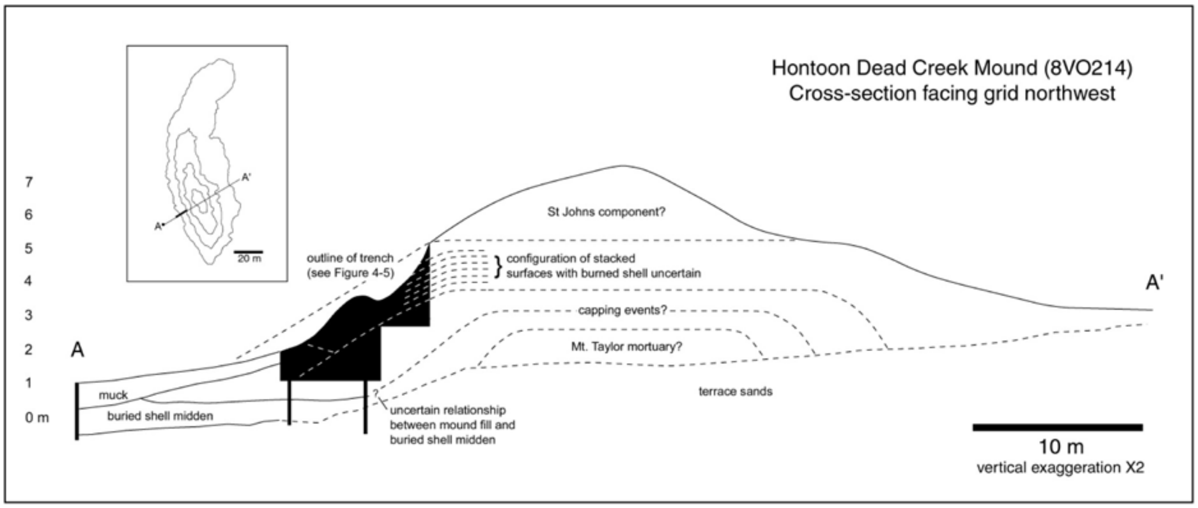
ST. JOHNS ARCHAEOLOGICAL FIELD SCHOOL 2003-2004: HONTOON ISLAND STATE PARK



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Technical Report 6
Laboratory of Southeastern Archaeology
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Management Summary

The St. Johns Archaeological Field School of the Department of Anthropology, University of Florida, conducted two seasons of archaeological investigations at Hontoon Island State Park in the summers of 2003 and 2004 under a 1A-32 Permit, 0203.40. Four projects were undertaken: (1) mapping and stratigraphic testing of Hontoon Island North (8VO202); (2) mapping and stratigraphic testing of Hontoon Dead Creek Mound (8VO214); (3) mapping, site characterization, and small-scale block excavation at East Hontoon (8VO7494); and (4) reconnaissance survey of the perimeter of the island to locate and characterize new sites, and to relocate and characterize sites already on record in the Florida Master Site Files.

Two seasons of work at Hontoon Island North (8VO202) involved comprehensive topographic mapping of the extant surface; shovel-testing and augering to determine the full extent and depth of shell-bearing deposits surviving shell mining in the 1930s; and the excavation of five test units across the site to characterize the surviving subsurface deposits. The results suggest that 8VO202 contains intact preceramic deposits (ca. 6000-4200 radiocarbon years ago [hereafter rcybp]) below much of its extant surface, and significant ceramic-era deposits (<4200 rcybp) at the east end of the site, today the location of picnic and playground facilities. Preceramic deposits extend as much as 2 m below mined surfaces. Pit features and possible postholes extend into sterile subsoil at the base of the mound in two locations, signaling potential habitation areas. Overlying profiles consist of alternating strata of whole, crushed, and burned shell with abundant vertebrate fauna, which likely resulted from repeated occupations. In contrast, the west end of the site consists of mounded shell and earth, potentially over and among disarticulated human remains, all of presumed preceramic age. The research potential of these vast and differentiated subsurface deposits is considerable despite the extensive damage wrought by shell mining and subsequent erosion. The late-period, wet-site deposits tested by Purdy (1987, 1991) in the 1980s are but a small and unrepresentative sample of the full history of 8VO202. The shell ridges that were mined began to form as early as 6000 rcybp, and most of the mounded fill and midden that survives today predates 4200 rcybp. The deposits at the east end of the site (and that were tested by Purdy), are but a thin veneer of late-period archaeological remains over a varied and extensive record of human activities that are much older.

Investigations at Hontoon Dead Creek Mound (8VO214) involved topographic mapping, stratigraphic testing, and coring in the adjacent cypress swamp. Located at the end of the nature trail, this site is one of the few shell mounds in the area to survive mining operations in last century. Field school work in 2004 confirmed what others have suspected: Hontoon Dead Creek mound is a largely preceramic construction. The limited number of artifacts and vertebrate food remains recovered in subsurface testing strongly suggest the mound was not occupied routinely. The core of the mound along its western flank consists of thick layers of mounded shell overlain by alternating layers of whole and burned/crushed shell, all free of pottery. Bucket augering in the adjacent cypress swamp revealed a preceramic midden below as much as one meter of muck. A radiocarbon assay of 6040 ± 70 rcybp was obtained from hickory nutshell from the buried midden. Although the precise stratigraphic relationship between the buried midden and initial stages of mound construction remains ambiguous, circumstantial evidence points to a preceramic age for the base of the mound, and nothing in the overlying profiles in the 9-m-long trench along the western margins would imply an age less than 4200 rcybp. Hontoon Dead Creek Mound is among the oldest intact shell mounds in Florida and deserves preservation in perpetuity.

Two seasons of work at East Hontoon (8VO7494) documents the value and integrity of small, shallow sites in the greater Hontoon Island area. At least three components spanning the preceramic to St. Johns periods were stratified in ca. 50 cm of near surface deposits. Shell was present in only discrete features and lenses, but preservation of vertebrate fauna was generally good. Pit features attest to intensive food-processing activities, and the spatial integrity of “pot busts” suggests relatively short-duration uses. Despite the ephemeral nature of the feature and material assemblages, repeated use of this location attests to favorable ecological circumstances over long periods of time, coupled perhaps with proximity to monumental architecture. Because such sites are shallow and inconspicuous, they are especially vulnerable to land alterations, even simply the digging of fire breaks for prescribed burns.

The reconnaissance survey began in 2000 (Sassaman 2003a) continued each year in modified form through 2005. The 2003 and 2004 seasons focused on a circumferential reconnaissance survey targeting the area between the 5 and 10-ft contour intervals. With few exceptions, the entire periphery of Hontoon Island contains archaeological deposits. The shovel test reconnaissance survey extended the boundaries of two previously recorded sites (8VO215, 8VO7493), relocated and tested three sites (8VO216, Hontoon Hammock, South Hontoon Midden), and discovered two new sites (Dredge and Saw Palmetto sites). This brings the inventory of known sites on Hontoon Island to a total of 10, excluding the two mounds (8VO182, 8VO183) that most likely fell within the current boundaries of 8VO202. The circumferential survey was completed in 2005. The results of this work will be issued in a third and final field school report in 2007. Updates and new records for the Florida Master Site Files will be submitted as part of the final report preparation.

