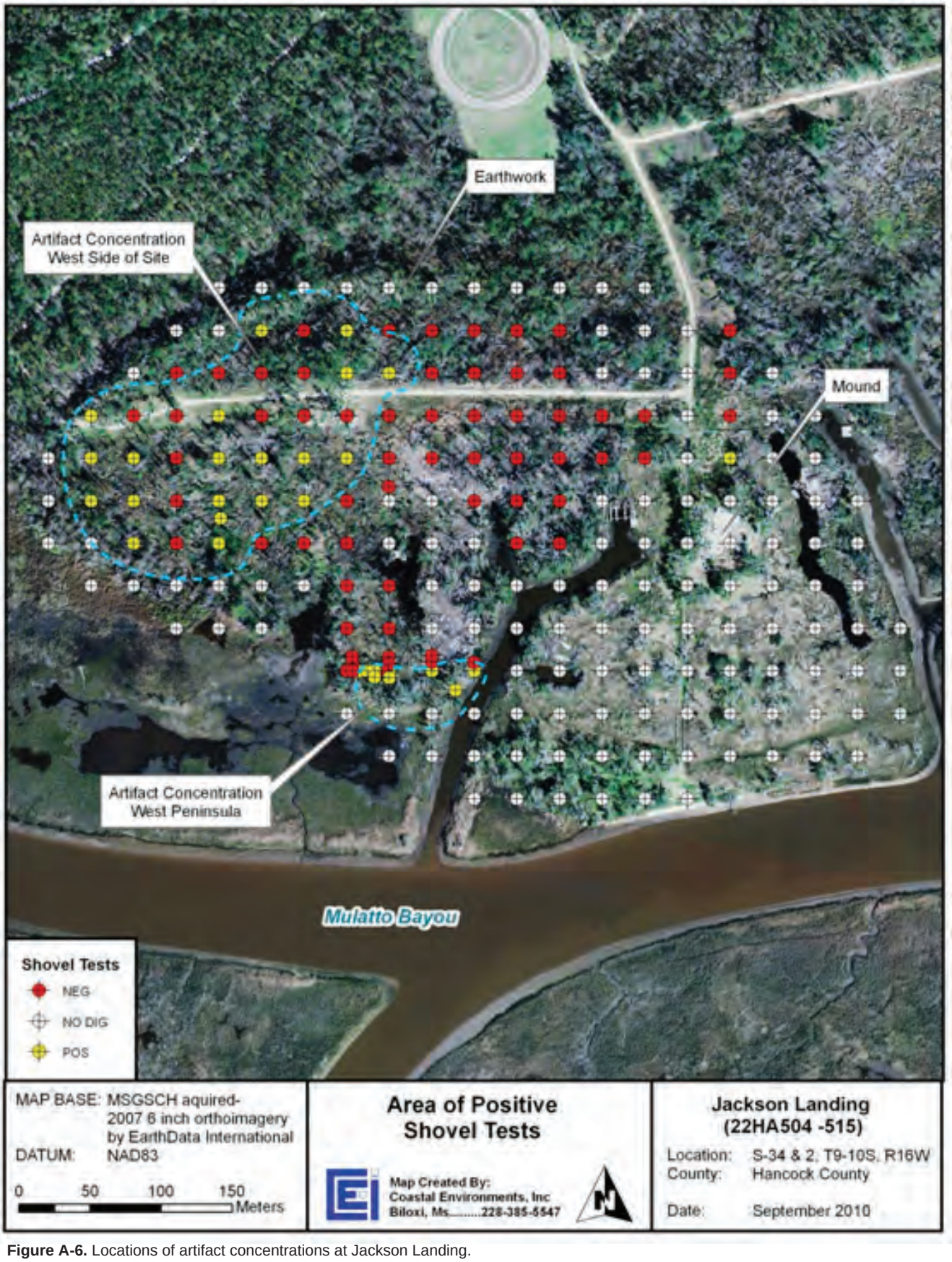


Figure A-6. Locations of artifact concentrations at Jackson Landing.

Recommendations

Based on findings from Phase I survey, there are two areas of artifact concentration on the Jackson Landing site, aside from the *Rangia* shell middens located on the western bluff and south of the platform mound on Mulatto Bayou. The first concentration is directly south of the earthwork, on a slight bluff located on the western portion of the site (Figure A - 6). This area probably has some relation to the western shell midden, as it appears that artifacts continue towards that direction.

The second area of artifact concentration is located on the most southern, western peninsula. This area is somewhat more isolated from the rest of the site, since there was not a continuation of positive shovel tests in the direction of this concentration. Both artifact concentrations produced prehistoric ceramic pottery, mainly consisting of grog and sand tempering. Lithic material and possibly burnt clay balls were recovered from concentration located on the west peninsula, perhaps suggesting either an older or a separate occupation from that recovered on the remainder of the site. Intact *Rangia* deposits were also encountered in both concentrations.

Although the shovel tests provided information on the material culture and its extent topographically, excavations would allow for a more controlled collection of data, which would include radiometric dating, pollen and shell analysis, and on-site comparisons of ceramic material. These investigations could further assist in helping to understand the spatial layout of Jackson Landing. Further studies can help in the understanding of intra-site relationships within the site, which could potentially provide insight into inter-site interaction across the region. CEI suggests that the two areas of artifact concentrations (the west bluff found directly south of the earthwork and north of the shell midden and the western peninsula) be further investigated if possible, to explore the archaeological material in these areas in more detail.

Appendix B
Faunal Remains from Excavations at the Jackson Landing Site
by Susan L. Scott

The 2010 Excavations

Several samples from Tony Boudreaux's 2010 excavations of the Jackson Landing site were submitted for analysis. Only one time period is represented, early Late Woodland. Radiocarbon dates indicate the portion of the earthwork sampled by excavation was built over a relatively brief period around AD 650. Samples from three areas of the site were analyzed: (1) the bluff overlooking the marsh on the west end of the site; (2) the mound; and (3) an apparent borrow pit about 10 m north of the mound. Flotation samples were taken from each of the contexts, and the remainder of the bone was screened through ¼-inch hardware cloth. Samples from fine and ⅛-inch mesh were not submitted for analysis.

All of the remains were analyzed using the comparative zooarchaeological collection at the University of Southern Mississippi, which is adequate for most taxa other than birds. Bird bone is provisionally identified here, sometimes in only a general way, until the fragments can be examined using a more comprehensive collection. Each bone was identified to the most specific level possible, given the surviving morphology of the fragment. In addition, element, side, degree of fragmentation, portion, age and sex were recorded for birds and mammals, when possible. For fish remains, length was estimated by comparing the fragment to a range of specimens of different size. Diameter was recorded for fish vertebrae. Carnivore and rodent gnawing was noted along with charring and the occasional butchering mark. If a fragment was notably eroded or leached, that condition was recorded in comments. A database and coding key are not included in this published report.

Bones from the bluff and the mound are relatively well preserved, but bones from the borrow pit presented an odd taphonomic profile that strongly suggests differential preservation. Much of the borrow pit bone was brittle and heavily eroded, presumably a result of chemical reactions and mechanical degradation between the bones and gley soils. It is likely that the borrow pit bone, at least for some period of time, was waterlogged, allowing chemical replacement of hydroxyapatite and other minerals. There are almost no large mammal longbone fragments, except for calcined bone, and cortical surfaces generally are rare. When cortical bone is present, it is usually marred by mineral concretions rendering bone texture, a useful parameter in the identification process, impossible to assess. As a result of these complex processes, 20 percent, by weight, of the borrow pit sample is designated unidentifiable. Most of these unidentifiable fragments are probably from porous large mammal elements (articular ends of longbones and vertebrae) that allowed chemical seepage to fossilize the bone structure long enough for clay sediments to infuse the bone, preserving the trabeculae.

The Bluff Sample

The bluff excavation units produced 480 fragments weighing 68.5 g. Eight percent of the assemblage is unidentifiable even to taxonomic class. One fragment, a turtle carapace or plastron fragment was noted to be extensively eroded. Thirty-one percent of the sample is charred (Table B-1).

Table B-1. Faunal Elements from the Bluff Midden.

	NISP	Charred	Weight (g)	MNI
Swamp Rabbit (*Sylvilagus aquaticus*)	1	0	2	1
White-tailed Deer (*Odocoileus virginianus*)	3	0	5.9	1
Large Mammal	56	12	26.4	-
Medium Mammal	1	0	0.2	-
Unid Bird/Small Mammal	9	3	1.6	-
Small Goose	1	0	0.2	1
Small Duck	1	0	0.2	1
Unid Turtle	9	4	1.3	1
Bowfin (*Amia calva*)	185	45	11.9	6
Gar (Lepisosteidae)	12	5	1.9	2
Freshwater Catfish (Ictaluridae)	4	1	1.7	4
Channel/Blue Catfish (*I. punctatus/furcatus*)	1	0	0.4	1
Bass (*Micropterus* sp)	1	0	0.1	1
Unid Fish (Osteichthyes)	103	43	6.2	-
Total Identified Bone	387	113	60	19
Deer Antler	1	1	2.2	-
Gar Scales	11	2	0.9	-
Unidentifiable Bone	81	31	5.4	-
Total Bone	**480**	**147**	**68.5**	**19**

At least nine taxa are present: white-tailed deer, swamp rabbit, small goose and small duck, unidentifiable turtle, bowfin, gar, catfish and bass. Although only four deer elements are identifiable (a lumbar vertebra, premaxilla, petrous temporal, and an antler tine), large mammals collectively make up 54 percent of the sample by weight. The next most important class of fauna is fish, which comprise 37 percent by weight (gar scales excluded from the calculation). The smallest fish identified is 25-30 cm standard length (SL), the largest a gar estimated to be almost a meter long. Of the fish elements complete enough for MNI by size to be estimated, 21 (66%) are between 20 and 40 cm SL. Eight (25%) are between 40 and 60 cm SL, and three (9%) are over 60 cm SL, including a trophy freshwater catfish estimated at 60-70 cm SL (Figures B-1 and B-2). This relatively large fish size is undoubtedly a factor of sample selection determined by screen size. However, the technology employed to procure fish in the represented size range may have included fish traps or nets with relatively large openings. Interestingly, all of the fish are freshwater species.The most abundant is bowfin, a species that prefers slackwater habitat and would have been readily available in Mulatto Bayou, adjacent to the site.

None of the sample is suggestive of seasonal occupation. Ducks and geese, many of which migrate seasonally, have year-round resident populations on the Mississippi Gulf coast, although they would have been more populous during cool weather months. The single antler fragment recovered is not attached to a deer frontal and thus may have been curated.

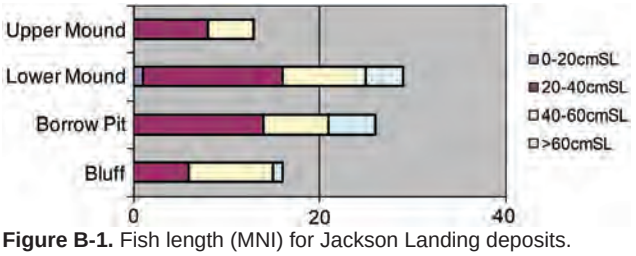


Figure B-1. Fish length (MNI) for Jackson Landing deposits.

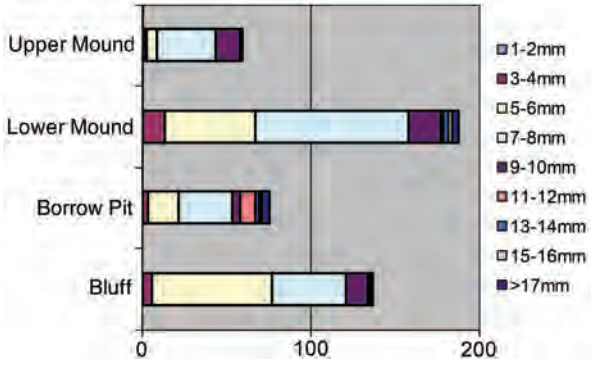


Figure B-2. Size (NISP) for fish vertebrae at Jackson Landing.

In comparing composition, by weight, of the 2010 bluff sample and the coeval 1979 sample (Scott 2011), large mammals appear even more important (66% versus 54%) in the earlier excavation. Such a pattern is probably due more to differential recovery techniques (½-inch versus ¼-inch mesh) than prehistoric reality.

Table B-2. Faunal Elements from the Borrow Pit.

	NISP	Charred	Weight (g)	MNI
Opossum (*Didelphis marsupialis*)	1	0	3.4	1
Black Bear (*Ursus americanus*)	10	0	42.8	2
Large Dog/Wolf (*Canis* sp)	1	0	1.8	1
Tree Squirrels (*Sciurus* sp)	1	0	0.1	1
Beaver (*Castor canadensis*)	16	0	18.7	1
Muskrat (*Ondatra zibethica*)	1	0	2	1
Rabbit (*Sylvilagus* sp)	1	0	0.6	1
Swamp Rabbit (*Sylvilagus aquaticus*)	2	0	1.2	1
White-tailed Deer (*Odocoileus virginianus*)	91	4	260.9	5
Large Mammal	318	55	210.5	-
Medium Mammal	32	3	10.9	-
Small Mammal	1	0	0.5	-
Unid Bird/Small Mammal	68	2	7.5	-
Unid Large Bird	2	0	0.6	-
Unid Medium Bird	1	0	0.3	-
Snapping Turtle (Chelydridae)	12	0	6.1	2
Pond Turtles (Emydidae)	19	11	6.7	2
Unid Turtle	70	22	29.8	-
Non-Poisonous Snake (Colubridae)	2	1	0.2	1
Bowfin (*Amia calva*)	59	9	7.3	3
Gar (Lepisosteidae)	35	5	7.4	5
Alligator Gar (*Atractosteus spatula*)	8	1	11.2	2
Catfish (Ictaluridae)	5	1	0.6	2
Channel/Blue Catfish (*Ictalurus punctatus/furcatus*)	1	0	0.1	1
Sea Catfish (*Arius felis*)	1	0	0.2	1
Finfish (Perciformes)	3	1	0.5	-
Sunfish (*Lepomis* sp.)	1	0	0.1	1
Sheepshead (*Archosargus probatocephalus*)	10	8	11	4
Marine Drum (Scianidae)	1	0	0.2	1
Sea Trout (*Cynoscion* sp)	1	0	1	1
Mullet (*Mugil* sp)	1	0	0.4	1
Unid Marine Fish (Osteichthyes)	1	0	1.1	-
Unid Fish (Osteichthyes)	175	48	47.4	-
Total Identified Bone	951	171	693.1	41
Deer Antler	3	2	3.6	-
Gar Scales	391	108	69.8	-
Unidentifiable Bone	890	136	185.8	-
Total Bone	**2235**	**417**	**952.3**	**41**

The Borrow Pit

Excavations in the presumed borrow pit north of the mound produced 2235 fragments weighing 952.3 g (Table B-2). Twenty percent of the assemblage is unidentifiable, even to taxonomic class, due largely to the taphonomic factors discussed above. Many identifiable fragments were noted to be extremely eroded, including remains of fish, medium-sized mammals, and thick large mammal skull fragments that could be remains of black bear. Nineteen percent of the sample is charred or calcined. One deer astragalus is charred only on the medial/posterior portion, indicating probable roasting of an articulated hind limb.