Acknowledgments

The third and fourth years of partnership with Florida State Parks to conduct archaeological field schools were a resounding success and highly gratifying. Our thanks to the many Parks personnel who not only made it possible to hold these field schools, but also generously offered in-kind resources, direct assistance, and institutional support in countless ways. We are happy that our goals of expanding knowledge about middle St. Johns prehistory are consonant with the State Parks mission to preserve, protect, and interpret historical resources for the public good. Our thanks go to Steve Martin and Norman Edwards for championing this cause within State Parks management, and to Danny Paul and Richard Harris for enabling our work at the local level. Special thanks go to Marty Miller and staff (Dick, Keith, J.R., and John) at Hontoon Island State Park for allowing 15 or more students and their supervisors to invade the park for five weeks each summer. More gracious hosts one cannot find.

The field school teaching assistants were superb. My thanks to Meggan Blessing, Peter Hallman, and Asa Randall for a job well done. Asa's interest in the work evolved into a full-time commitment; his Ph.D. dissertation at the University of Florida is drawing directly on field school results and he has initiated several additional papers and presentations that take it well beyond the usual realm of field school reports. Of course, the students did most of the actual field work and for that I am grateful. The 2003 field crew consisted of Jason Antley, Christine Armstrong, Cris Crookshanks, Katherine Finton, Robert Frierson, Brian Gallagher, Nicole Golden, Padi Hayton, Martha Lindsey, Keith Pickles, Megan Ridenour, John Samuelson, Jessica Steve, JonSimon Suarez, and Christian Sumner. The 2004 field crew consisted of Stephen Chester, Carol Colaninno, Justine Deresz, Jason O'Donoughue, Eric Griffis, Melissa Hagen, Dylan Haymans, Sean McDermott, Kelly Palmer, Raina Raichoudhary, Madeleine Roberg, Joshua Smith, Lauren Stucki, Vanessa Vargas, Amanda Wood, and Paul Zimmer. Innumerable other students poured hundred of hours into sorting matrix in the lab and cataloging artifacts. My thanks to Meggan Blessing and Christine Armstrong for supervising much of that work.

Institutional support for this project was provided by the University of Florida's Department of Anthropology under the leadership of Allan Burns. Office Manager Karen Jones cheerfully took care of all the administrative details to make this happen. My deepest thanks to both Allan and Karen for their support of this work.

Archaeological Supervisor Brenda Swann of the Division of Historical Resources deserves our thanks for administering our permit applications and helping out in times of need. Our thanks also go to former State Archaeologist Jim Miller and his successor Ryan Wheeler for their support of this work.

Kenneth E. Sassaman
Gainesville
August 7, 2005

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CHAPTER 1
INTRODUCTION AND RESEARCH ORIENTATION

Kenneth E. Sassaman and Asa R. Randall

The St. Johns Archaeological Field School of the Department of Anthropology, University of Florida, conducted two seasons of archaeological investigations at Hontoon Island State Park in the summers of 2003 and 2004. Located on the St. Johns River in Volusia County, Florida, Hontoon Island State Park is home to several significant prehistoric archaeological sites, including shell mounds and middens investigated in the late 19th century by Jeffries Wyman (1875), and, more recently, by Barbara Purdy and colleagues (1987) (Figure 1-1). The 2003 and 2004 St. Johns Archaeological Field Schools divided its efforts among several tasks: (1) reconnaissance survey of the entire perimeter of the island to locate new archaeological sites; (2) topographic mapping of several sites with mounded shell deposits; (3) subsurface characterization of four sites with limited, controlled excavation units; and (4) bulk sampling of stratified shell-bearing deposits at three sites for subsistence and associated paleoecological remains. Students each year were trained in the technical aspects of reconnaissance survey, topographic mapping, coring, stratigraphic excavation, plan mapping, piece plotting, matrix processing, artifact and ecofact identification, profiling, and occasionally feature excavation. An additional week of lab work following each five-week field session was devoted to matrix sorting, cataloging, flotation, and preliminary analysis.

Fieldwork in 2003 and 2004 followed from an earlier two-year period (2000-2001) of field school efforts at Blue Spring and Hontoon Island State Parks (Sassaman 2003a). A fifth season of fieldwork at Hontoon Island was completed in the summer of 2005 and will be reported fully in a third technical report and the forthcoming dissertation of Asa Randall.

In this introductory chapter we summarize the research designs for each of the 2003 and 2004 field schools and briefly recount the results of work completed to date. Analysis of the materials recovered from both field schools is ongoing. Little of the subsistence remains collected have been completely analyzed, while scores of flotation samples await processing. Grant funds will be sought to complete these important analyses, as well as obtain several additional radiocarbon age estimates. Because so much of the primary and secondary analyses remain incomplete, this report does not include a catalog appendix as appeared in the first field school report (Sassaman 2003a). Rather, this report summarizes in full only the fieldwork in 2003 and 2004. The report of fieldwork in 2005, due for release in 2007, will include a comprehensive catalog of artifacts and ecofacts collected from all five years of the St. Johns Archaeological Field School. The final report will likewise complete the updates and new site listings for the Florida Master Site Files, as required under state permit. Several new sites discovered during 2003 and 2004 reconnaissance survey continued to be investigated in 2005 and the results of this latest work are pending.

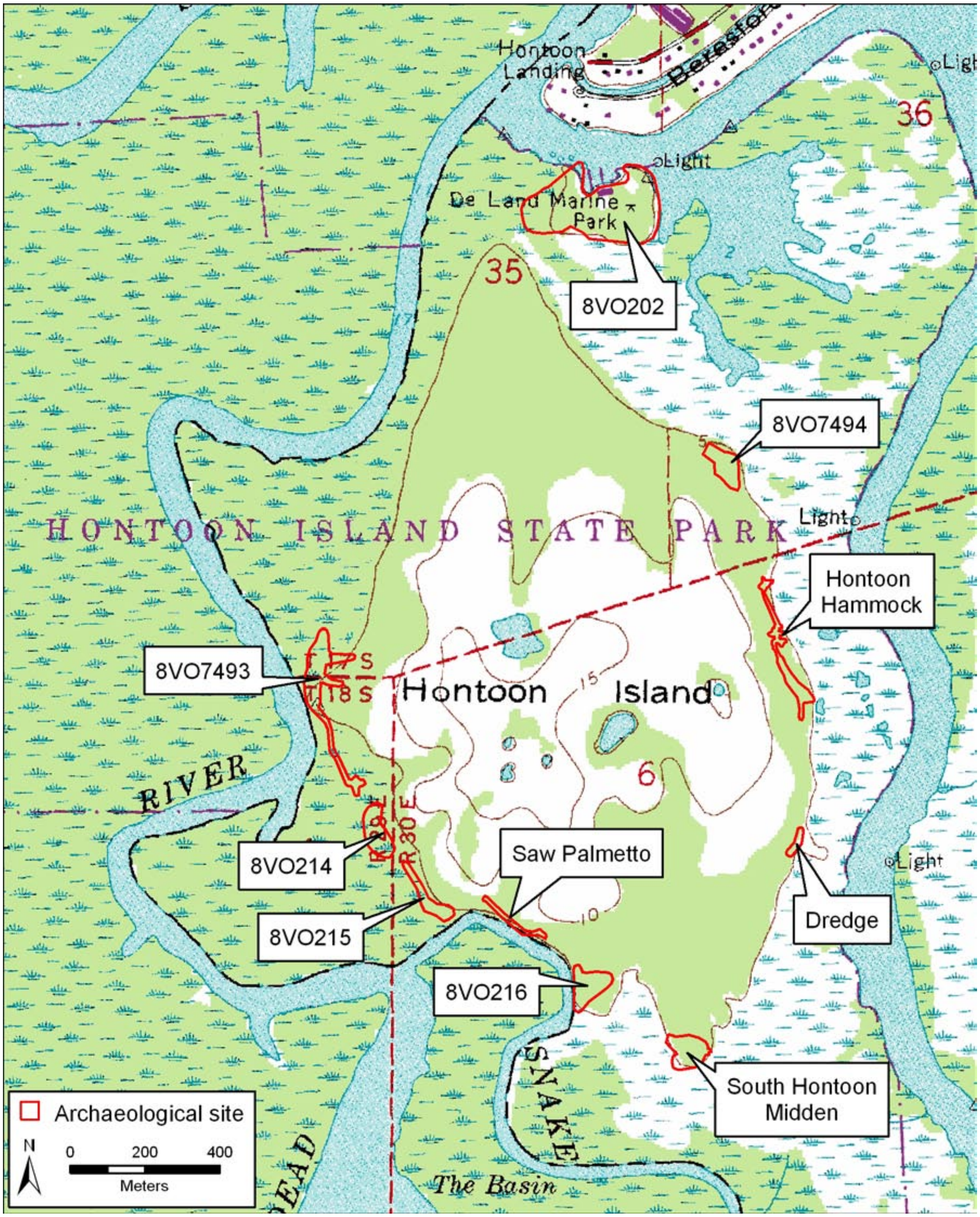

Figure 1-1. Subsection of USGS Orange City topographic quadrangle showing the location of all known archaeological sites on Hontoon Island State Park in the middle St. Johns River Valley, Volusia County, Florida.

RESEARCH ORIENTATION

The St. Johns Archaeological Field School is part of the long-term research of the authors to reconstruct the details of prehistoric life in the middle St. Johns region over the past 6000 years. At the outset of this period, hunter-gatherer populations in the region intensified their use of locations along the river for settlement, food collecting, and monument construction. This development began with the Mount Taylor culture of ca. 6000-4200 radiocarbon years before present (hereafter rcybp), summarized elsewhere by Wheeler et al. (2000) and reviewed here in Chapter 2. Mortuary mounds and other monuments of Mount Taylor age have been documented at several sites in northeast Florida (e.g., Aten 1999, Piatek 1994; Russo 1996a), and the greater Hontoon Island vicinity includes several that have been investigated by the field school. Most such mounds have been damaged severely by modern land alterations, notably mining operations for the shell that constitutes the bulk of mound fill. Our approach to investigating these sites is thus shaped greatly by the need to salvage what we can from the residues that survived these destructive events.

Basic information on the age and internal configuration of shell mounds in the study area is requisite to questions of mound function and meaning. Debate continues over whether so-called mounds are actually intentional constructions, as opposed to de facto accumulations of habitation debris. Moreover, little is known about the relationship of mounds to the multitude of lesser sites in the region: Were small shell-bearing sites in the vicinity of mounds the habitation locations of groups who built the mounds? If so, did these groups move seasonally from site to site, or stay put at certain sites over multiple seasons? How many groups of people cooperated in constructing mounds, and did they all reside in the immediate vicinity?

Another set of questions relates to changes in the construction and use of mounds over time. We know that mounds such as Live Oak (8VO41) and another associated with Blue Spring Midden B (8VO43) began to form during Mount Taylor times (Sassaman 2003a), but they also contain components of the later Orange and St. Johns cultures. Were such locations continuously occupied by innumerable generations of descendants, or can we document ruptures in occupational sequences? Were there major hiatuses in mound construction and use? If so, were resumed activities those of local, descendant populations or relocated people from afar? How did later peoples, descendant or not, incorporate the monuments of their predecessors in their own routines and ritual practices?

As noted earlier, answers to these many questions depend on basic information on the age and internal configuration of the mounds, along with basic information on the distribution, age, and composition of nonmound sites. The field schools have thus set about to collect such information. They have done so through a combination of (1) reconnaissance survey to locate all sites on the island; (2) secondary testing to characterize the vertical and horizontal dimensions of sites; (3) stratigraphic testing to establish the sequences of mound construction, with particular emphasis on basal components; (4) topographic mapping of all sites with secondary testing, notably sites with intact or remnant mound deposits; and (5) collection of column samples from intact stratigraphic profiles for purposes of dietary and paleoenvironmental reconstruction, as well as radiometric dating.

Equally relevant to our understanding of the occupational histories of mounds and affiliated sites are the many environmental changes that unfolded over the millennia. Especially relevant are changes in aquatic habitat. Worldwide, the development of sedentary, “complex” hunter-gatherers is associated with increased exploitation of aquatic resources. Global warming after the Pleistocene caused sea levels to rise as glaciers melted, returning moisture to the atmosphere and ultimately the oceans. Coastlines were submerged and groundwater levels in low-lying terrain rose to create increasingly extensive wetland habitat. Coupled with increased precipitation over the late Pleistocene, Holocene-aged land was generally well watered. A diminished rate of sea-level rise after 6000 rcybp. led to increasingly stable and productive coastal and near-coastal habitat for species on which humans had to come depend. The St. Johns River at this time assumed its more-or-less modern configuration, with its lower third becoming a drowned estuary, and its middle third a series of lakes and wetlands connected through a broad, low-gradient channel. By 5500 rcybp, locations along the St. Johns, as well as the coast, were visited regularly, if not occupied permanently, by groups who collected and ate large quantities of fish and shellfish and built monuments out of shell and sand.