At least 22 taxa were identified: white-tailed deer, bear, opossum, swamp rabbit, beaver, muskrat, squirrel, a large dog/wolf, and a few unidentifiable birds, pond and snapping turtles, five freshwater and six marine fish taxa. Collectively, birds and mammals produced 81 percent of the identifiable sample, by weight. The presence of bear remains in this pit (the only prehistoric deposit yielding bear) is of particular interest. Disposal of bear remains appears to have been governed prehistorically by ritual proscriptions that required discard in an area where the bones could not be defiled by dogs (Jackson and Scott 2003). Preservation in this pit appears to have been affected by standing water, a condition that would have met the criterion of being unavailable to scavengers. Six vertebral elements were recovered, along with remains of the skull and feet (a metacarpal and two phalanges). The absence of bear longbones is probably a result of differential preservation, as most of the elements recovered exhibit the porous structure that seems to have fostered preservation in this unusual depositional environment. Swamp rabbit, muskrat and beaver would have been available in the marshes adjacent to the site.

Fish remains indicate procurement in both freshwater and marine environments. Although freshwater fish taxa are far better represented numerically than marine species, with bowfin again the dominant taxon, the variety of marine fish (marine catfish, sheepshead, sea trout, and mullet) suggests at least periodic exploitation of coastal environments. As was true of the bluff deposit, no fish individuals smaller than 20 cm SL were recovered, and the quantity of larger fish decreases with sizes over 40 cm SL. There are slightly more fish in the 40-60 cm SL range than is true of the bluff deposit (60% 20-40 cm SL, 31% 40-60 cm SL, 9% >60 cm SL), but the slight difference may, again, have to do more with conditions of preservation than with cultural practices.

Unlike the bluff assemblage, and again probably because of the nature of preservation in the borrow pit, there is ample evidence of late summer and mid-winter deer procurement, all due to the incompletely ossified long bones of fawns less than 8 months old. At least three fawns (2-3 months old, 3-4 months old, 6-7 months old) were identified in the deposit. In all cases the preserved bones are porous postcranial elements. Approximate age was determined for these individuals by comparing size, ossification, and degree of epiphyseal fusion with modern specimens. The 6-7 month old individual exhibits recent, but still incomplete, epiphyseal fusion of the diaphysis of a distal metapodial. Assuming a June 1 birthdate, the individuals were killed between August and October, or in December or January. Two adult deer were aged based on tooth wear (both maxillary tooth rows without associated bone matrix), one 5-6 years old and the other 7-8 years old.

One adult deer first phalanx exhibits deep butchering marks on the lateral and posterior of the proximal end, probably inflicted during hide removal. There is one bone tool, an awl, manufactured of large mammal longbone, probably a deer metacarpal.

The Mound

Mound excavation covered numerous contexts: two premound middens (south and east), a flank midden, Stage I and Stage II fill, and five pit features on the summit (Pits 4, 5, 10, 11 and 13, of which Pit 5 is historic in age). During examination of deer elements from the prehistoric mound, taken together, it became apparent that nearly all submound midden deposits and construction Stage I were primary butchering refuse (head and feet). In contrast, Stage II fill and all prehistoric pits on the summit bear the signature of possible feasting refuse. For this reason, the upper and lower levels of the mound are contrasted with one another in the following discussion and are represented separately in tables and figures.

Collectively, mound deposits produced 1,473 fragments weighing 396.1 g. Twenty-four percent of the assemblage was charred and four percent is unidentifiable even to taxonomic class. At least 21 taxa are identified: white-tailed deer, opossum, muskrat, fox squirrel, large and medium-sized ducks, marine, box and snapping turtles, king or rat snake, four freshwater and seven marine fish taxa. Most identified taxa come from lower mound deposits (Tables B-3 and B-4). Deer element distribution between the lower and upper mound deposits is shown in Table B-5.

Fish remains from mound deposits indicate procurement in both freshwater and marine environments. The fish assemblage in the lower mound deposit closely resembles the composition of the bluff and borrow pit middens at the site, with bowfin dominating the samples. However, although freshwater fish taxa are (minimally) present in the upper mound (bowfin and gar vertebrae and unidentifiable skull fragments), the upper assemblage is heavily dominated by sheepshead, which produced 61 percent of identifiable fish NISP and 57 percent of fish MNI. Adult sheepshead would have been available in nearshore habitats between mid-September and late December, before migrating offshore to spawn in open Gulf waters in January, February and March. Because adult size range clusters around 35 cm SL, most of the identifiable fish remains in the upper mound deposit are relatively small (see Figure B-1). However, vertebral diameter for both identifiable and unidentifiable fish skews larger in the upper mound deposit, with 86 percent versus 63 percent larger than 7 mm in diameter (see Figure B-2).

The upper deposit produced many elements from the meatier portions of white-tailed deer (especially the hindquarters), a signature expected from communal feasts. However, correlates of elite refuse (dangerous prey, unusual birds, and great diversity) are not present in the upper levels. This pattern probably indicates feasting by a corporate group, suggesting lack of social stratification, as noted at other Middle Woodland and early Late Woodland sites in the Southeast (Knight 2001).

Aside from ducks identified in the lower mound levels, which may or may not indicate winter habitation, there are no other other seasonal markers in the samples. In addition, no butchering marks were observed, nor is there any indication of unusual taphonomic circumstances affecting bone preservation.

Conclusions

The various early Late Woodland deposits sampled by 2010 excavations at the Jackson Landing site indicate a subsistence economy heavily reliant on both large mammals (deer and bear) and fish (Table B-6). Perhaps the most interesting pattern revealed by this analysis is that the lower mound levels produced only primary butchering refuse and the upper mound deposits produced meaty deer elements suggestive of feasting. Such a pattern may have resulted from a series of activity areas in that locale. If the lower levels of the earthwork originally served as a staging or preparation locus for communal feasts occurring in other areas of the site (lower mound), then the (original) preparation area eventually became the site of the

Table B-3. Faunal Elements from the Lower Mound Fill.

	NISP	Charred	Weight (g)	MNI
Opossum (*Didelphis marsupialis*)	4	1	1.9	2
Tree Squirrels (*Sciurus* sp)	2	0	0.8	0
Fox Squirrel (*Sciurus niger*)	1	1	0.1	1
Muskrat (*Ondatra zibethica*)	1	0	0.6	1
White-tailed Deer (*Odocoileus virginianus*)	38	15	46.2	2
Large Mammal	59	22	30.9	
Medium Mammal	15	5	4.1	
Small Mammal	4	1	0.4	
Unid Bird/Small Mammal	14	6	1.1	
Large Duck	2	0	1	1
Med Duck	1	1	0.1	1
Unid Large Bird	1	0	0.4	
Unid Medium Bird	9	0	1.4	
Snapping Turtle (Chelydridae)	6	2	6.4	1
Box Turtles (*Terrapene carolina*)	1	1	0.1	1
Sea Turtle (Cheloniidae/Dermochelydae)	1	0	8.1	1
Unid Turtle	25	5	4.2	
King or Rat Snakes (*Lampropeltis/Elaphe*)	1	0	0.1	1
Unid Snake	1	0	0.2	
Bowfin (*Amia calva*)	262	44	24.7	12
Gar (Lepisosteidae)	13	4	4.1	1
Alligator Gar (*Atractosteus spatula*)	1	1	2.1	1
Catfish (Ictaluridae)	1	0	0.3	1
Sea Catfish (*Arius felis*)	1	0	0.1	1
Finfish (Perciformes)	3	0	0.4	0
Sunfish (Centrarchidae)	1	1	0.1	0
Bass (*Micropterus* sp)	5	1	0.6	3
Largemouth Bass (*Micropterus salmoides*)	1	0	0.3	1
Sheepshead (*Archosargus probatocephalus*)	5	1	5.4	2
Sea Trout (*Cynoscion* sp)	6	0	0.8	3
Black Drum (*Pogonias cromis*)	1	0	0.4	1
Red Drum (*Scianops ocellata*)	1	0	1.2	1
Mullet (*Mugil* sp)	9	2	1.3	3
Unid Marine Fish (Osteichthyes)	2	0	0.9	0
Unid Fish (Osteichthyes)	280	78	36.9	0
Total Identified Bone	778	192	187.7	42
Deer Antler	0	0	0	0
Gar Scales	33	8	5.4	0
Unidentifiable Bone	138	52	11.5	0
Total Bone	**949**	**252**	**204.6**	**43**

Table B-4. Faunal Elements from the Upper Mound Fill.

	NISP	Charred	Weight (g)	MNI
White-tailed Deer (*Odocoileus virginianus*)	12	0	80.2	2
Large Mammal	58	17	25.3	0
Medium Mammal	2	0	0.5	1
Unid Bird/Small Mammal	1	1	0.1	0
Snapping Turtle (Chelydridae)	2	0	1.4	1
Unid Turtle	10	6	1.5	1
Bowfin (*Amia calva*)	20	2	1.9	1
Gar (Lepisosteidae)	1	1	0.1	1
Finfish (Perciformes)	3	0	0.4	0
Sheepshead (*Archosargus probatocephalus*)	46	1	36.6	8
Black Drum (*Pogonias cromis*)	1	0	0.2	1
Red Drum (*Scianops ocellata*)	1	1	0.8	1
Mullet (*Mugil* sp)	2	0	0.3	1
Flounder (*Paralichthys* sp)	1	0	0.4	1
Unid Fish (Osteichthyes)	255	43	35.5	0
Total Identified Bone	415	72	185.2	19
Deer Antler	0	0	0	0
Gar Scales	2	1	0.5	0
Unidentifiable Bone	84	22	4.3	0
Total Bone	**501**	**95**	**190**	**19**

Table B-5. NISP by Excavation Area.

	Borrow Pit			Bluff			Mound - Lower Levels			Mound - Upper Levels		
	NISP	MAU	MNI	NISP	MAU	MNI	NISP	MAU	MNI	NISP	MAU	MNI
Maxilla	3	2	2	1	1	1	1	1	1	2	1	1
Petrous Temporal	0	0	0	1	1	1	0	0	0	0	0	0
Axis	1	1	1	0	0	0	0	0	0	0	0	0
Cervical Vertebra	5	1	1	0	0	0	0	0	0	0	0	0
Thoracic Vertebra	3	1	1	0	0	0	0	0	0	0	0	0
Lumbar Vertebra	3	1	1	1	1	1	0	0	0	0	0	0
Sacrum	2	1	1	2	1	1	0	0	0	0	0	0
Scapula	6	5	3	0	0	0	0	0	0	0	0	0
Humerus	0	0	0	0	0	0	0	0	0	2	1	1
Radius	2	2	2	0	0	0	0	0	0	0	0	0
Ulna	1	1	1	0	0	0	0	0	0	1	1	1
Carpals	8	2	2	0	0	0	0	0	0	0	0	0
Metacarpal	2	2	2	0	0	0	1	1	1	0	0	0
Innominate	1	1	1	0	0	0	0	0	0	6	5	3
Femur	8	2	2	0	0	0	0	0	0	1	1	1
Patella	2	2	2	0	0	0	2	2	2	0	0	0
Tibia	1	1	1	0	0	0	0	0	0	0	0	0
Astragalus	1	1	1	0	0	0	2	1	1	0	0	0
Calcaneum	1	1	1	0	0	0	0	0	0	0	0	0
Tarsals	4	1	1	0	0	0	1	1	1	0	0	0
Metatarsal	1	1	1	0	0	0	0	0	0	0	0	0
Phalanx 1	11	5	2	0	0	0	11	6	3	0	0	0
Phalanx 2	5	3	1	0	0	0	7	2	2	0	0	0
Phalanx 3	3	2	1	0	0	0	3	2	1	0	0	0

Table B-6. Percentages by Excavation Area.

	Bluff	Borrow Pit	Lower Mound	Upper Mound
	% weight	% weight	% weight	% weight
Large Mammals	53.8	74.2	41.1	57
Small Mammals/ Birds	7	6.9	6.3	0.3
Turtles	2.2	6.2	10	1.6
Snakes	0	0	0.2	0
Fish	37	12.7	42.4	41.1

Table B-7. NISP from the 1972 Collection.

	NISP	Charred	Weight (g)	MNI
Muskrat (*Ondatra zibethica*)	9	0	7.3	2
White-tailed Deer (*Odocoileus virginianus*)	12	0	78.4	2
Large Mammal	9	0	6.4	0
Medium Mammal	3	1	1.2	1
Small Duck	1	0	0.5	1
Wild Turkey (*Meleagris gallopavo*)	1	0	2.4	1
Eagle (Buteoninae)	2	0	2	1
Unid Large Bird	3	0	0.5	0
Unid Medium Bird	1	0	1.2	0
Softshell Turtle (*Apalone* sp)	4	0	7.1	1
Unid Turtle	4	0	3	1
Bowfin (Amia calva)	2	0	6.6	1
Gar (Lepisosteidae)	3	0	3.2	2
Alligator Gar (*Atractosteus spatula*)	1	0	5.2	1
Channel/Blue Catfish (*Ictalurus punctatus/furcatus*)	3	0	2.8	1
Sheepshead (*Archosargus probatocephalus*)	2	0	3.9	1
Red Drum (*Scianops ocellata*)	2	0	1.6	1
Unid Fish (Osteichthyes)	1	0	0.3	0
Total Identified Bone	63	1	133.6	17
Deer Antler	0	0	0	0
Gar Scales	0	0	0	0
Unidentifiable Bone	0	0	0	0

feast itself (upper mound). Seasonal indicators from the borrow pit (late summer, early fall and midwinter) suggest cool weather occupation, and the quantity of sheepshead in the upper mound deposit strongly suggests the feasting event/s occurred in the early fall. Because there is an absence of taxa that usually indicate conspicuous consumption by elites, the feasting deposit suggests communal feasting by an unstratified corporate group. Given the shift in composition between lower and upper levels of the mound, an internal site chronology may exist that could allow for construction of the mound during a relatively brief period of time.

The 1972 Excavations

Several samples from Mark Williams' 1972 excavation of the Jackson Landing site (1987) were submitted for analysis. Two time periods are represented: Middle or early Late Woodland remains from the bluff edge on the west end of the site, and an extensive eighteenth-century midden that covers much of the east end of the earthwork. The latter was divided into remains from the earthwork and those from a second historic sample, a shell deposit 200 ft northeast of the earthwork. The Woodland deposit is small, but well preserved, presumably due to associated shell. The historic deposits are generally well preserved, presumably due to their relatively young age, and in some cases their association with shell. Recovery for both time periods was with ½-inch mesh, producing samples skewed toward large taxa.