While the ecological conditions enabling intensive coastal and riverine settlement after 6000 rcybp are fairly well understood, the specific circumstances surrounding ensuing culture change in the middle St. Johns remain sketchy. Few data are available on fundamental issues, such as (1) the degree of settlement permanence; (2) the sustainability of intensive aquatic resource use; (3) the role of food storage; (4) the consequences of pottery technology on household economics; and (5) the significance of monument construction. All such issues are plagued by vague chronology and sampling limitations.

Florida archaeologists in recent decades have tended to focus on subsistence issues in their studies of shell middens and wet sites (e.g., Russo et al. 1992; Wheeler and McGee 1994; Newsom 1987, 1994), and rightfully so. Now issues of monumentality have moved to the forefront (e.g., Aten 1999; Russo 1996a, 2004; Russo and Heide 2002). Subsistence data will continue to play a major role in this burgeoning area of research, because food processing and consumption patterns at mound sites may be expected to differ from that at domestic sites, and such data will be essential to infer season of use and paleoecological circumstances of mound activities. Beneath the veneer of sameness that is the subsistence record of 6000 years of life along the middle St. Johns are potentially meaningful differences in the scale and timing of subsistence activities. Attention to microstratigraphy and other fine-grained contexts, along with multiple scales of comparison, are required to expose this hidden variation.

Above all, our interest in understanding the causes and consequences of emergent village life and monumentality in the middle St. Johns will not be satisfied with a few short field projects or short-term engagements with museum collections. Genuine advances in this regard require long-term research that is intensively trained on small-scale problems set within a regional, even continental scale of comparative inquiry. The contributions of the St. Johns Archaeological Field School are a small step in that direction.

SUMMARY OF RESULTS

Four interrelated projects were undertaken by the 2003 and 2004 field schools: (1) mapping and stratigraphic testing of Hontoon Island North (8VO202); (2) mapping and stratigraphic testing of Hontoon Dead Creek Mound (8VO214); (3) mapping, site characterization, and small-scale block excavation at East Hontoon (8VO7494); and (4) reconnaissance survey of the perimeter of the island to locate and characterize new sites, and to relocate and characterize sites already on record in the Florida Master Site Files. Brief summaries of the major findings of each of these four projects are provided below. More detailed summaries are provided in Chapter 7, while the full details of each of the projects constitute the bulk of this report.

Hontoon Island North (8VO202)

The largest site on Hontoon Island, Hontoon Island North (aka Hontoon Island Midden; 8VO202), was documented by Jeffries Wyman (1875) in the 1860s and rose to prominence in the modern era with the wet-site investigations headed by Barbara Purdy (1987, 1991) in the 1980s. As described by Wyman, the site consisted of two massive shell ridges oriented parallel to the St. Johns River, and two conical mounds landward of the ridges at its eastern end. Shell mining operations in the 1930s destroyed much of the above-ground evidence of these constructions. State Park headquarters now occupy the denuded land of this once-massive ridge and mound complex.

Field school efforts in 2003 and 2004 were designed to bound and characterize the entire terrestrial component of 8VO202. Shovel tests and a series of five excavation units revealed intact preceramic deposits across virtually the entire expanse of the site. Three of the units were sited to take advantage of scarps left by mining at both ends of the 300+ m inner ridge. All three units included preceramic deposits at and immediately above the current water table. Importantly, the basal components of each unit were distinct. A unit at the east end of the ridge included an 80-cm thick secondary midden on a buried A horizon at the water table overlain by mounded shell. A test unit 50 m to the west revealed a primary midden with possible architectural features and overlying mounded shell near the slightly elevated center of the inner ridge. A 2 x 2-m unit was added in this same area in 2004 to verify the existence of preceramic features at the base of the mound. Preserved at the west end of the inner ridge is an area roughly 50 x 50 m that was spared deep mining for lack of dense shell. The discovery of human remains in a single test unit in this area was reported to BAR in a letter report (Sassaman 2003b). Without further testing we can only speculate on these possible mortuary deposits although circumstantial evidence is sufficient to hypothesize a mortuary feature similar to the Mount Taylor age component at Harris Creek (8VO24) on Tick Island, dating to ca. 5400 rcybp. (Aten 1999). In sum, the preceramic component at Hontoon Island North is extensive but possibly spatially differentiated into habitation space and primary midden, secondary midden, and possibly a mortuary mound.

Surviving ceramic-era deposits at Hontoon Island North exist not only in the thick apron surrounding the large mining pit at the east end of the inner ridge, and in the adjoining lagoon that Purdy tested, but also in the remnant of the outer ridge that now forms the peninsula of the park, just to the east of its harbor. As much as 3 m of stratified shell midden was located by bucket augering, most of it below the water table. That so much midden exists in now-submerged contexts suggest that either the outer ridge was initiated in the water of the river channel (as the midden in the lagoon seems to have been), or when water levels were drawn down at least 1.5 m from current levels. Either way, the outer ridge appears to be largely, if not exclusively, a St. Johns construction. We can infer from the prevalence of check-stamped sherds across the entire eastern portion of the site that much of the mound/midden accumulation took place over the half-millennium before Europeans arrived.

Hontoon Dead Creek Mound (8VO214)

The only intact shell mound on Hontoon Island lies at its southwest corner at the end of a nature trail. Renamed Hontoon Dead Creek Mound, 8VO214 was tested by Wyman (1875) and later mapped by Ray McGee (1987) in conjunction with Purdy's work on the island. Virtually nothing was known about the age or internal configuration of this largely intact mound when we dug a 9-m long trench into the west side of it in 2004. This effort established that much, perhaps most of the fill in this 5-m-high ridge-like mound is likely preceramic. A series of bucket-auger transects into the muck of the adjoining cypress swamp encountered a buried shell-bearing midden with impeccable organic preservation. Uncharred but cracked hickory nutshell from this midden returned a conventional radiocarbon assay of 6040 ± 70 rcybp. This addition to 8VO214 enhances the inventory Mount Taylor sites in aggraded swamp locales (Wheeler et al. 2000:143).

Profiles of the trench showed that the upper mantle of the mound consists of alternating layers of burned shell, mostly bivalve, and unconsolidated whole and crushed shell, mostly *Viviparus* but also *Pomacea*. The burned shell layers resemble the "floors" uncovered at Blue Spring Midden B (Sassaman 2003a), but they lack the rich vertebrate faunal remains and artifact assemblage of this latter site. The repeated layers of burn shell attest to fires and perhaps even food processing, but the limited bone and artifact assemblage runs counter to expectations for routine domestic activity. Instead, the stratigraphic sequence evinces a cyclical quality to mound construction and use. As the layers grew up they also grew outward, toward to swamp, requiring the construction of a bulkhead to support an increasingly higher mound platform. The conical apex at the south end, into which Wyman appears to have dug, was likely added by later occupants, presumably of St. Johns cultural affiliation. This same pattern was observed at Live Oak Mound (8VO41) north of Blue Spring (Sassaman 2003a).