All of the remains were analyzed using the comparative collection at the University of Southern Mississippi, which is adequate for most taxa other than birds (Table B-7). Bird bone is provisionally identified here, sometimes in only a general way until the fragments can be examined using a more comprehensive collection. A second identification problem was presented by Bovid remains from the site. Given the eighteenth-century time period, cattle (*Bos taurus*) and bison (*Bison bison*) are both possible identifications, although of the two *Bos* seems more likely. European cattle were introduced along the coast by early explorers in the New World, and although *Bison* are known to have expanded their range into southeastern North America during the Protohistoric period, their presence was ephemeral. Both *Bos* and *Bison* skeletons are available in the USM comparative collection, and identification attempts were aided by characteristics outlined by Balkwill and Cumbaa (1992). In almost all cases opinion throughout the lab was equivocal. Either some diagnostic portion of the element was eroded post-depositionally or broken during the original butchering process. In any case, the geometry necessary for distinguishing subtle differences between these taxa are largely missing. Consequently, all are recorded as Bovidae.

Each bone was identified to the most specific level possible given the surviving morphology of the fragment. In addition, element, side, degree of fragmentation, portion, age and sex were recorded for birds and mammals when possible. For fish remains, length was estimated by comparing the fragment to a range of specimens of different size. Diameter was recorded for fish vertebrae. Carnivore and rodent gnawing was noted, along with charring and the occasional butchering mark. If a fragment was notably eroded or

leached, that condition was recorded in comments. A database and coding key are not included in this published report.

Woodland Bluff Deposit

The small sample of bone (63 fragments) from the Woodland deposit at the bluff edge is quite diverse, given recovery methods. Deer, muskrat, teal, turkey, and eagle were identified, along with softshell and other turtle, bowfin, gar, freshwater catfish, red drum, and sheepshead. The eagle identification is firm as the elements (tarsometatarsus and hind phalanx 1) are definitively Buteoninae and are twice the size of the largest (red-tailed) hawks in the USM collection. Given the presence of eagle and a trophy-sized deer (age 3-4 years), the deposit could be interpreted as feasting refuse.

However, the inclusion of deer skull and feet (Table B-8), both primary butchering refuse not ordinarily associated with feasting remains, potentially points to a more quotidian origin. At least two muskrats are represented by nine elements, a robust presence nearly eclipsing the twelve deer elements identified. Four freshwater fish taxa—gar and alligator gar, channel or blue catfish, and bowfin—are present and, excluding the bowfin, are of trophy size (>60 cm SL), as is one of the two marine individuals, a red drum (>60 SL). It is unlikely that smaller fish would have been recovered in the ½-inch mesh used during excavation, so the presence of trophy-sized fish has little overall significance for interpretation. Excluding bowfin, all of the freshwater taxa could be found in brackish water at the mouth of Pearl River.

By weight, large mammal remains comprise the bulk of the assemblage (66%) with smaller mammals (7%), birds (5%), turtles (10%), and fish (14%) rounding out the sample. It is notable that of the non-deer remains, taxa of aquatic origin (muskrat, teal, fish, and turtles) produced, minimally, 28 percent of the sample by weight. There are no seasonal markers in the species identified. Migratory ducks, such as teal, would have been more common in fall and winter, but since some individuals are year-round inhabitants, it could have been procured during any season.

The Eighteenth-Century Deposits

Discussion of the historic aboriginal component at Jackson Landing divides the sample into two areas. The area northeast of the earthwork, Pits 1 and 2 in Area C, are reported separately because certain inclusions in the deposit, particularly the presence of a complete cougar forepaw (four complete articulated metapodials), suggest ceremonial refuse. The remaining eighteenth-century deposits cover a large area of the earthworks, but are grouped in the following discussion until a finer chronology can be developed. The midden in Area C produced 1500 bone fragments, and the collective sample from all of the remaining excavation units yielded 2063 specimens.

What both deposits have in common is the consistent presence of black bear and cow/bison, and an occasional pig tusk or molar. A similar collection of taxa from late seventeenth- and early eighteenth-century Chickasaw sites in northeast Mississippi is used for comparative purposes (Table B-9) (Johnson et al 2008). During the time period represented, Native American populations were experiencing large-scale conflict due to slave raiding and were increasingly involved in procurement of deer and other mammals for the hide trade with European populations to the south and east. The Chickasaws traded with both the English (on the eastern seaboard) and the French (on the rivers and coastal settlements of Louisiane). Jackson Landing trading relationships were exclusively (or at least primarily) with the French.

A comparison of sample composition by weight for gross taxonomic categories is shown in Table B-10. The are two obvious differences between inland and coastal sites. First, fish and turtles show a significant presence at Jackson Landing, and second, cow/bison

Table B-8. White-tailed Deer NISP from the 1972 Collection.

	NISP	MAU	MNI
Mandible	2	2	1
Hyoid	1	1	1
Cervical Vertebra	1	1	1
Radius	2	2	2
Ulna	3	2	2
Innominate	1	1	1
Phalanx 3	1	1	1

Table B-9. Comparisons among Sites.

	HA515AreaC	22HA515EW	MIe14	MLe18	MLe90	MLe112
Very Large Mammal	34.3	28.2	14.9	4	25.9	18.9
Large Mammal	48.9	58.8	81.8	86.3	72.5	75.8
Small Mammal/Bird	1.5	0.8	1.3	2.1	0.8	0.9
Turtle/Snake/Amphibians	8.9	6.8	2	7.6	0.8	4.5
Fish	6.4	5.5	0	0	0	0

Table B-10. NISP of the Historic Midden.

	NISP	Charred	Weight (g)	MNI
Opossum (*Didelphis marsupialis*)	1	0	1.9	1
Large Carnivore	1	0	1.7	0
Black Bear (*Ursus americanus*)	21	1	132	2
Beaver	1	0	1.5	1
Spotted Skunk (*Spilogale putorius*)	1	0	0.5	1
Fox Squirrel (*Sciurus niger*)	1	0	0.5	1
Eastern Cottontail (*Sylvilagus floridana*)	1	0	0.9	1
Swamp Rabbit (*Sylvilagus aquaticus*)	1	0	0.2	1
White-tailed Deer (*Odocoileus virginianus*)	271	9	1209.9	8
Cow/Bison (Bos/Bison)	20	0	390.2	2
Pig (*Sus scrofa*)	4	0	11.8	1
Very Large Mammal	156	16	474.5	0
Large Mammal	478	51	446	0
Medium Mammal	5	1	1.7	0
Small Mammal	1	0	0.2	0
Unid Bird/Small Mammal	17	0	1.3	0
Small Goose	1	0	2.5	1
Large Goose	1	0	1.5	0
Canada Goose (*Branta canadensis*)	1	0	1.3	1
Small Duck	1	0	0.2	1
Wild Turkey (*Meleagris gallopavo*)	1	0	4.3	1
Unid Large Bird	3	0	0.7	0
Unid Medium Bird	27	0	5.1	0
Unid Small Bird	3	0	0.2	0
Snapping Turtle (Chelydridae)	1	0	0.6	1
Box Turtles (*Terrapene carolina*)	51	0	76	4
Pond Turtles (Emydidae)	11	2	19.7	1
Softshell Turtle (*Apalone* sp)	1	0	1	1
Sea Turtle (Cheloniidae/Dermochelydae)	20	2	35.1	1
Unid Turtle	167	8	75.7	0
Gar (Lepisosteidae)	25	0	28.8	4
Alligator Gar (*Atracosteus spatula*)	15	0	43.9	2
Sheepshead (*Archosargus probatocephalus*)	28	0	39.9	7
Marine Drum (Scianidae)	1	0	1.1	0
Red Drum (*Scianops ocellata*)	3	0	3.7	2
Unid Marine Fish (Osteichthyes)	23	1	24.2	0
Unid Fish (Osteichthyes)	57	0	25.5	0
Total Identified Bone	1421	91	3065.8	46
Unidentified Bone	176	12	32.1	0
Deer Antler	2	0	5.7	0
Gar Scales	401	12	132	0

Table B-11. Historic Midden Elements.

	Deer			Bovidae			Bear		
	NISP	MAU	MNI	NISP	MAU	MNI	NISP	MAU	MNI
Basioccipital	4	4	4	0	0	0	0	0	0
Maxilla	7	4	4	0	0	0	0	0	0
Petrous temporal	8	5	5	0	0	0	0	0	0
Mandible	33	9	5	4	3	2	0	0	0
Cervical Vertebra	6	2	2	0	0	0	0	0	0
Thoracic Vertebra	4	1	1	0	0	0	0	0	0
Lumbar Vertebra	1	1	1	0	0	0	0	0	0
Sacrum	0	0	0	0	0	0	1	1	1
Scapula	2	2	1	0	0	0	1	1	1
Humerus	15	14	8	0	0	0	2	2	1
Radius	14	6	3	2	2	2	0	0	0
Ulna	2	2	2	1	1	1	1	1	1
Carpals	4	2	2	0	0	0	1	1	1
Metacarpal	20	6	4	0	0	0	3	1	1
Innominate	8	5	4	0	0	0	0	0	0
Femur	10	6	5	3	1	1	0	0	0
Tibia	14	9	7	2	1	1	0	0	0
Astragalus	10	10	5	0	0	0	0	0	0
Calcaneum	17	11	6	0	0	0	0	0	0
Tarsals	3	2	1	0	0	0	0	0	0
Metatarsal	23	8	5	0	0	0	1	1	1
Phalanx 1	7	6	1	2	2	1	3	1	1
Phalanx 2	10	7	1	0	0	0	1	1	1
Phalanx 3	1	1	1	0	0	0	1	1	1

contributes a greater percentage to coastal samples than is true of the Chickasaw sites. Most of the Bovid bone in the Chickasaw sites is identifiable as *Bison*, a determination that was not possible with bone in the Jackson Landing samples. Perhaps cattle seeded along the coast by early European explorers in the sixteenth century developed large breeding populations and, therefore, were more prevalent in the immediate environment. The significant presence of coastal aquatic resources in the Jackson Landing samples is obviously a function of site catchment.

Historic Samples from the Earthwork

Count, weight and MNI (Minimum Number of Individuals) for the earthwork samples are shown in Table B-10 and the elements of large taxa are shown in Table B-11. Only five small mammals are identified in the sample, an opossum, cottontail and swamp rabbits, a spotted skunk, and a fox squirrel, none of which can be construed as potential skin trade items. Other small taxa include waterfowl, Canada goose, small duck (probably teal), and one upland species, wild

Table B-12. Area C NISP.

	NISP	Charred	Weight (g)	MNI
Large Carnivore	2	0	2.2	0
Black Bear (*Ursus americanus*)	4	1	12.4	1
Mountain Lion (*Felis concolor*)	4	0	22.8	1
Fox Squirrel (*Sciurus niger*)	1	0	0.5	1
White-tailed Deer (*Odocoileus virginianus*)	193	34	964.9	5
Cow/Bison (Bos/Bison)	16	2	449.9	2
Very Large Mammal	174	64	468.1	0
Large Mammal	319	72	307.9	0
Medium Mammal	11	2	1.6	0
Swan/Goose	1	0	0.5	0
Goose	1	0	0.4	0
Small Goose	4	0	7.1	1
Large Goose	2	0	1.6	0
Canada Goose (*Branta canadensis*)	4	0	3.9	2
Large Duck	2	0	0.9	1
Small Duck	2	0	1.5	2
Great Blue Heron (*Ardea herodias*)	2	0	0.9	1
Rail (Rallidae)	1	0	0.5	1
Wild Turkey (*Meleagris gallopavo*)	1	0	2.2	1
Large Hawk	1	0	0.5	1
Unid Large Bird	54	3	13.8	0
Unid Medium Bird	13	0	2.3	0
Snapping Turtle (Chelydridae)	1	0	1.7	1
Alligator Snapping Turtle (*Malaclemmys temminki*)	1	1	1.5	-
Box Turtle (*Terrapene carolina*)	28	5	48.3	2
Pond Turtles (Emydidae)	7	1	9.8	2
Cooter	1	0	2.6	1
Sea Turtle (Cheloniidae/Dermochelydae)	15	3	99.7	1
Unid Turtle	115	24	73.4	0
Gar (Lepisosteidae)	56	5	52.1	3
Alligator gar (*Atractosteus spatula*)	28	0	60.8	3
Finfish (Perciformes)	6	0	2.5	0
Bass (*Micropterus* sp.)	1	0	0.2	1
Crevalle Jack (*Caranx hippos*)	2	1	2.1	1
Sheepshead (*Archosargus probatocephalus*)	9	0	19.2	2
Marine Drum (Scianidae)	1	0	0.3	0
Red Drum (*Scianops ocellata*)	1	0	0.8	1
Unid Marine Fish (Osteichthyes)	14	0	18.3	0
Unid Fish (Osteichthyes)	43	1	15.4	0
Total Identified Bbone	1141	219	2675.1	38
Deer Antler	28	1	38.9	0
Gar Scales	62	0	22.9	0
Unidentifiable Bone	270	2	24	0

turkey. Identified turtles include snapping, box, softshell, and freshwater pond turtles (Aquatic Emydids). Sea turtle remains, probably derived from spring/summer nesting females vulnerable to procurement while laying eggs, indicate warm weather occupation. Aged deer mandibles suggest cool weather deer procurement. Assuming a June 1 birthdate, they include individuals killed in September-October (16-17 months old), October–December (17-19 months old), and December-January (6-7 months old and 19-20 months old). Older deer range in age from 2-3 years old to 6-7 years old. Given that none were older than 7 years old, this may indicate pressure on the deer population due to the skin trade.

Not surprisingly, all identifiable fish in the earthwork sample came from relatively large individuals. Sheepshead, which have unusually robust skeletons, produced all of the smaller fish in the sample, ranging from 25 to 50 cm estimated standard length. Other taxa include gar, alligator gar, and marine drum. The smallest vertebral diameter measured 9 mm, the largest 23 mm.

Area C: Feasting?

Data on identified taxa and element distribution among large mammals in Area C are shown in Tables B-12 and B-13. Despite the smaller sample, there is more diversity from Area C than the other historic deposits. Of particular interest is the greater variety of birds identified: large and small geese, at least three species of duck, a probable rail, great blue heron, turkey, and a large hawk. The presence of a raptor and the diversity of birds represented are traits of feasting refuse (Jackson and Scott 2003). In addition, deer element distribution is slightly biased toward the meatier hindquarter (26.3% by weight in Area C versus 19.3% in the other historic deposits). Furthermore, there is less primary butchering skull refuse in Area C (by weight, 4.5% versus 11.6%). Coupled with the cougar right forepaw (articulating metacarpals 2, 3, 4, and 5), and a male bear, both dangerous prey, the deposit in this area may be at least partially ceremonial in origin.