East Hontoon (8VO7494)

A shallow, unassuming site along the eastern margin of Hontoon Island was tested in 2003 and 2004 with a series of 1 x 2-m units and a 3 x 3-m block. Dubbed East Hontoon (8VO7494), this site produced evidence for a minimum of three culture-historical components. Preceramic Archaic deposits were characterized by an organic shell midden devoid of diagnostic artifacts, but containing abundant vertebrate faunal remains within a gastropod and bivalve shell midden matrix. Although not dated, this component likely dates between 6300 and 4200 rcybp based on crossdating from nearby sites. All test units also yielded fiber-tempered pottery diagnostic of the subsequent Orange period (4200-3500 rcybp). These deposits were typically associated with limited shell midden, but abundant vertebrate fauna. Evidence for a Transitional Period (3500-3000 rcybp) pottery assemblage was recovered above the Orange component in one a single unit. Finally, a large assemblage of St. Johns plain sherds, diagnostic of the St. Johns I component (3000-1200 rcybp), was recovered from across the site.

The density and spatial integrity of artifacts, features, and food remains dating to the St. Johns I period suggest that the site was a locus of intensive, if short-duration activities. One large pit feature attests to processing activities focused on shellfish and aquatic vertebrate fauna. In addition to food processing, a large pit (Feature 13) observed in one unit indicates that at least one individual may have been interred at the site. Whether or not this is a recurrent practice across the site is not known.

Also conducted at East Hontoon was a close-interval bucket-auger survey. These data revealed differential spatial distribution of deposits. Overall, the results of augering suggest that there is significant intrasite variation in the deposits. Of particular note is a dichotomy between the dense shell deposits in the north and the shallow, diffuse, shell-free deposits to the south. It is currently unknown if these register different types of activities through time, or are reflective of the organization of space at one point in time.

Shovel Test Reconnaissance Survey

A circumferential reconnaissance survey targeting the area between the 5 and 10-ft contour intervals was conducted as two contiguous transects, starting north of East Hontoon (8VO7494) on the eastern margin, and concluding at the northern boundary of 8VO7493, on the western margin, north of Hontoon Dead Creek Mound. With few exceptions, the entire periphery of Hontoon Island contains archaeological deposits. The shovel test reconnaissance survey extended the boundaries of two previously recorded sites (8VO215, 8VO7493), relocated and tested three sites (8VO216, Hontoon Hammock, South Hontoon Midden), and discovered two new sites (Dredge and Saw Palmetto sites). This brings the inventory of known sites on Hontoon Island to a total of 10, excluding the two mounds (8VO182, 8VO183) that most likely fell within the current boundaries of 8VO202.

Variations in occupational history, assemblage content, and site structure were registered across the suite of 10 sites. In general, Orange and St. Johns plain sherds are numerically dominant and widespread, although they are more or less restricted to sites at the southern end of the island. The dearth of evidence for St. Johns II occupations is surprising given its conspicuous nature at Hontoon Island North (8VO202). The recognition of preceramic Archaic deposits is hampered by a lack of diagnostic material culture, but we suspect that many of the nonmound sites have basal components dating to this era.. It is also likely that preceramic Archaic components form the foundation of all of the shell mounds on Hontoon Island. In general, deposits along the eastern margin of the island are characterized by discrete shell deposits surrounded by extensive diffuse anthropogenic deposits with trace amounts of vertebrate fauna. Mounds and extensive shell-bearing deposits are distributed widely along the northern, western, and southern margins. Concreted midden along both the east and west margins suggests that burning and processing of shell and fauna were important, most likely in association with other daily tasks. The southern sites are characterized by elevated and concreted shell midden deposits surrounded by shell-free midden. In at least two cases (South Hontoon Midden and 8VO215), varied surface topography is suggestive of house mounds and community patterning like that identified at Blue Spring Midden B (Sassaman 2003a). Field school efforts in 2005 focused on 8VO215 and will be reported in full in the third and final report of Hontoon Island investigations

ORGANIZATION OF THE REPORT

The core of this report is organized around the four projects listed above. Chapter 2 provides environmental and archaeological contexts for the projects at large. Chapter 3 reports the results of investigations at Hontoon Island North (8VO202) in 2003 and 2004. The results of investigations at Hontoon Dead Creek Mound (8VO214) in 2004 are reported in Chapter 4. Two seasons of field work at East Hontoon (8VO7494) is the subject of Chapter 5, and results of reconnaissance survey are given in Chapter 6. In the final chapter we summarize all four projects and provide a general research design for investigations conducted in 2005, as well as possible ancillary work through the following year.

CHAPTER 2
ENVIRONMENTAL AND ARCHAEOLOGICAL CONTEXTS

Asa R. Randall

This chapter situates the 2003-2004 investigations at Hontoon Island within regional environmental and archaeological contexts. Environment is considered first, focusing in particular on physiography and hydrology. The archaeological contexts are then reviewed, with particular attention paid to the Middle and Late Archaic. In both cases a regional overview is provided, followed by more locality-specific discussions.

ENVIRONMENTAL CONTEXT

Hontoon Island is located in western Volusia County, approximately 10 km west of Deland (Figure 2-1). The island is situated within the middle St. Johns River floodplain, and is surrounded by the active channel and backwater swamps and streams. At over 400 ha in size, the island is one of the largest in this segment of the river. Hontoon Island's physiography is typical of this segment of the river basin.

The St. Johns River is in fact a unique and complex fluvial system whose current configuration is the result of a long history of fluctuating sea levels and attendant progradations and regressions of surface waters, localized faulting and solution of carbonate sediments, as well as more recent factors such as channel dredging for navigation. A number of syntheses and cogent discussions of the geology and geomorphology of Florida have been published (Randazzo and Jones 1997; White 1970). In this discussion we focus on those aspects relevant to the middle St. Johns River basin.

Regional physiography

Like all of Peninsular Florida, the regional physiography of the St. Johns River Valley ultimately owes its current configuration to marine processes (Schmidt 1997). Currently, the dry land of Peninsular Florida occupies approximately one-half of the Florida Platform. Extending out into the Gulf of Mexico and Atlantic, the Platform is characterized by low relief, and is composed of Cenozoic carbonate sedimentary lithologies that lie unconformably upon a Paleozoic and metamorphic basement.

The Florida Platform has been alternatively inundated by shallow seas and exposed as dry land during much of the Cenozoic epoch. The low elevation of the Platform (a maximum of 104 meters in the Panhandle) has made it particularly susceptible to relatively small changes in sea level. Sea level fluctuation has resulted in frequent progression and regression of marine, estuarine, and near shore environments. This process has left the Florida coastal zone dominated by positive features including elevated relict upland ridges, barrier beaches, and sand dunes, and negative features representative of shallow seafloors (Schmidt 1997). Terraces that reflect long-term sea level stands have been identified. In the study area these include the Silver Bluff and Palmlico Terraces (0-8 m amsl) and Penholoway and Talbot Terraces (8-21 m amsl).

Figure 2-1. Subsection of USGS Orange City topographic quadrangle showing location of Hontoon Island.

Additionally, the carbonate composition of many of Florida's sedimentary deposits has been equally influential. Carbonate lithologies are particularly susceptible to dissolution, which results in karst topography and hydrogeology. Typical features of karst topography are sinkholes, sinking rivers, disappearing lakes, and springs.

Geomorphologists have recognized a number of physiographic regions defined by topography, surficial geology, and hydrology (Cooke 1939; Schmidt 1997; White 1970). The St. Johns River is located in the Atlantic Coastal Lowlands, a zone typified by coast-parallel features. Most positive features in this region are relict beaches and marine terraces formed during the Late Pleistocene and Holocene, and are composed of siliclastic marine sediments. The headwaters and mouth of the river are situated within the Eastern Valley, while the middle St. Johns occupies a position west of the Crescent City-Deland Ridge. The Crescent City-Deland Ridge is the only karst-dominated topography in the region, and is a major source of groundwater via the Floridan Aquifer.

Groundwater and channeled water hydrology of the St. Johns is linked to precipitation and geology. Ultimately, all of Florida's freshwater is derived from precipitation (Miller 1997). Although much precipitation is lost due to evapotranspiration and runoff, a significant portion is returned for the recharge of aquifers. Water levels for most of Florida's streams and lakes are directly related to the aquifer levels. Florida has five principle aquifers, only two of which have output in the middle St. Johns. In general, the study area is typified by an undifferentiated surficial aquifer. Water is typically unconfined in Pleistocene and Holocene sediments averaging 50 feet in thickness, and is present at or just below the ground surface. The Floridan Aquifer is the most extensive and productive of all of Florida's aquifers. It extends throughout the state, in addition to Georgia, Alabama, and South Carolina. Generally, the Floridan aquifer is restricted to carbonate rocks of Tertiary Age, and remains confined well below the ground surface. The aquifer is unconfined or outcrops in regions where these carbonate rocks are thin or have been penetrated by sinkholes. In the study region, the Floridan aquifer discharges along the Crescent City-Deland Ridge principally via first-order magnitude (greater than 100 cubic feet per second or more) springs, including Silver Spring, Silver Glen Springs, and Blue Spring.

As Miller (1998:27) notes, the dominant factor in the study region's landscape is water, which is concentrated along the St. Johns River drainage. The St. Johns river, which has its headwaters in southern Brevard County and discharges into the Atlantic at Jacksonville, is the largest river in Florida, measuring 500 km. It is also unique as it is one of few rivers in the northern hemisphere to flow from south to north. Although it is extensive and broad, the St. Johns discharges on average only 8,300 cubic feet per second. The discharge is related primarily to volume and less to velocity. This is due to a wide floodplain and a low gradient (0.02 m per kilometer) (Miller 1998:28). For most of its length, the St. Johns is within five feet of mean sea level. The low gradient makes the river susceptible to small changes in sea level, and even today the river is tidally influenced as far south as the Wekiva River.

The St. Johns River is composed of three distinct segments whose different characteristics relate to a complex geomorphic history (Adamus et al. 1997; Schmidt 1997; White 1970). Like many of the large river systems in Florida, the St. Johns River is situated in a swale between elevated, upland ridges. Although this configuration was once thought to have formed during late Pleistocene times as a drowned lagoon, it is now believed to have been formed in part within a beach-ridge plain (White 1970) during the early Pleistocene. With the exception of the lower St. Johns, the river is characterized by lakes arrayed in a linear fashion, oriented with the flow of the river. White (1970) suggests that these lakes are sinkholes which have been differentially filled with sediment and linked by channeled surface water.

The upper segment flows between southern Brevard County to Sanford Florida. This segment is the headwaters, and is characterized by poorly integrated braided streams and extensive wetlands. The middle St. Johns, between Sanford and Lake George, is often referred to as the St. Johns Offset. In a headward-consequent course, the river would be expected to flow from the headwaters to Jacksonville in a relatively straight line following the late Pleistocene beach ridges of the Eastern Valley. However, at Sanford the St. Johns jogs to the west, flowing west of the Crescent City-Deland Ridge. North of Lake George, the river jogs back to the east. It is believed that this portion of the river formed during the early Pleistocene during a period of low sea level, when the offset portion of the river captured the headwaters south of Sanford. The river was eventually integrated when the basin was first inundated, creating an estuary. Subsequent lowering of sea level resulted in the linkage of these segments. The drainage pattern of the middle St. Johns is dominated by an anastomosing pattern, characterized by numerous parallel channel segments. The floodplain is composed of freshwater marshes and swamps. The lower St. Johns is situated between the eastward jog north of Lake George to the mouth at Jacksonville. This course is parallel with Crescent Lake, a relict channel of the St. Johns abandoned when the middle St. Johns switched to its current location. This section of the river is essentially a drowned estuary, and is characterized by a broad channel, averaging over 1 km in width, and inshore marine habitats.

Late Pleistocene and Holocene Environmental Trends

The same processes that have affected the physiography and hydrology of Florida, namely fluctuating sea level and attendant shifts in climate and environmental regimes, have structured human settlement and their archaeological recognition in the study region. At the end of the Pleistocene sea levels were significantly lower than today (upwards of 40 m), resulting in the extension of inhabitable land over 200 km into the Gulf of Mexico and to a lesser extent the Atlantic (Faught 2004). Between 10,000 and 8000 rcybp sea levels initially rose quickly, inundating large expanses of the Florida Platform and interior drainages. Although near-modern levels were gradually achieved by 5000 rcybp (Faught 2004), sea level fluctuated throughout the middle and late Holocene. The increase in sea level and surface water resulted in the inundation of many early sites. Although inundated sites are routinely discovered in low-energy environments such as the Gulf of Mexico and interior sinks and drainages, many sites along the Atlantic Coast were likely destroyed or deeply buried by transgressing shorelines (Ste. Claire 1990).

The reduction of river gradients in response to sea level change resulted in the initial alluviation and subsequent surface stabilization of interior and coastal fluvial regimes, which in turn affected the flow and biotic characteristics of river channels and floodplains (Schulderein 1996). Peninsular Florida's arid late Pleistocene conditions, characterized by low surface water levels, gradually gave way to a wetter, modern regime ca. 6000-5000 rcybp (Watts et al. 1996). At 10,000 rcybp oak scrub and prairies characterized peninsular Florida. Around 8500 rcybp pine and swamp vegetation expanded from South Carolina throughout much of the Coastal Plain, becoming fully established by 4500 rcybp in southern Florida (Watts et al. 1996:37).