As is true of the historic earthwork sample, only relatively large fish are represented in Area C. Individuals measuring between 30 cm SL and 120 cm SL were identified. The smallest fish vertebral diameter is 6 mm, the largest 23 mm. As was true of the earthwork deposit, gar, alligator gar, sheepshead and marine drum are well represented here. In addition, a large Crevalle jack and a freshwater bass were recovered.

Additional Observations

Carnivore and rodent gnawing were observed in both historic contexts, usually on deer metapodials,

Table B-13. Area C Elements.

	Deer			Bovid			Bear		
	NISP	MAU	MNI	NISP	MAU	MNI	NISP	MAU	MNI
Maxilla	2	1	1	-	-	-	-	-	-
Petrous Temporal	1	1	1	-	-	-	-	-	-
Mandible	3	1	1	-	-	-	1	1	1
Axis	2	1	1	-	-	-	-	-	-
Cervical Vertebra	8	2	2	-	-	-	-	-	-
Thoracic Vertebra	5	2	2	-	-	-	-	-	-
Lumbar Vertebra	8	2	2	-	-	-	-	-	-
Sacrum	5	3	3	-	-	-	-	-	-
Scapula	7	3	3	-	-	-	-	-	-
Humerus	7	4	2	1	1	1	-	-	-
Radius	11	6	4	1	1	1	-	-	-
Ulna	5	3	2	3	2	1	-	-	-
Carpals	9	4	3	1	1	1	1	1	1
Metacarpal	8	4	4	-	-	-	-	-	-
Innominate	11	6	4	-	-	-	-	-	-
Femur	4	3	2	1	1	1	-	-	-
Patella	2	2	1	1	1	1	-	-	-
Tibia	15	6	4	1	1	1	-	-	-
Astragalus	7	7	4	-	-	-	-	-	-
Calcaneum	8	7	5	-	-	-	-	-	-
Tarsals	6	4	2	1	1	1	-	-	-
Metatarsal	13	4	2	-	-	-	-	-	-
Phalanx 1	11	2	1	-	-	-	2	1	1
Phalanx 2	3	1	1	-	-	-	-	-	-
Phalanx 3	9	2	2	1	1	1	-	-	-

but are not extensive. Butchering marks are infrequent, but apparent, especially in Area C (Bovid ribs, posterior portion of a deer first phalanx, and extensively on a deer humerus). Skilled butchers rarely leave deep marks on the bones of a carcass, suggesting that the Area C deposit could be related to some sort of initiation rite for young men. One deer ilium in the historic earthwork deposit shows evidence of an axe or knife used for disarticulating a femur from the innominate. In addition, two turtle carapace fragments are burned only on the dorsal side, suggesting roasting as a cooking method.

Conclusions

Because this sample was recovered using ½-inch mesh, it is not comparable to many more recently excavated assemblages collected with fine screens. It does indicate, however, that cattle/bison were very important inclusions in the diet, along with white-tailed deer. The fish assemblage is relatively meager and probably underrepresents the importance of this taxon. Because of some unusual taxa in the deposits, two potential ceremonial deposits were analyzed separately, one on the bluff edge that dates to the Middle Woodland period, and a second deposit northeast of the earthwork. Based on published information on site excavation, it is unclear if these were discrete deposits or samples of much larger features. In any case, the presence of an eagle in one (Woodland) and an articulating cougar forepaw in the other (Historic), may reflect ritual activity at the site.

Appendix C
Plant Remains from the Jackson Landing Site

by Kandace D. Hollenbach

The Jackson Landing site (22HA515) is located on a terrace overlooking Mulatto Bayou, a tributary of the Pearl River in coastal Hancock County, Mississippi. This terrace, surrounded by marshlands and the bayou, is the first significant topographic rise in the local landscape as one travels up the Pearl from the Mississippi Sound, just 5 km to the south. This portion of the Gulf Coastal Plain is classed as the Eastern Gulf Coast Flatwoods, comprised primarily of longleaf (*Pinus palustris*) and slash (*P. elliottii*) pines, along with palmetto (*Sabal* spp.), gallberry (*Ilex coriacea*), and wax myrtle (*Morella cerifera* and *M. inodora*). Freshwater and brackish vegetation includes common reed (*Phragmites australis*), bulltongue (*Sagittaria lancifolia*), maidencane (*Panicum hemitomon*), cutgrass (*Zizaniopsis* spp.), and alligatorweed (*Alternanthera philoxeroides*); saltwater species include saltgrass (*Distichlis spicata*), marshhay cordgrass (*Spartina patens*), smooth cordgrass (*S. alterniflora*), and black needlerush (*Juncus roemerianus*) (US Department of Agriculture – Natural Resources Conservation Service [USDA-NRCS] 2006).

This report details analysis of carbonized plant remains recovered during the 2010 site investigations. These efforts, aimed at clarifying the timing and nature of construction of the early Late Woodland mound and associated earthworks at the site, were conducted by Edmond A. Boudreaux III with East Carolina University (ECU). Seven AMS dates from mound and sub-mound contexts suggest that the mound itself was constructed and used during a relatively short period in the mid-seventh century AD.

The analysis of plant remains is one avenue of research into a group's foodways, the procurement, production, preparation, consumption, display, storage, and discard of food. These practices vary by economic, social, and political situation, and thus give us an entry to study the cultural traditions of a group (Johannessen 1993a).

The analyzed samples derive from a variety of contexts, including test units placed in the summit and flank of the mound; features located on the mound summit; and midden located beneath and away from the mound (Table C-1). Ten of the samples were processed by floatation, an additional five are waterscreen samples, and three represent bulk materials collected as radiocarbon samples. These were supplemented by one floatation sample and one waterscreen sample collected by personnel from Coastal Environments, Inc. (CEI), during their testing of the mound in 2007. These include the two samples from Unit N183 E19.

Because uncarbonized plant materials are unlikely to be preserved in the moist, acidic soils of the Southeast, even from relatively recent historic contexts (Reitz and Scarry 1985:10; Yarnell 1982), only carbonized plant remains are considered here to be part of the archaeological record. Uncarbonized plant materials are assumed to be modern contaminants that reflect the present-day local habitat, and are therefore not reported or discussed.

Methods

Carbonized plant remains were collected both by waterscreening and floatation. Students at ECU sorted carbonized plant materials collected from 1/16-inch (1.6-mm) fine waterscreen samples. The CEI waterscreen sample represents materials collected using ⅛-inch (3.1-mm) screens. Floatation samples were processed in the lab at ECU using a modified SMAP machine fitted with 1/16-inch (1.6-mm) window screen to collect the heavy fraction and nylon stocking to capture the light fraction (Tony Boudreaux, personal communication 2011).

Both waterscreen and floatation samples were weighed and then passed through nested geological sieves. Materials greater than 2.0 mm in size were sorted into categories, including carbonized plant remains, bone, and contaminants (rocks and uncarbonized plant materials), and weighed. The non-wood plant remains greater than 2.0 mm in size were identified to the lowest possible taxonomic level, and counted and weighed. Materials less than 2.0 mm in size were scanned for seeds, which were then counted. In order to mitigate biases in preservation and recovery, acorn shell was pulled from the 1.4 mm sieve. All identifications of plant remains were made with reference to Martin and Barkley's (1961) *Seed Identification Manu-*

al, and the PLANTS database (USDA-NRCS 2011), as well as modern comparative specimens housed at the Archaeological Research Laboratory at The University of Tennessee.

Results

The 20 floatation, waterscreen, and radiocarbon samples yielded 85.68 g of carbonized plant remains, the majority of which (75.70 g, or 88.4%) is represented by wood (Table C-1). Non-wood plant materials include nuts, fruits, and a variety of miscellaneous taxa (Table C-2). Table C-3 provides lists of plant taxa recovered from each sample.

Nuts

Nut taxa recovered from the samples include acorn, hickory, and thin hickory, which likely represents pecan (*Carya illinoinensis*). Interestingly, acorn shell outnumbers hickory nutshell significantly in the samples, both in terms of raw numbers and ubiquity. Acorn was recovered from 13 of the 20 samples (65.0%), or 8 of the 11 floatation samples (72.7%). In contrast, hickory (including thin hickory) was recovered from only 7 of the 20 samples (35.0%), or 3 of the 11 floatation samples (27.3%). This pattern is notable because acorn shell is much more fragile than hickory nutshell and is therefore generally underrepresented in archaeological deposits. Acorn thus appears to have been particularly significant to the occupants' diets.

Acorns and hickory nuts were important subsistence items throughout prehistory in the Southeast (Gardner 1997; Scarry 2003a; Yarnell and Black 1985). Hickory nuts are high in fat and protein (US Department of Agriculture, Agricultural Research Service-Nutrient Data Laboratory [USDA-NDL] 2004). Among historic Native American groups like the Cherokee Indians, hickory nuts were often crushed, shell and all, and formed into balls that could be readily stored. The balls were then dropped into boiling water, where the shells would sink and the nutmeats would float to the top. The meats could be skimmed off the top of this mixture or further melted to produce a milky beverage (Fritz et al. 2001; Gardner 1997; Talalay et al. 1984). Pecans have a similar nutrient content, but are not likely to have been crushed and boiled. They have much thinner and less convoluted shells, making it much easier to pick the nutmeats directly from the shell than with other species of hickory. In addition, pecans have a thin, woody septum between the two halves of the nutmeat that floats in water; fragments of this bitter, woody septum would effectively spoil the liquid (Scarry 2003a:61). In contrast to hickory nuts and pecans, acorns are high in carbohydrates (USDA-NDL 2004) and have large nutmeats that are easily extracted, but contain tannins. These tannins must be removed by leaching or denatured by toasting to render most acorns palatable (Bettinger et al. 1997; Petruso and Wickens 1984; Scarry 2003a:66). After being leached of tannins, nutmeats were commonly ground into a meal and subsequently made into a mash or bread (Carr 1895:172; Densmore 1974:320; Kuhnlein and Turner 1991:200-1; Palmer 1871:409-410; Peterson 1977:204). Hickory nuts are easily stored in the shell, but acorns must first be parched to prevent them from sprouting and to ward off worms and molds (Petruso and Wickens 1984:362; Scarry 2003a:66).

Hickory nuts, pecans, and acorns ripen in autumn, with peak availability in October (Gardner 1997; Radford et al. 1964; Schopmeyer 1974; Talalay et al. 1984). This window of availability is shortened by competition from wildlife, such as squirrels, turkeys, deer, and birds, as well as molds and insects. An additional constraint of the masting trees, namely hickory, walnut, and oak, is that they only produce sizeable crops every two to five years, depending on the species (Schopmeyer 1974). In between bumper crops, competition from wildlife is even keener, as trees within as much as a 400-km radius produce relatively few nuts (Koenig and Knops 2000, 2005).

Fruits

Fruits recovered from the Jackson Landing site include persimmon and tentatively identified cabbage palm. Persimmons may be eaten fresh or dried (Havard 1896; Kuhnlein and Turner 1991; Moerman 2004; Swanton 1946; Yanovsky 1936), and were apparently consumed in "large quantities" (Palmer 1871:471) by some historic native groups. They may have been stored for winter use by fashioning pulp into dried cakes (Moerman 2004; Swanton 1946), or making preserves (Moerman 2004; Palmer 1871:471). The fruits of cabbage palms were eaten by the Seminole Indians, apparently also by making them into a bread of sorts (Moerman 2004; Wade and Langdon 1990). Both fruits ripen in fall, with persimmons not being palatable until after the first frost. Persimmons thrive in disturbed and/or edge habitats, while cabbage palms are found in brackish marshes and maritime woods (Radford et al. 1964; Schopmeyer 1974).

Miscellaneous Taxa

The miscellaneous plant remains recovered from the Jackson Landing site provide a general indication of the local habitat. For example, the recovery of numerous pine cone scales, as well as pitch, reflects the presence of pine trees in the local forests, as would be expected for the Gulf Coastal Plain. One carbonized wax myrtle seed was also recovered and is a common

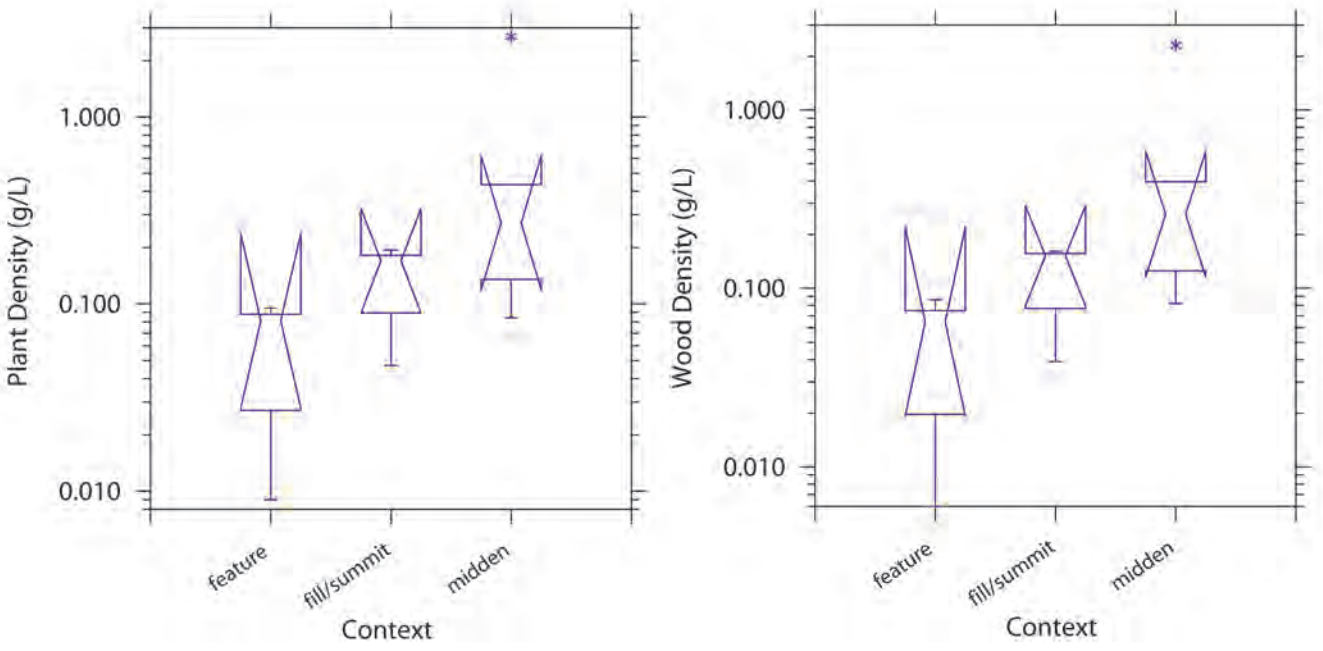


Figure C-1. Boxplots comparing the density (g/L floated) of all carbonized plants (left) and all carbonized wood (right) in the samples by context.

constituent of local forests. Nine sawgrass seeds indicate the presence of brackish wetlands in the site's vicinity. However, sawgrass may have also been used for other purposes. The stems were used by the Seminole Indians for medicine tubes, and the roots can be used to make baskets (Moerman 2004).