Although the broad characteristics of the middle St. Johns were in place well before humans entered the region, the late Pleistocene and Holocene history of the valley has important consequences for settlement and archaeological recognition. Today, the floodplain is dominated by multiple channels, oxbow cutoffs, lakes, and lagoons. These suggest a complicated history of channel switching, avulsion, and infilling. In part, this variation is related to the shallow gradient of the river and sea level. Based on the distribution of archaeological sites, this hydrologic regime dates to at least 6000 rcybp when the elevation of the river rose to within a meter of present-day levels. However, there were likely significant shifts in the course of the river that would have had effects on the distribution of swamps and wetlands. The presence of archaeological sites hundreds of meters from the main channel, or outside of the range of productive shellfish beds, indicates changes have occurred (Wheeler et al. 2000). More data are necessary to understand the complexity of channel changes through time. More recent changes in the flow characteristics of the river have been wrought during the last 200 years. In addition to the urbanization of the headwaters, the majority of the main channel of the St. Johns has been dredged. Historic documents indicate that the river was first dredged in portions during the 1880s (207th House of Representatives, Document no. 1111). During the last century, the river has been fully channelized.

Hontoon Island Physiography, Soils, and Biota

Hontoon Island is situated mid-way along the middle St. Johns. It is 15 km downstream from the Wekiva River and Lake Monroe, and 15 km upstream from Lake Woodruff. The floodplain in this portion of the river is approximately 4 km wide. With the exclusion of several islands, the floodplain is a low and wide expanse characterized by cypress swamps and grassy marshes at or below 5 feet amsl. Hontoon Island rises only slightly above the floodplain, with maximum heights near the center of approximately 15 feet. The island encompasses an area of over 400 ha. Approximately half of this area is wetlands, below 5 ft amsl, that are saturated seasonally. The margins of the floodplain are characterized by relatively steep slopes, which to the east rise to elevations between 60 and 85 ft amsl within a kilometer of the channel.

Hontoon Island is surrounded by channeled surface water (Figure 2-1). The active main channel of the St. Johns River forms the eastern and northern boundary of the island. Where the St. Johns river turns to the west, at the apex of the island, lies Lake Beresford. This lake is set off of the main channel, and may represent a relict channel of the St. Johns. The southern boundary of the island is formed by Snake Creek, a narrow and sinuous channel that has its origins just south of Blue Spring, a first-order magnitude spring, at the Snake Creek cutoff. The western boundary of the island is formed by Hontoon Dead Creek, which today is a relict channel of the St. Johns. The channel is visible on aerial and topographic maps as far south as Pine Island and Goat Island. Today the channel is inactive, having been cut off by the current main channel of the St. Johns River. The northern reaches of Hontoon Dead Creek does receives flow north of its confluence with Snake Creek, at the southeastern end of Hontoon Island. In addition to running surface water, there is a large backwater lagoon situated to the east of the northernmost aspect of the island.

Six specific soil units are present on Hontoon Island: Bluff sandy clay loam, EauGallie fine sand, Immokalee sand, Myakka fine sand, Pompano-Placid Complex soils, and Terra Ceia muck (USDA 1980). These soils are generally conformant with major divisions in vegetation, topography, and hydrology. The interior of the island, above 10 ft amsl, is dominated by Myakka fine sand, with an area of Immokalee sand in the southeast, and Pompano-Placid Complex soils in the northernmost interior wetland. Myakka fine sand and Immokalee sand are typical flatwoods soils situated on marine terraces. They are nearly level and poorly drained. During the summer and fall the water table is within 10-12 inches of the surface, and for the rest of the year it is around 40 inches below the surface. Immokalee sand can be submerged for a month or two in years of high rainfall. Primary vegetation in these areas consists of pine-palmetto communities. The overstory consists of slash pine with a scrubby undergrowth of saw palmetto, gallberry, and fetterbush. On Hontoon Island, the interior flatwoods is managed by prescribed burns, resulting in the dominance of low-lying saw palmetto interspersed with slash pine.

Elevations between 10 and 5 ft amsl are characterized by EauGallie fine sand, a nearly level and poorly drained soil. EauGallie is typical of pine flatwoods, consisting of longleaf and slash pine with an understory of saw palmetto, gallberry, and pineland threeawn. On Hontoon Island this soil is associated with hammocks consisting of cabbage palm and live oak. A typical EauGallie soil profile consists of an upper horizon of fine sand 21 inches thick that grades from black to gray in color, underlain by an increasingly loamy fine sand that grades from black to dark brown fine sand to a depth of 65 inches. Hydrologically, this soil is characterized by a fluctuating water table which is within 10 inches of the surface for upwards of 4 months a year.

Below elevations of 5 feet amsl, there are spatial variations in the types of soils and vegetation communities present. These differences appear to be related to differential hydrologic histories and configurations. From the northeastern end of the island, extending around to the south and approximately midway along Hontoon Dead Creek the dominant soil is Terra Ceia muck. This is a highly organic black muck which is very poorly drained and flat. These soils are typically saturated, with the water table at or above the surface for upwards of nine months, and is typically submerged under upwards of two feet of water during the rainy season. On the eastern and southern ends of the island the soil is present in marshlands, dominated by sawgrass and smooth cordgrass. The southwestern aspect of the island at low elevations is a swamp, characterized by swamp hardwoods such as bald cypress, red maple, sweetgum, and loblolly bay.

North of the Hontoon Dead Creek bend, the soils are dominated by Bluff sandy clay loam, a nearly level and very poorly drained soil. This soil is typical of low terraces bordering the St. Johns river. These areas are typically saturated for much of the year, and may be flooded during the end of the summer rainy season. Vegetation consists of water tolerant plants, such as cattails or sawgrass. On Hontoon Island there are hammocks consisting of cabbage palm and live oak throughout in addition to stands of bald cypress.

The pine flatwoods and hardwood hammocks throughout the interior of the island, as well as the associated uplands to the east of the main channel provide habitat for numerous terrestrial fauna. Those of economic importance to humans include white-tailed deer, black bear, raccoon, opossum, gopher tortoise, and turkey. Numerous species of birds, mammals, reptiles, amphibians, and gastropods also inhabit these zones. Although likely not consumed by the islands inhabitants, such species were incorporated into middens through their death or deposition by predators. One species of terrestrial gastropod in particular, *Euglandina rosea* (the rosy wolfsnail), occurs in notable frequency in the basal deposits of some sites on Hontoon Island. The snail is characterized by an elongate shell, upwards of 6 cm in length. *Euglandina* is a carnivorous snail that preys on terrestrial land snails (Cook 1985a, b). Although the significance of *Euglandina*'s presence is unclear, it is likely to occur in greater frequency where other terrestrial snails are present in great numbers, such as disturbed residential areas or stable disposal surfaces.