Eleven fragments of cane were recovered from the samples. The woody stem of cane served a variety of utilitarian uses. It was used in wattle-and-daub construction as webbing between larger posts; woven into baskets and mats; cut to make arrow shafts and blow guns; whittled into flutes; and burned as a fuel, notoriously in the form of torches (Moerman 2004; Watson and Yarnell 1966). Cane prefers to grow along riverbanks and in other wet grounds, but can be found in a range of settings (Radford et al. 1964).

Several unidentifiable fragments bear additional mention. Originally, these fragments were tentatively identified as one possible corn cupule and five possible corn kernel fragments, recovered from two of the water-screen samples, both from submound midden deposits (2010.106.50 and 504.515.2). The specimens were subsequently examined by Gayle Fritz, and she considers them to be unlikely candidates for corn (Gayle Fritz, personal communication 2013). Indeed, corn is highly unlikely for late Middle Woodland or even Late Woodland contexts along the Gulf coast. The earliest corn (*Zea mays*) in the Eastern Woodlands dates to around AD 200, introduced

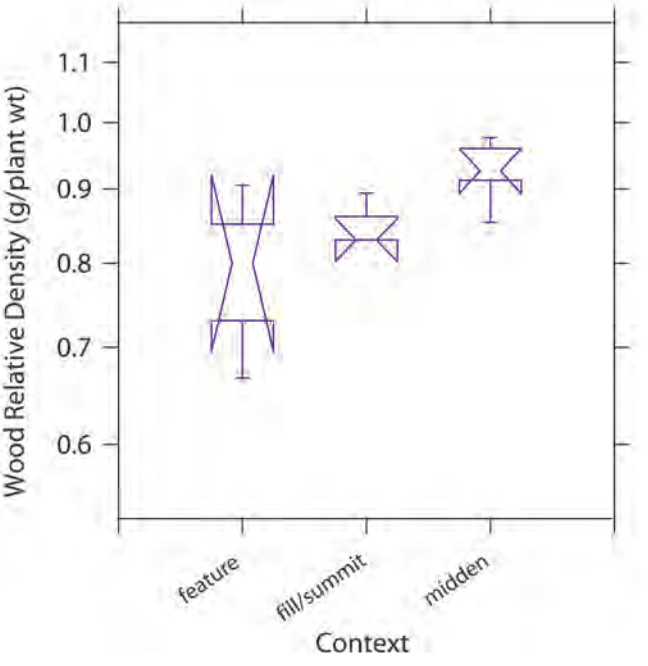


Figure C-2. Boxplots comparing the relative density of carbonized wood (g./total plant weight in g) in the samples by context.

[1] Box plots display summary data for a sample set. The median is the "waist" of the notched box; the ends of the box mark the 25th and 75th percentiles of the data. "Whiskers" extend from the ends of the box to the lowest values within 1.5 times the "hinge spread", or the difference between the 25th and 75th percentiles. The notches denote the 95 percent confidence interval.

to this region from Mesoamerica, most likely via communities in the North American Southwest. Use of corn in the Southeast remains markedly low until the Late Woodland period, or approximately AD 900 in central Alabama (Johannessen 1993b; Scarry 1993:78-79; Smith and Cowan 2003).

Comparisons by Context

Although the floatation assemblage is relatively small, both in terms of the number of samples and the range of taxa recovered, some brief comparisons among the contexts can be made. Box plots[1] comparing the density of plant remains recovered from the various contexts suggest that midden contexts, both beneath and away from the mound, contain greater quantities of carbonized plant and wood remains than either mound feature or mound-fill contexts (Figure C-1). These differences are not statistically significant, as the notches of the box plots overlap, but suggest a general trend. Comparisons of the recovery of wood relative to other plant remains do indicate that wood comprised the great majority of plant remains by weight in midden contexts, particularly when compared to mound fill/summit contexts, a difference that is statistically significant at the 95 percent confidence interval (Figure C-2).

These apparent differences among the contexts may well be related to their depositional histories. Plant remains recovered from middens likely represent the accumulation of debris related to cooking activities, heating, building materials, etc., over a relatively extended period of time. In contrast, the mound-summit features likely represent relatively brief episodes of burning and/or disposal, presumably related to activities performed on the mound summit.

The mound-fill/summit surface contexts are perhaps the most difficult to parse. These may represent primary deposits, also associated with activities performed on the mound summit. But the mound fill itself likely represents tertiary deposits, since the builders borrowed dirt from other areas in the site vicinity to construct the mound. Depending on the location of the borrow pits, plant remains recovered from these contexts may originally derive from natural or anthropogenic deposits. The presumably tertiary nature of these deposits may explain the lower recovery of plant remains from these samples. In particular, the low recovery of wood charcoal, which is relatively fragile, relative to other plant remains from the mound fill contexts, suggests that these materials have been redeposited.

The narrow range of plant taxa recovered from the features bears additional mention. Of the four features, three of which are represented by floatation samples, two (Features 4 and 6) contained only the remains of pine cones, pitch, and wood. It is tempting to suggest that these features served as "smudge pits" to provide smoke, or perhaps simply to provide heat or light for other activities atop the mound.

In terms of individual plant taxa, acorn remains were recovered from all but three of the floatation samples, which include two of the three feature samples (Features 4 and 6) and one of the mound-fill/summit samples (2010.016.38, one of the lower levels of N169 E8). However, the latter sample did include four of the nine sawgrass seeds, which were also found in Feature 5, another mound-fill/summit sample (2010.016.19, an upper level of N168 E6), and two submound midden samples (2010.016.41, N169 E8; and 2010.016.47.3, N171 E6). Their absence from contexts away from the mound is intriguing, but may be related to small sample size.

Discussion and Conclusions

Subsistence remains recovered from the Jackson Landing site suggest that site's occupants collected wild nuts and fruits within the vicinity of the site. They gathered and processed acorns, hickory nuts, and likely pecans, as well as persimmons and perhaps the fruits of cabbage palms. While the sample size is small and all of these plant foods can be stored for future use, their relatively narrow range of availability in the fall suggests that early Late Woodland peoples primarily used the site during this season.

The plant assemblage from the site is generally similar to those recovered from other sites in the region. At the nearby Graveline site (22JA503), an early Late Woodland site (ca. AD 400-700) in coastal Jackson County, Mississippi, floatation samples yielded nearly equal quantities of acorn and hickory nutshell, in addition to grape (*Vitis* sp.), persimmon, prickly pear (*Opuntia* sp.), black gum (*Nyssa sylvatica*), and possible cabbage palm. Edible seeds recovered include four fragments of wild rice (*Zizania aquatica*), chenopod (*Chenopodium* sp., likely wild), bearsfoot (*Smallanthus uvedalius*), and amaranth (*Amaranthus* sp.). Other taxa include cane, yaupon (*Ilex vomitoria*), morning glory (*Convolvulus/Ipomoea* sp.), pokeweed (*Phytolacca americana*), possible wild bean (*Strophostyles* sp. cf.), and members of the Sedge (Cyperaceae) and Sunflower (Asteraceae) families (Peles and Scarry 2011).

To the west, in coastal Louisiana, the few comparative archaeological plant assemblages similarly suggest little cultivation (Lee 2010; McGimsey 2010; Roe and Schilling 2010). The Morton Shell Mound, an Early Woodland site along the coast in Iberia Par-

Table C-1. Analyzed Samples from Jackson Landing Site.

Catalog Number	Context	Zone	Level	Type	Other Info	Sample Volume (L)	Sample Weight (g)	Contaminant Weight (g)	Residue Weight (g)	Bone Count	Bone Weight (g)	Plant Weight (g)	Wood Weight (g)	Other
2010.016.75	Feature 4			float	mound-summit feature	8	2.17	0.27	1.25			0.65	0.52	
2010.016.16	Feature 5			float	mound-summit feature	10	4.04	0.08	2.90	7	0.08	0.95	0.86	
2010.016.82	Feature 6			float	mound-summit feature	10	6.13	0.87	5.15	2	0.02	0.09	0.06	
2010.016.25	Feature 9			fine screen	mound-summit feature		0.93		0.64			0.27	0.21	
2010.016.19	N168 E6		4	float	moundfill/summit surface	10	2.97	0.19	1.06	2	0.03	1.70	1.52	
2010.016.20	N168 E6		5	radiocarbon sample	moundfill/summit surface		7.95	2.16	1.23			4.53	4.43	
2010.016.23	N168 E6		6	float	moundfill/summit surface	10	3.30	0.14	1.16	6	0.05	1.94	1.61	
2010.016.32	N169 E8	3		fine screen	moundfill/summit surface		2.10	1.45	0.28	7	0.07	0.32	0.20	
2010.016.34	N169 E8	4		fine screen	moundfill/summit surface		7.05	0.40	3.16	5	0.03	3.57	2.67	
2010.016.38	N169 E8	5	3	float	moundfill/summit surface	10	0.83	0.04	0.30			0.47	0.39	
2010.016.41	N169 E8	5	4	float	mound-flank/sub-mound midden	10	2.00	0.02	0.61			1.35	1.25	
2010.016.47	N171 E6		5	radiocarbon sample	shell lens at base of level		0.79		0.21			0.56	0.54	
2010.016.47.3	N171 E6		5	fine screen	shell lens at base of level		0.87	0.02	0.50	1	0.02	0.34	0.22	
2010.016.50	N171 E6		6	fine screen	submound midden		12.02	0.37	7.84	25	0.18	3.86	3.19	Shell: 0.01 g
504.515	N183 E19		5	float	submound midden	10	268.84	102.21	97.50	124	2.15	4.34	3.96	Shell: 62.71 g; lithics: 1, 0.59 g
504.515.2	N183 E19		5	1/8" water-screen	submound midden		58.03	22.38	4.97	23	0.67	30.12	27.55	
2010.016.109	N192 E-426	1		float	off-mound midden	10	3.63	0.06	0.76	6	0.07	2.71	2.60	
2010.016.111	N192 E-426	2		float	off-mound midden	10	1.29		0.22	15	0.15	0.84	0.82	
2010.016.112	N192 E-426	3		radiocarbon sample	off-mound midden		2.04					2.04	2.04	
2010.016.11	N217.7 E19.8	2		float	midden-filled pit north of mound	10	34.28	0.75	6.19	6	0.24	27.07	23.10	Shell: 0.01 g

Table C-2. Plant Taxa Recovered from the Jackson Landing Site.

Common Name	Taxonomic Name	Seasonality	Count	Weight (g)
Nuts				
Acorn	*Quercus* sp.	fall	77	0.20
Acorn cap cf.	*Quercus* sp. cf.	fall	2	0.00
Acorn cf.	*Quercus* sp. cf.	fall	16	0.04
Hickory	*Carya* sp.	fall	8	0.10
Hickory cf.	*Carya* sp. cf.	fall	4	0.02
Nutmeat cf.			1	0.01
Thin hickory	*Carya* sp.	fall	6	0.06
Walnut family	Juglandaceae	fall	1	0.00
Fruits				
Cabbage palm cf.	*Sabal palmetto* cf.	fall	4	0.04
Persimmon seed cf.	*Diospyros virginiana* cf.	fall	1	0.01
Persimmon seed coat	*Diospyros virginiana*	fall	4	0.00
Persimmon seed coat cf.	*Diospyros virginiana* cf.	fall	1	0.00
Crops				
Corn cupule cf.	*Zea mays* cf.	late summer/ fall	1	0.00
Corn kernel cf.	*Zea mays* cf.	late summer/ fall	5	0.02
Miscellaneous				
Bark			25	1.24
Bark/pine cone			35	0.26
Bud			1	0.00
Cane	*Arundinaria* sp.		11	0.11
Catkin/stem			1	0.00
Grass family cf.	Poaceae cf.		1	0.00
Pine cone	*Pinus* sp.		81	0.43
Pine cone cf.	*Pinus* sp. cf.		2	0.02
Pine needle base	*Pinus* sp.		3	0.00
Pine needle cf.	*Pinus* sp. cf.		1	0.00
Pine seed - uncarbonized	*Pinus* sp.		5	0.02
Pine seed cf.	*Pinus* sp. cf.		1	0.00
Pitch			426	5.76
Sawgrass	*Cladium* sp.		9	0.00
Twig			2	0.00
Wax myrtle	*Morella* sp.		1	0.00
Wax myrtle cf., uncarbonized	*Morella* sp. cf.		1	0.02
Unidentifiable			97	1.00
Unidentifiable seed			12	0.02
Unidentified seed			5	0.04
Wood cf.			2	0.01

ish, Louisiana, contained numerous seeds and rinds of pepo gourd (*Cucuribita pepo*) and bottle gourd (*Lagenaria siceraria*), as well as smartweed (*Polygonum* sp.) seeds, all of which are likely wild rather than cultivated varieties (Fritz and Kidder 1993:6-7). The Morgan Mound site (16VM9) on the Louisiana coast, dating to the middle-to-late Coles Creek period (ca. AD 900-1200), yielded 50 chenopod seeds, apparently wild, and no evidence of corn (Fritz and Kidder 1993:8).

At sites further north in the lower Mississippi Valley, Baytown and Coles Creek peoples did cultivate squashes, maygrass (*Phalaris caroliniana*), little barley (*Hordeum pusillum*), chenopod, and erect knotweed (*Polygonum erectum*) (Fritz and Kidder 1993:8; Lee 2010:139; Roe and Schilling 2010:169). They also appear to have been growing corn in small quantities by the ninth century AD (Fritz and Kidder 1993:8). A single corn cupule from a late Coles Creek context was recovered from the St. Gabriel site near Baton Rouge (Fritz and Kidder 1993:9).

To the east in Alabama, similarly few analyses of coastal sites have been widely reported. A number of these sites are located in the Mobile-Tensaw delta, rather than along the coast per se. Three Early Woodland features at site 1MB414, near the Tombigbee River in Mobile County, yielded primarily hickory nutshell, along with acorn shell, black gum, persimmon, possible grape, possible huckleberry (*Sambucus* sp. cf.), bedstraw (*Galium* sp.), and stargrass (*Hypoxis hirsuta*) (Hollenbach and Vavrasek 2008).

Further south along the Alabama coast in Baldwin County, 19 Middle Woodland features at the Plash Island site (1BA134) similarly contained primarily hickory and acorn nutshells. Seeds included two pine seeds, one wild cherry (*Prunus* sp.), and one stargrass seed. Of particular interest were several gourd rind fragments, as well as possible tuber fragments, both presumably wild resources used by the site's occupants (Leone 2008).

At the Bayou St. John site (1BA21), further east along the coast, a slightly more diverse assemblage was recovered from Late Woodland features. Hickory nutshell similarly outnumbers other non-wood plant remains, which include acorn shell and nutmeats, walnut shell, grape, persimmon, wild cherry, bedstraw, chenopod, purslane (*Portulaca* sp.), and ticktrefoil (*Desmodium* sp.) (Leone and Mickelson 2007).

Assemblages from five Late Woodland sites in the Mobile-Tensaw delta in Baldwin County produced a wide variety of wild nuts and fruits, including hickory and acorn shell, persimmon, grape, cabbage palm, black gum, saw palmetto (*Serenoa repens*), hackberry (*Celtis* sp.), plum (*Prunus* sp.), and maypop (*Passiflora incarnata*) (Morgan 2003). The latter may have

Table C-3. Plant Remains Recovered by Context from 22HA515.

Catalog Number	Plant Weight (g)	Wood Weight (g)	Common Name	Count	Weight (g)
2010.016.11	27.07	23.10	Acorn	7	0.03
			Acorn cf.	6	0.02
			Bark	8	0.99
			Bark/pine cone	20	0.20
			Cane	1	0.00
			Pitch	52	2.11
			Unidentifiable	6	0.06
			Unidentifiable - plant?	25	0.54
			Unidentified seed	1	0.02
2010.016.16	0.95	0.86	Acorn	2	0.00
			Bark	1	0.02
			Grass family cf.	1	0.00
			Hickory cf.	1	0.01
			Pine cone	4	0.02
			Pitch	2	0.01
			Sawgrass	1	0.00
			Unidentifiable	1	0.00
			Unidentifiable - acorn meat?	4	0.02
			Unidentifiable seed	1	0.00
			Wood cf.	2	0.01
2010.016.19	1.70	1.52	Acorn	18	0.03
			Acorn cf.	3	0.01
			Bark	3	0.03
			Pine cone	4	0.02
			Pitch	10	0.05
			Sawgrass	2	0.00
			Thin hickory	1	0.01
			Unidentifiable	4	0.02
			Unidentifiable seed	4	0.01
			Unidentified seed	1	0.00
2010.016.20	4.53	4.43	Pitch	2	0.10
2010.016.23	1.94	1.61	Acorn	6	0.01
			Acorn cf.	1	0.00
			Cane	1	0.00
			Hickory	2	0.05
			Pine cone	2	0.01
			Pine needle base	1	0.00
			Pitch	27	0.26
			Unidentifiable seed	1	0.00
2010.016.25	0.27	0.21	Hickory	1	0.01
			Pine cone	1	0.00
			Pitch	13	0.05
			Unidentifiable - seed/pine cone	3	0.00
2010.016.32	0.32	0.20	Acorn	1	0.00
			Bark/pine cone	2	0.01
			Pitch	22	0.10
			Unidentifiable	1	0.01
2010.016.34	3.57	2.67	Acorn	6	0.02
			Acorn cf.	1	0.00
			Bark	1	0.01
			Cane	1	0.01
			Hickory	1	0.01
			Hickory cf.	1	0.00

Table C-3. (Continued).

Catalog Number	Plant Weight (g)	Wood Weight (g)	Common Name	Count	Weight (g)
			Pine cone	13	0.04
			Pine needle base	1	0.00
			Pitch	146	0.74
			Twig	1	0.00
			Unidentifiable	17	0.07
			Unidentified seed	1	0.00
2010.016.38	0.47	0.39	Acorn cap cf.	2	0.00
			Acorn cf.	1	0.00
			Bark	1	0.00
			Hickory	1	0.01
			Pine cone	1	0.00
			Pitch	7	0.07
			Sawgrass	4	0.00
2010.016.41	1.35	1.25	Acorn	1	0.00
			Acorn cf.	1	0.00
			Bark	1	0.01
			Hickory cf.	1	0.00
			Pitch	7	0.07
			Sawgrass	1	0.00
			Unidentifiable	3	0.02
2010.016.47	0.56	0.54	Pitch	2	0.02
2010.016.47.3	0.34	0.22	Acorn	1	0.00
			Bud	1	0.00
			Pine cone	1	0.00
			Pitch	24	0.12
			Sawgrass	1	0.00
			Unidentifiable	1	0.00
			Wax myrtle	1	0.00
2010.016.50	3.86	3.19	Acorn	5	0.01
			Bark	3	0.01
			Catkin/stem	1	0.00
			Corn cupule cf.	1	0.00
			Corn kernel cf.	3	0.01
			Hickory	3	0.02
			Persimmon seed coat	1	0.00
			Pine cone	155	0.59
			Twig	1	0.00
			Unidentifiable	6	0.03
2010.016.75	0.65	0.52	Pine cone	12	0.08
			Pine cone cf.	1	0.00
			Pine needle cf.	1	0.00
			Pitch	2	0.03
			Unidentified - pine cone?	1	0.02
2010.016.82	0.09	0.06	Pine cone	1	0.00
			Pitch	4	0.03
2010.016.109	2.71	2.60	Acorn	1	0.00
			Bark/pine cone	1	0.00
			Hickory cf.	1	0.01
			Persimmon seed coat cf.	1	0.00
			Pitch	8	0.10
			Unidentifiable	1	0.00
			Walnut family	1	0.00
2010.016.111	0.84	0.82	Acorn	2	0.00
			Bark/pine cone	1	0.00

Table C-3. (Continued).

Catalog Number	Plant Weight (g)	Wood Weight (g)	Common Name	Count	Weight (g)
			Persimmon seed cf.	1	0.01
			Pine cone	1	0.00
			Pine seed - uncarbonized	5	0.02
			Pine seed cf.	1	0.00
			Pitch	2	0.01
			Unidentifiable	1	0.00
			Wax myrtle cf., uncarbonized	1	0.02
504.515	4.34	3.96	Acorn	11	0.03
			Acorn cf.	3	0.01
			Bark/pine cone	11	0.05
			Cane	2	0.00
			Persimmon seed coat	3	0.00
			Pine cone	20	0.11
			Pine needle base	1	0.00
			Pitch	6	0.10
			Unidentifiable	14	0.08
			Unidentifiable seed	2	0.00
504.515.2	30.12	27.55	Acorn	16	0.07
			Bark	7	0.17
			Cabbage palm cf.	4	0.04
			Cane	6	0.10
			Corn kernel cf.	2	0.01
			Nutmeat cf.	1	0.01
			Pine cone	20	0.15
			Pitch	90	1.79
			Thin hickory	5	0.05
			Unidentifiable	13	0.15
			Unidentifiable seed	1	0.01
			Unidentified seed	2	0.02

been cultivated, or at least encouraged in gardens and fields. Recovery of corn cupules and kernel fragments from three of the five sites indicates that peoples in the region were growing corn, perhaps as early as Weeden Island I (AD 200-700), but certainly by the Tensaw Lake phase (AD 850-1100/1200) (Morgan 2003:734-735). Other taxa that may have been cultivated include bearsfoot, chenopod, and amaranth; a variety of weedy taxa, including purslane and members of the Grass and Sedge families, further suggest disturbed grounds, such as garden plots (Morgan 2003). By about AD 1250, when occupation began in earnest at the Bottle Creek site (1BA2), peoples living in the Mobile-Tensaw delta practiced full-blown corn agriculture, and likely grew chenopod, knotweed, little barley, maygrass, and maypops alongside corn. Other taxa recovered from mounds at the site include acorn, hickory nut, persimmon, blackberry, amaranth, morning glory, nightshade (*Solanum* sp.), sida (*Sida* sp.) smartweed, purslane, bulrush (*Scirpus* sp.), verbena (*Verbena* sp.), possible wild rice, and yaupon seeds (Scarry 2003b).

McLeod phase (AD 400-1100) contexts at 1CK236, further upstream along the Tombigbee River in Clarke County, included black walnut (*Juglans nigra*) and hazelnut (*Corylus* sp.), as well as hickory, acorn, sumac (*Rhus* sp.), blackberry/raspberry (*Rubus* sp.), chenopod, knotweed, maygrass, poke, bedstraw, and cane. In addition, four corn cupules and 27 corn kernel fragments were identified from four features (Mickelson 1999).

Perhaps not surprisingly, the overall picture of subsistence along the Gulf coast appears to be that the presence of cultigens increases through time, with the arrival of corn perhaps in the early Late Woodland period. The recovery of cultigens also appears to increase as one travels inland from the coast: the lack of domesticated taxa from the coastal sites is compelling. This does not appear to be related entirely to issues of preservation and recovery. If wild chenopod and amaranth seeds can be recovered from the Graveline Mound and Morgan Mound sites, then certainly domesticated chenopod seeds and cultivated maygrass seeds could be preserved if the occupants of the site had tended, harvested, and prepared them.

Instead, the paucity of cultivated taxa at these coastal sites, including Jackson Landing, suggests that occupants relied more heavily on wild taxa, including acorns, hickory nuts, pecans, and persimmons, among other fruits. Their subsistence pursuits may have been geared more toward estuarine and marshland resources, such as shellfish and fish. The relatively narrow season of availability of the plant foods recovered from Jackson Landing further suggests that occupants primarily used the site in autumn, perhaps as an aggregation point during seasonal rounds. The possibility of corn remains from submound contexts at Jackson Landing is intriguing, although perhaps unlikely, but analysis of additional samples from beneath the mound would expand our understanding of the activities that preceded its construction.

References Cited

Anderson, David G., and Kenneth E. Sassaman
2012 *Recent Developments in Southeastern Archaeology: From Colonization to Complexity.* Society for American Archaeology, Washington, DC.

Anderson, David G., and Robert C. Mainfort, Jr.
2002 An Introduction to Woodland Archaeology in the Southeast. In *The Woodland Southeast*, edited by David G. Anderson and Robert C. Mainfort, Jr., pp. 1-19. University of Alabama Press, Tuscaloosa.

Andrefsky, William, Jr.
1998 *Lithics: Macroscopic Approaches to Analysis.* Cambridge University Press, Cambridge, UK.

Balkwill, D. M. and S. L. Cumbaa
1992 A Guide to the Identification of Postcranial Bones of *Bos taurus* and *Bison bison*. *Syllogeous* No. 71.

Bettinger, Robert L., Ripan Malhi, and Helen McCarthy
1997 Central Place Models of Acorn and Mussel Processing. *Journal of Archaeological Science* 24:887-899.

Blitz, John H.
1993 Big Pots for Big Shots: Feasting and Storage in a Mississippian Community. *American Antiquity* 58(1): 80-96.

Blitz, John H., and C. Baxter Mann
2000 *Fisherfolk, Farmers, and Frenchmen: Archaeological Explorations on the Mississippi Gulf Coast.* Archaeological Report No. 30. Mississippi Department of Archives and History, Jackson.

Blitz, John H., and Lauren E. Downs
2011 *Graveline: A Late Woodland Platform Mound on the Mississippi Gulf Coast.* Department of Anthropology, University of Alabama, Tuscaloosa. Submitted to Historic Preservation Division, Mississippi Department of Archives and History, Jackson.

Boudreaux, Edmond A., III
1999 Stone Tools and Debitage from the Claiborne Site: An Analysis of the Mississippi State University Collection. In *Raw Materials and Exchange in the Mid-South*, edited by Evan Peacock and Samuel O. Brookes, pp. 64-74. Archaeological Report Number 29. Mississippi Department of Archives and History, Jackson.
2009 *A Post-Hurricane Katrina Archaeological Site-Assessment Survey along the Mississippi Gulf Coast.* Coastal Environments, Inc., Biloxi, MS.
2011a Dating the Construction of Early Late Woodland Earthen Monuments at the Jackson Landing Site in Coastal Mississippi. *Southeastern Archaeology* 30(2): 351-364.
2011b *Archaeological Investigations at Jackson Landing (22HA515): An Early Late Woodland Mound and Earthwork Site in Coastal Mississippi.* Phelps Archaeology Laboratory, East Carolina University, Greenville, North Carolina. Submitted to Historic Preservation Division, Mississippi Department of Archives and History, Jackson.
2013a A Report on the 2007 Testing of the Platform Mound at the Jackson Landing Site in Coastal Mississippi. *Mississippi Archaeology*. In press.
2013b The Creation of Ritual Space at the Jackson Landing Site in Coastal Mississippi. In *Landscapes of the Early and Middle Woodland Southeast*, edited by Alice P. Wright and Edward R. Henry, pp. 153-164. University Press of Florida, Gainesville.

Boudreaux, Edmond A., III, and Hunter B. Johnson
2000 Test Excavations at the Florence Mound: A Middle Woodland Platform Mound in Northwest Alabama. *Journal of Alabama Archaeology* 46(2):87-130.

Brain, Jeffrey P.
1979 *Tunica Treasure*. Papers of the Peabody Museum of Archaeology and Ethnology Volume 71. Harvard University, Cambridge, MA.

Bronk Ramsey, Christopher
2009 Bayesian Analysis of Radiocarbon Dates. *Radiocarbon* 51(1):337-360.

Brown, Ian W.
1998a Benjamin L. C. Wailes and the Archaeology of Mississippi. *Mississippi Archaeology* 33(2):157-191.
1998b *Decorated Pottery of the Lower Mississippi Valley: A Sorting Manual.* Mississippi Archaeological Association and Mississippi Department of Archives and History, Jackson.

Brown, Glen F., Velora M. Foster, Robert W. Adams, Edwin W. Reed, and Harold D. Padgett, Jr.
1944 Geology and Ground-water Resources of the Coastal Area in Mississippi. *Mississippi State Geological Survey Bulletin* 60.

Byers, A. Martin
1998 Is the Newark Circle-Octagon the Ohio Hopewell "Rosetta Stone"? A Question of Archaeological Interpretation. In *Ancient Earthen Enclosures of the Eastern Woodlands*, edited by Robert C. Mainfort, Jr. and Lynne P. Sullivan, pp. 135-153. University Press of Florida, Gainesville.

Carr, Christopher, and D. Troy Case
2005 The Gathering of Hopewell. In *Gathering Hopewell: Society, Ritual, and Ritual Interaction*, edited by Christopher Carr and D. Troy Case, pp. 19-50. Springer, New York.

Carr, Lucien
1895 The Food of Certain American Indians and Their Methods of Preparing It. *Proceedings of the American Antiquarian Society* 10:155-90.

Chambers, Moreau B.
1933 Original unpublished field journal from Archaeological Survey of Mississippi project. Manuscript on file, Series 1327, Moreau B. Chambers files, Archives and Library Division, Mississippi Department of Archives and History, Jackson.

Coastal Enviroments, Inc. (CEI)
1977 *Cultural Resources Evaluation of the Northern Gulf of Mexico Continental Shelf, Volume I: Prehistoric Cultural Resource Potential.* Coastal Environments, Inc., Baton Rouge, LA.

Cobb, Charles R., and Michael S. Nassaney
2002 Domesticating Self and Society in the Woodland Southeast. In *The Woodland Southeast*, edited by David G. Anderson and Robert C. Mainfort, Jr., pp. 525-539. University of Alabama Press, Tuscaloosa.

Coe, Joffre L.
1995 *Town Creek Indian Mound: A Native American Legacy.* University of North Carolina Press, Chapel Hill.

Collins, Wilkie J.
1984 Observations on Thermal Treatment of Citronelle Gravels from Louisiana and Mississippi: An Archaeological Assessment. *Mississippi Archaeology* 19(2):7-13.

Davis, Dave D. (editor)
1984 *Perspectives on Gulf Coast Prehistory.* University Presses of Florida, Gainesville.

DeBoer, Warren R.
2005 Colors for a North American Past. *World Archaeology* 37(1):66-91.

Densmore, Francis
1974 *How Indians Use Wild Plants for Food, Medicine and Crafts.* Reprinted. Dover Publications, New York. Originally published 1928, 44th Annual Report, Bureau of American Ethnology, pg. 279-397. Smithsonian Institution, Washington, D.C.

Dietler, Michael, and Brian Hayden
2001 Digesting the Feast: Good to Eat, Good to Drink, Good to Think. In *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power*, edited by Michael Dietler and Brian Hayden, pp. 1-20. Smithsonian Institution Press, Washington, DC.

Dunning, Arthur B.
1964 The Tallahatta Formation in Clarke County, Alabama. *Journal of Alabama Archaeology* 19(1-2):50-60.

Edwards, Gary D., and Tom Wells
1993 *Historic Louisiana Nails: Aids to the Dating of Old Buildings.* Geoscience Publications, Department of Geography and Anthropology, Louisiana State University, Baton Rouge.

Ethridge, Robbie, and Sheri M. Shuck-Hall (editors)
2009 *Mapping the Mississippian Shatter Zone: The Colonial Indian Slave Trade and Regional Instability in the American South.* University of Nebraska Press, Lincoln.

Faulkner, Charles H.
1988 Middle Woodland Community and Settlement Patterns on the Eastern Highland Rim, Tennessee. In *Middle Woodland Settlement and Ceremonialism in the Mid-South and Lower Mississippi Valley*, edited by Robert C. Mainfort, Jr., pp. 76-98. Archaeological Report No. 22. Mississippi Department of Archives and History, Jackson.

Fritz, Gayle J., and Tristam R. Kidder
1993 Recent Investigations into Prehistoric Agriculture in the Lower Mississippi Valley. *Southeastern Archaeology* 12(1):1-14.

Fritz, Gayle J., Virginia Drywater Whitekiller, and James W. McIntosh
2001 Ethnobotany of Ku-Nu-Che: Cherokee Hickory Nut Soup. *Journal of Ethnobiology* 21(2):1-27.

Fuller, Richard S.
1998 Indian Pottery and Cultural Chronology of the Mobile-Tensaw Basin and Alabama Coast. *Journal of Alabama Archaeology* 44(1 and 2):1-51.

Gagliano, Sherwood M.
1963 A Survey of Preceramic Occupations in Portions of South Louisiana and South Mississippi. *Florida Anthropologist* 16(4):105-132.
1979 *Cultural Resources Studies in the Pearl River Mouth Area, Louisiana-Mississippi.* Coastal Environments, Inc., Baton Rouge, LA.

Gagliano, Sherwood M., Charles E. Pearson, Richard A. Weinstein, Diane E. Wiseman, and Christopher M. McClendon
1982 *Sedimentary Studies of Prehistoric Archaeological Sites: Criteria for the Identification of Submerged*

Archaeological Sites of the Northern Gulf of Mexico Continental Shelf. Coastal Environments, Inc., Baton Rouge, LA.

Gagliano, Sherwood M., and Clarence H. Webb
1970 Archaic-Poverty Point Transition at the Pearl River Mouth. In *The Poverty Point Culture*, edited by Bettye J. Broyles, pp. 47-72. Bulletin No. 12. Southeastern Archaeological Conference, Morgantown, WV.

Gardner, Paul S.
1997 The Ecological Structure and Behavioral Implications of Mast Exploration Strategies. In *People, Plants and Landscapes: Studies in Paleoethnobotany*, edited by Kristen J. Gremillion, pp. 161-178. University of Alabama Press, Tuscaloosa.

Giardino, Marco J., and Russell Guerin
1996 Historic Overview of the Jackson Landing Site, 22HA504. Manuscript on file, Department of Anthropology, East Carolina University, Greenville, NC.

Giardino, Marco J., and Robert Jones III
1996 Archaeological Test Excavations at the Jackson Landing Site and Adjacent Ancient Earthwork, Hancock County, Mississippi. Manuscript on file, Historic Preservation Division, Mississippi Department of Archives and History, Jackson.

Giraud, Marcel
1974 *A History of French Louisiana, Volume One: The Reign of Louis XIV, 1698-1715*. Translated by Joseph C. Lambert. Louisiana State University Press, Baton Rouge.

Greengo, Robert E.
1964 *Issaquena: An Archaeological Phase in the Lower Yazoo Basin of the Lower Mississippi Valley.* Memoirs of the Society for American Archaeology, Number 18, Salt Lake City, UT.

Griffin, James B.
1967 Eastern North American Archaeology: A Summary. *Science* 1967:175-191.

Griffin, James B., Richard E. Flanders, and Paul F. Titterington
1970 *The Burial Complexes of the Knight and Norton Mounds in Illinois and Michigan.* Memoirs of the Museum of Anthropology, Number 3. University of Michigan, Ann Arbor.

Gums, Bonnie, L., and Gregory A. Waselkov (editors)
2013 *Archaeology at La Pointe-Krebs Plantation on the Mississippi Gulf Coast.* Archaeological Report, Mississippi Department of Archives and History, Jackson.

Haag, William G., and Clarence H. Webb
1953 Microblades at Poverty Point Sites. *American Antiquity* 18(3):245-248.

Hall, Robert L.
1976 Ghosts, Water Barriers, Corn, and Sacred Enclosures in the Eastern Woodlands. *American Antiquity* 41: 360-364.
1997 *An Archaeology of the Soul: North American Indian Belief and Ritual.* University of Illinois Press, Urbana.

Hamilton, T.M.
1960 Additional Comments on Gunflints. *Missouri Archaeologist* 22:73-79.

Havard, V.
1896 Drink Plants of the North American Indians. *Bulletin of the Torrey Botanical Club* 23(2):33-46.

Hayden, Brian
1990 Nimrods, Piscators, Pluckers, and Planters: The Emergence of Food Production. *Journal of Anthropological Archaeology* 9:31-69.
1996 Feasting in Prehistoric and Traditional Societies. In *Food and the Status Quest: An Interdisciplinary Perspective*, edited by Polly Wiessner and Wulf Schiefenhovel, pp. 127-148. Berghahn Books, Oxford, UK.
2001 Fabulous Feasts: A Prolegomenon to the Importance of Feasting. In *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power*, edited by Michael Dietler and Brian Hayden, pp. 23-64. Smithsonian Institution Press, Washington, DC.

Haywick, Douglas W., and Philip J. Carr
2004 *Geoarchaeology at South Alabama.* http://www.geoarchaeology.southalabama.edu/index.html. Electronic document accessed June 17, 2011.

Hollenbach, Kandace D., and Jessica L. Vavrasek
2008 *Subsistence Remains from 1Mb414, a Prehistoric Site in Mobile County, Alabama.* Report submitted to Barry A. Vittor & Associates, Inc., Mobile, Alabama. Archaeological Research Laboratory, University of Tennessee, Knoxville.

Jackson, H. Edwin
1989 Technical Proposal for Archaeological Investigations at the Claiborne Site (22HA501), Hancock County, Mississippi. Manuscript on file, Historic Preservation Division, Mississippi Department of Archives and History, Jackson.
1998 Little Spanish Fort: An Early Middle Woodland Enclosure in the Lower Yazoo Basin, Mississippi. *Midcontinental Journal of Archaeology* 23(2):199-220.

Jackson, H. Edwin, and Susan L. Scott
1995 The Faunal Record of the Southeastern Elite: The Implications of Economy, Social Relations, and Ide-

ology. *Southeastern Archaeology* 14(2):103-119.
2003 Patterns of Elite Faunal Utilization at Moundville, Alabama. *American Antiquity* 68:552-572.

Jeter, Marvin D., and G. Ishmael Williams, Jr.
1989 Ceramic-Using Cultures, 600 B.C.-A.D. 1000. In *Archeology and Bioarcheology of the Lower Mississippi Valley and Trans-Mississippi South in Arkansas and Louisiana*, edited by Marvin D. Jeter, Jerome C. Rose, G. Ishmael Williams, Jr., and Anna M. Harmon, pp. 111-170. Research Series No. 37. Arkansas Archeological Survey, Fayetteville.

Johannessen, Sissel
1993a Food, Dishes, and Society in the Mississippi Valley. In *Foraging and Farming in the Eastern Woodlands*, edited by C. Margaret Scarry, pp. 182-205. University Press of Florida, Gainesville.
1993b Farmers of the Late Woodland. In *Foraging and Farming in the Eastern Woodlands*, edited by C. Margaret Scarry, pp. 57-77. University Press of Florida, Gainesville.

Johnson, Jay K., Bryan S. Haley, and Edward R. Henry
2011 *Multiple Instrument Survey Results.* Center for Archaeological Research, University of Mississippi, Oxford. Submitted to Phelps Archaeology Laboratory, Department of Anthropology, East Carolina University, Greenville, NC.

Johnson, J. K., J. W. O'Hear, R. Ethridge, B. R. Lieb, S. L. Scott, and H. E. Jackson
2008 Measuring Chickasaw Adaptation. *Southeast Archaeology* 27:1-30.

Keller, Cynthia, and Christopher Carr
2005 Gender, Role, Prestige, and Ritual Interaction across the Ohio, Mann, and Havana Hopewellian Regions, as Evidenced by Ceramic Figurines. In *Gathering Hopewell: Society, Ritual, and Ritual Interaction*, edited by Christopher Carr and D. Troy Case, pp. 428-460. Springer, New York.

Kidd, Kenneth E., and Martha Ann Kidd
1970 A Classification System for Glass Beads for the Use of Field Archaeologists. *Canadian Historic Sites, Occasional Papers in Archaeology and History* 1:45-89.

Kidder, Tristram R.
2002 Woodland Period Archaeology of the Lower Mississippi Valley. In *The Woodland Southeast*, edited by David G. Anderson and Robert C. Mainfort, Jr., pp. 66-90. University of Alabama Press, Tuscaloosa.

Knight, Vernon J., Jr.
1990 *Excavation of the Truncated Mound at the Walling Site: Middle Woodland Culture and Copena in the Tennessee Valley.* Report of Investigations 56. Division of Archaeology, Alabama State Museum of Natural History, University of Alabama, Tuscaloosa.
2001 Feasting and the Emergence of Platform Mound Ceremonialism in Eastern North America. In *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power*, edited by Michael Dietler and Brian Hayden, pp. 311-333. Smithsonian Institution Press, Washington, DC.
2006 Symbolism of Mississippian Mounds. In *Powhatan's Mantle: Indians in the Colonial Southeast*, edited by Gregory A. Waselkov, Peter H. Wood, and Tom Hatley, pp. 421-434. University of Nebraska Press, Lincoln.
2010 *Mound Excavations at Moundville: Architecture, Elites, and Social Order.* University of Alabama Press, Tuscaloosa.

Koenig, Walter D., and Johannes M. H. Knops
2000 Patterns of Annual Seed Production by Northern Hemisphere Trees: A Global Perspective. *American Naturalist* 155:59-69.
2005 The Mystery of Masting in Trees. *American Scientist* 93(4):340-347.

Kuhnlein, Harriet V., and Nancy J. Turner
1991 *Traditional Plant Foods of Canadian Indigenous Peoples: Nutrition, Botany and Use*. Gordon and Breach Science Publishers, Philadelphia, PA.

Lee, Aubra L.
2010 Troyville and the Baytown Period. In *Archaeology of Louisiana*, edited by Mark A. Rees, pp. 135-156. Louisiana State University Press, Baton Rouge.

Leone, Karen L.
2008 Plant Remains Analysis. In *Phase III Archaeology at Plash Island, Archaeological Site 1BA134, in Baldwin County, Alabama*, edited by Sarah E. Price, pp. 296-308. Center for Archaeological Studies, University of South Alabama. Mobile.

Leone, Karen L., and Katherine R. Mickelson
2009 Botanical Analysis. In *Archaeology at Orange Beach: Phase III Data Recovery at 1BA21, the Bayou St. John Site, Orange Beach, Baldwin County, Alabama*, edited by Sarah E. Price, pp. 177-197. Center for Archaeological Studies, University of South Alabama, Mobile.

Lewis, R. Barry
1988 Fires on the Bayou: Cultural Adaptations in the Mississippi Sound Region. *Southeastern Archaeology* 7(2):109-123.

Lindauer, Owen and John H. Blitz
1997 Higher Ground: The Archaeology of North American Platform Mounds. *Journal of Archaeological Research* 5(2):169-207.

Mainfort, Robert C., Jr.
1988 Middle Woodland Ceremonialism at Pinson Mounds, Tennessee. *American Antiquity* 53(1):158-173.

Mainfort, Robert C., and Lynne P. Sullivan
1998 Explaining Earthen Enclosures. In *Ancient Earthen Enclosures of the Eastern Woodlands*, edited by Robert C. Mainfort, Jr. and Lynne P. Sullivan, pp. 1-16. University Press of Florida, Gainesville.

Mann, Rob
2010 French Colonial Archaeology. In *Archaeology of Louisiana*, edited by Mark A. Rees, pp. 235-257. Louisiana State University Press, Baton Rouge.

Martin, Alexander C., and William D. Barkley
1961 *Seed Identification Manual*. University of California, Berkeley.

McGahey, Samuel O.
2000 *Mississippi Projectile Point Guide.* Archaeological Report Number 31, Mississippi Department of Archives and History, Jackson.

McGimsey, Charles R.
2010 Marksville and Middle Woodland. In *Archaeology of Louisiana*, edited by Mark A. Rees, pp. 120-134. Louisiana State University Press, Baton Rouge.

McGimsey, Chip, Katherine M. Roberts, H. Edwin Jackson, and Michael L. Hargrave
1999 Marksville Then and Now: 75 Years of Digging. *Louisiana Archaeology* 26:75-98.

Mickelson, Katherine R.
1999 McLeod Plant Exploitation. In *The Late Woodland Period on the Lower Tombigbee River*, by George W. Shorter, Jr., pp. 153-157. Submitted to the Alabama Department of Transportation. Center for Archaeological Studies, University of South Alabama, Mobile.

Milanich, Jerald T.
2002 Weeden Island Cultures. In *The Woodland Southeast*, edited by David G. Anderson and Robert C. Mainfort, Jr., pp. 352-372. University of Alabama Press, Tuscaloosa.

Milner, Claire McHale, and John M. O'Shea
1998 The Socioeconomic Role of Late Woodland Enclosures in Northern Lower Michigan. In *Ancient Earthen Enclosures of the Eastern Woodlands*, edited by Robert C. Mainfort, Jr. and Lynne P. Sullivan, pp. 181-201. University Press of Florida, Gainesville.

Moerman, Daniel E.
2004 *Native American Ethnobotany: Database of Foods, Drugs, Dyes and Fibers of Native American Peoples, Derived from Plants*. Electronic document, http://herb.umd.umich.edu/.

Moore, Clarence B.
1905 Certain Aboriginal Remains of the Black Warrior River. *Journal of the Academy of Natural Sciences of Philadelphia* 13:125-244.

Morgan, David W.
2003 Mississippian Heritage: Late Woodland Subsistence and Settlement Patterns in the Mobile-Tensaw Delta, Alabama. Unpublished Ph.D. dissertation, Department of Anthropology, Tulane University, New Orleans.

Neumaier, Mary G.
1985 Prehistory on the Mississippi Gulf Coast: A Report on the Mulatto Bayou Area of Southwest Hancock County. In *Anthology of Mississippi Archaeology, 1966-1979: A Selection from the Publications of the Mississippi Archaeological Association*, edited by Patricia Galloway, pp. 153-164. Mississippi Department of Archives and History, Jackson.

Neuman, Robert W.
1984 *An Introduction to Louisiana Archaeology.* Louisiana State University Press, Baton Rouge.

Noël Hume, Ivor
1969 *A Guide to Artifacts of Colonial America.* Alfred A. Knopf, Inc., New York.

Otvos, E.G., Jr.
1972 Mississippi Gulf Coast Pleistocene Beach Barriers and the Age Problem of the Atlantic-Gulf Coast "Pamilco"—"Ingleside" Beach Ridge System. *Southeastern Geology* 14(4):241-249.
1975 Late Pleistocene Transgressive Unit (Biloxi Formation), Northern Gulf Coast. *Bulletin of the American Association of Petroleum Geologists* 59(1):148-154.

Palmer, Edward
1871 Food Products of the North American Indians. *Report of the Commission for 1870,* pp. 404-428. US Department of Agriculture, Washington, D.C.

Pauketat, Timothy R., Lucretia S. Kelly, Gayle J. Fritz, Neal H. Lopinot, Scott Elias, and Eve Hargrave
2002 The Residues of Feasting and Public Ritual at Early Cahokia. *American Antiquity* 67(2):257-279.

Peles, Ashley A., and C. Margaret Scarry
2011 *Plant Remains from the Graveline Site (22JA503), an Early Late Woodland Mound Site in Jackson County, Mississipi*. Report submitted to John H. Blitz, Department of Anthropology, University of Alabama. Research Laboratories of Archaeology, Department

of Anthropology, University of North Carolina, Chapel Hill.

Peterson, Lee Allen
1977 *Edible Wild Plants of Eastern and Central North America*. Houghton Mifflin, New York.

Petruso, Karl M., and Jere M. Wickens
1984 The Acorn in Aboriginal Subsistence in Eastern North America. In *Experiments and Observations on Aboriginal Wild Plant Food Utilization in Eastern North America*, edited by P. J. Munson, pp. 360-378. Indiana Historical Society, Prehistory Research Series 6(2).

Pluckhahn, Thomas J.
2000 Fifty Years since Sears: Deconstructing the Domestic Sphere at Kolomoki. *Southeastern Archaeology* 19(2):145-155.
2003 *Kolomoki: Settlement, Ceremony, and Status in the Deep South, A.D. 350-750.* University of Alabama Press, Tuscaloosa.

Phillips, Philip
1970 *Archaeological Survey in the Lower Yazoo Basin, Mississippi, 1949-1955.* Papers of the Peabody Museum of Archaeology and Ethnology Volume 60. Harvard University, Cambridge, MA.

Radford, Albert E., Harry E. Ahles, and C. Ritchie Bell
1964 *Manual of the Vascular Flora of the Carolinas.* University of North Carolina Press, Chapel Hill.

Rafferty, Janet
1990 Test Excavations at Ingomar Mounds, Mississippi. *Southeastern Archaeology* 9(2):93-102.

Rees, Mark A.
2010 Introduction. In *Archaeology of Louisiana*, edited by Mark A. Rees, pp. 1-18. Louisiana State University Press, Baton Rouge.

Reitz, Elizabeth J., and C. Margaret Scarry
1985 *Reconstructing Historic Spanish Subsistence with an Example from Sixteenth Century Spanish Florida*. Society for Historical Archaeology, Special Publications Series 3.

Rodning, Christopher B.
2010 Architectural Symbolism and Cherokee Townhouses. *Southeastern Archaeology* 29(1):59-79.

Roe, Lori M., and Timothy M. Schilling
2010 Coles Creek. In *Archaeology of Louisiana*, edited by Mark A. Rees, pp. 157-172. Louisiana State University Press, Baton Rouge.

Russell, Ernest E.
1987 Gravel Aggregate in Mississippi: Its Origin and Distribution. *Mississippi Geology* 7(3):1-7.

Sassaman, Kenneth E.
1993 *Early Pottery in the Southeast: Tradition and Innovation in Cooking Technology.* University of Alabama Press, Tuscaloosa.

Scarry, C. Margaret
1993 Agricultural Risk and the Development of the Moundville Chiefdom. In *Foraging and Farming in the Eastern Woodlands*, edited by C. Margaret Scarry, pp. 157-181. University Press of Florida, Gainesville.
2003a Patterns of Wild Plant Utilization in the Prehistoric Eastern Woodlands. In *People and Plants in Ancient Eastern North America*, edited by Paul E. Minnis, pp. 50-104. Smithsonian Books, Washington, D.C.
2003b Food Plant Remains from Excavations in Mounds A, B, C, D, and L at Bottle Creek. In *Bottle Creek: A Pensacola Culture Site in South Alabama*, edited by Ian W. Brown, pp. 103-113. The University of Alabama Press, Tuscaloosa.

Schnell, Frank T., Vernon J. Knight, Jr., and Gail S. Schnell
1981 Cemochechobee: Archaeology of a Mississippian Ceremonial Center on the Chattahoochee River. University Presses of Florida, Gainesville.

Schopmeyer, C.S. (Technical Coordinator)
1974 *Seeds of Woody Plants in the United States.* Agriculture Handbook 450. US Department of Agriculture, Forest Service, Washington, D.C.

Sears, William H.
1982 *Fort Center: An Archaeological Site in the Lake Okeechobee Basin*. University Press of Florida, Gainesville.

Sheldon, Craig T.
2001 Introduction. In *The Southern and Central Alabama Expeditions of Clarence Bloomfield Moore*, edited by Craig T. Sheldon, Jr., pp. 1-68. University of Alabama Press, Tuscaloosa.

Sherwood, Sarah C., John H. Blitz, and Lauren E. Downs
2013 An Integrated Geoarchaeology of a Late Woodland Sand Mound. *American Antiquity* 78(2):344-358.

Sherwood, Sarah C., and Tristram R. Kidder
2011 The DaVinci's of Dirt: Geoarchaeological Perspectives on Native American Mound Building in the Mississippi River Basin. *Journal of Anthropological Archaeology* 30:69-87.

Smith, Bruce D.
1992 *Rivers of Change: Essays on Early Agriculture in Eastern North America.* Smithsonian Institution Press, Washington, DC.

Smith, Bruce D., and C. Wesley Cowan
2003 Domesticated Crop Plants and the Evolution of Food Production Economies in Eastern North America. In *People and Plants in Ancient Eastern North America*, edited by Paul E. Minnis, pp. 105-125. Smithsonian Books, Washington, D.C.

Smith, Marvin T. and Mark Williams
1994 Mississippian Mound Refuse Disposal Patterns and Implications for Archaeological Research. *Southeastern Archaeology* 13(1):27-35.

Steponaitis, Vincas P.
1979 Lead-Glazed Earthenware. In *Tunica Treasure*, by Jeffrey P. Brain, pp. 44-73. Papers of the Peabody Museum of Archaeology and Ethnology Volume 71. Harvard University, Cambridge, MA.

Steponaitis, Vincas P., R. P. Stephen Davis, Jr., and H. Trawick Ward
2009 Field Evaluation of Two Subsurface Augering Methods at Moundville. *Southeastern Archaeology* 28(2): 259-267.

Sunderhaus, Ted S., and Jack K. Blosser
2006 Water and Mud and the Recreation of the World. In *Recreating Hopewell*, edited by Douglas K. Charles and Jane E. Buikstra, pp. 134-145. University Press of Florida, Gainesville.

Swanton, John R.
1946 *The Indians of the Southeastern United States.* Bureau of American Ethnology, Bulletin 137. Smithsonian Institution, Washington, D.C.

Talalay, Laurie, Donald R. Keller, and Patrick J. Munson
1984 Hickory Nuts, Walnuts, Butternuts, and Hazelnuts: Observations and Experiments Relevant to Their Aboriginal Exploitation in Eastern North America. In *Experiments and Observations on Aboriginal Wild Plant Food Utilization in Eastern North America*, edited by P. J. Munson, pp. 338-359. Indiana Historical Society, Prehistory Research Series 6(2).

Taylor, Royal E.
1987 *Radiocarbon Dating: An Archaeological Perspective.* Academic Press, Inc., Orlando, FL.

Thunen, Robert L.
1988 Geometric Enclosures in the Mid-South: An Archaeological Analysis of Enclosure Form. In *Middle Woodland Settlement and Ceremonialism in the Mid-South and Lower Mississippi Valley*, edited by Robert C. Mainfort, Jr., pp. 99-115. Archaeological Report No. 22. Mississippi Department of Archives and History, Jackson.

Toth, Alan
1979 The Marksville Connection. In *Hopewell Archaeology: The Chillicothe Conference*, edited by David S. Brose and N'omi Greer, pp. 188-199. Kent State University Press, Kent, OH.
1988 *Early Marksville Phases in the Lower Mississippi Valley: A Study of Culture Contact Dynamics.* Archaeological Report No. 21. Mississippi Department of Archives and History, Jackson.

URS
2006 *Final Coastal and Riverine High Water Mark Collection for Hurricane Katrina in Mississippi.* URS Group, Inc., Gaithersburg, MD.
2011 *Geomorphological and Geoarchaeological Investigations at Archaeological Site 22HA504, Hancock County, Mississippi.* URS Group, Inc. Gaithersburg, MD.

US Department of Agriculture, Agricultural Research Service, Nutrient Data Laboratory (USDA-NDL)
2004 USDA National Nutrient Database for Standard Reference, Release 17. Electronic document, http://www.nal.usda.gov/fnic/foodcomp, accessed January 30, 2005.

US Department of Agriculture, Natural Resource Conservation Service (USDA-NRCS)
2006 152A – Eastern Gulf Coast Flatwoods. In *Land Resource Regions and Major Land Resources Areas of the United States, the Caribbean, and the Pacific Basin*. US Department of Agriculture Handbook 296. Electronic document, http://www.mo15.nrcs.usda.gov/technical/MLRAs/mlra_152a.html, accessed June 3, 2011.
2011 *The PLANTS Database*. National Plant Data Center, Baton Rouge. Electronic document, http://plants.usda.gov, accessed October 22, 2008.

Van Nest, Julieann, Douglas K. Charles, Jane E. Buikstra, and David L. Asch
2001 Sod Blocks in Illinois Hopewell Mounds. *American Antiquity* 66(4):633-650.

Wade, Dale D., and O. Gordon Langdon
1990 Cabbage Palmetto. In *Silvics of North America, Volume 2: Hardwoods*, technical coordinators Russell M. Burns and Barbara H. Honkala. Agriculture Handbook 654, U.S. Department of Agriculture, Forest Service. Electronic document, http://www.na.fs.fed.us/pubs/silvics_manual/volume_2/sabal/palmetto.htm, accessed June 6, 2011.

Waselkov, Gregory A. (editor)
2002 French Colonial Archaeology at Old Mobile: Selected Studies. *Historical Archaeology* 36(1).

Waselkov, Gregory A., and Bonnie L. Gums
2000 *Plantation Archaeology at Riviere aux Chiens, ca. 1725-1848.* Archaeological Monograph 7. Center for Archaeological Studies, University of South Alabama, Mobile, AL.

Waselkov, Gregory A., and John A. Walthall
2002 Faience Styles in French Colonial North America: A Revised Classification. *Historical Archaeology* 36(1):62-78.

Watson, Patty Jo, and Richard A. Yarnell
1966 Archaeological and Paleoethnobotanical Investigations in Salts Cave, Mammoth Cave National Park, Kentucky. *American Antiquity* 31(6):842-849.

Webb, Clarence H.
1968 The Extent and Content of Poverty Point Culture. *American Antiquity* 1968 33(3):297-321.
1982 *The Poverty Point Culture.* Volume XVII. Geoscience and Man. Louisiana State University School of Geoscience, Baton Rouge.

Webb, M.C.
1982 Preliminary Report on Excavations at an Early Troyville Period Site (16 ST 6) on the West Pearl River, Louisiana. *Louisiana Archaeology* 9:205-250.

Williams, Mark J.
1987 *Archaeological Excavations at the Jackson Landing/ Mulatto Bayou Earthwork.* Archaeological Report No. 19. Mississippi Department of Archives and History, Jackson.

Williams, Stephen, and Jeffrey P. Brain
1983 *Excavations at the Lake George Site, Yazoo County, Mississippi, 1958-1960*. Papers of the Peabody Museum of Archaeology and Ethnology Volume 74. Harvard University, Cambridge, MA.

Willey, Gordon R.
1998 *Archeology of the Florida Gulf Coast.* University Press of Florida, Gainesville. Originally published 1949. Smithsonian Institution, Washington, DC.

Wiseman, Diane E., Richard A. Weinstein, and Kathleen G. McKloskey
1979 *Cultural Resources Survey of the Mississippi River-Gulf Outlet, Orleans and St. Bernard Parishes, Louisiana.* Coastal Environments Inc., Baton Rouge, La.

Works Progress Administration (WPA)
1940 *Indian Mounds and Sites in Mississippi.* National Park Service, US Department of the Interior. Manuscript on file, Historic Preservation Division, Mississippi Department of Archives and History, Jackson.

Yanovsky, Elias
1936 *Food Plants of the North American Indians.* US Department of Agriculture Miscellaneous Publication No. 237. Washington, D.C.

Yarnell, Richard A.
1982 Problems of Interpretation of Archaeological Plant Remains of the Eastern Woodlands. *Southeastern Archaeology* 1(1):1-7.

Yarnell, Richard A., and M. Jean Black
1985 Temporal Trends Indicated by a Survey of Archaic and Woodland Plant Food Remains from Southeastern North America. *Southeastern Archaeology* 4(2):93-106.