The extensive wetlands, lagoons, and channel segments provide habitat for a diverse array of aquatic fauna. Aquatic vertebrates such as alligator, otter, turtle, and upwards of 40 species of fish of economic importance to humans are present. In addition, the wetlands are habitat for several mollusks. Species of economic importance to the inhabitants of Hontoon Island include the gastropods *Viviparus georgianus* (banded mystery snail) and *Pomacea paludosa* (Florida apple snail), as well as the freshwater bivalve (Unionidae). Smaller gastropods such as *Elimia sp.* (rasp Elimia), and the rams horn and mesa-rams horn (*Planorbella sp.*) can be found with these other species. Unfortunately, little detailed information on the habitat preferences, habit, and seasonal life histories of these species is available. It is unknown in what frequencies these species normally co-occur, or whether there is predictable ecological variation in their availability. In general, all species prefer shallow near-shore environments, such as grassy marshes and shallow lagoons (Quitmyer 2001). *Viviparus* prefer soft, muddy substrates with slack water, such as lagoons, creek edges, lakes, and springs (Clench and Turner 1956). *Pomacea* is known to prefer grassy marshes with at least 50 cm of water.

During dry periods, these gastropods aestivate by burrowing into the substrate (Darby et al. 2002).

ARCHAEOLOGICAL CONTEXTS

A number of syntheses of Florida prehistoric archaeological contexts have been issued for the St. Johns Basin (Goggin 1952; Miller 1998; Russo 1990b) and for the state of Florida (Borremans 1990; Milanich 1994; Milanich and Fairbanks 1980; Russo 1990a). These and other locality-specific studies are drawn upon to review the culture history of the middle St. Johns River.

Paleoindian (ca. 12,000-10,000 rcybp) and Early Archaic (ca. 10,000-7000 rcybp)

The late Pleistocene Paleoindian traditions include Clovis, Suwannee-Simpson, and Dalton, which are identified on the basis of diagnostic hafted bifaces. In addition to lanceolate hafted bifaces, the toolkits are characterized by a suite of formal unifaces (Daniel et al. 1986), bola stones (Neill 1971), the "Aucilla adze," and a variety of bone and ivory tools (Dunbar and Webb 1996, Hemmings 2004). Early Holocene traditions dating between ca. 10,000 and 9000 rcybp are identified by Side-Notched and Corner-Notched Bolen points (Bullen 1975). Aside from changes in hafted biface morphology and the addition of new tools, the toolkits of these horizons are consistent with Paleoindian forebears, particularly Dalton.

Today these sites are typically restricted to inundated contexts such as drowned river segments (Dunbar et al. 1988; Faught 2004), sinkholes (Clausen et al. 1979), or perched basins and depressions (Daniel and Wisenbaker 1987; Neill 1964; Sassaman 2003c). A trend towards increased surface water ca. 10,000 rcybp, and subsequent settlement expansion is attested by Early Archaic diagnostics at Late Paleoindian sites, as well as small numbers of Early Archaic diagnostics in previously uninhabited localities. In general, they are redundant and may represent frequent residential mobility (Milanich 1994). Noting the co-occurrence of Paleoindian artifacts and karst topography in northwest Florida, Dunbar and Waller (1983) posited the "Oasis" hypothesis, that in effect Paleoindian populations were tethered to karst regions, abundant in toolstone and reliable surface water. Although this model matches the general distribution of early components, Paleoindian and Early Archaic diagnostics have been recovered from the St. Johns Basin (see below).

Between 9000 and 7000 rcybp Florida's Archaic traditions remain poorly defined (Austin 2004a; Milanich 1994). Stemmed points, consistent with the Kirk Stemmed type and locally referred to as Kirk, Wacissa, Hamilton, and Arredondo (Bullen 1975) are distributed throughout the North, Central, and Gulf Central portions of the state, often in similar localities as early forms (Milanich 1994). Stratigraphic excavations at Harney Flats (Daniel and Wisenbaker 1987), West Williams (Austin 2004b), and Trilisa Pond (Neill 1964) indicate an increase in the diversity of unifacial technology.

This period also witnesses the establishment of a long-standing tradition of pond burials. Individuals were interred in shallow bodies of water such as ponds or sinkhole margins. Windover Pond (ca. 8200-6900 rcybp) in Brevard County represents the earliest and is the most thoroughly investigated pond mortuary in the region (Doran 2002). These sites are typified by large numbers of individuals: 168 were recovered from Windover. Outside of the middle St. Johns pond burials continue into the Middle Archaic.

In general, Paleoindian and Early Archaic sites are underrepresented within the study area (Sassaman et al. 2000). Several factors may account for this, including a lack of adequate toolstone as well as fewer surveys of submerged contexts. In the St. Johns Basin, early sites are expected to occur adjacent to first-magnitude springs fed by the Floridan Aquifer, including Salt Springs, Silver Glen Springs, Juniper Springs, Fern Hammock Springs, Green Cove Springs, Beecher Springs and Blue Spring (Miller 1998:84). The few known sites and isolated finds that have been documented seem to fit this overall pattern (Sassaman et al. 2000). More recently, a survey of Crescent Lake has demonstrated that there is great potential for recovering early assemblages in the region (Sassaman 2003c). Crescent Lake is a perched water source that was well-watered throughout the late Pleistocene and early Holocene. Collector surveys and near-shore survey of submerged contexts revealed the presence of numerous early diagnostics. There is apparently great potential for submerged early contexts throughout the study area.

Middle (ca. 7000 - 5000 rcybp) and Late (ca. 5000-2500 rcybp) Archaic

Several environmental and social trends define the Middle and Late Archaic. In broad terms the Middle and Late Archaic periods are coeval with increasingly wetter conditions of the Middle Holocene, with essentially modern conditions occurring by the end of the Late Archaic. Sites of this period are found throughout much of Florida, and for the first time are located in the interior forests, along the St. Johns River and the Atlantic Coastal Lagoon (Milanich 1994:77). Lifeways predicated on intensive shellfishing are present in the St. Johns by 6000 rcybp and no later than 5,600 rcybp on the northeast coast of Florida (Russo 1996b). The distribution of sites reflects an overall increase in available surface waters and the exploitation of new habitats, as well as a probable increase in population. By 5000 rcybp regionalization is evident across Florida, as Late Archaic populations expanded into new territories. These new traditions, focused particularly on wetlands, resulted in increasingly larger populations and more permanent settlements (Milanich 1994:87).

Throughout Florida, changes in material culture, including projectile point styles and the appearance of pottery, are used to delineate subperiods and local traditions. In the middle St. Johns several subperiods have been defined, including the Newnan Horizon, the Mount Taylor culture, and the Orange period. Additionally, the “preceramic Archaic” is a generic term denoting Middle to Late Archaic traditions dated between 7000 and 4200 rcybp which were without pottery technology. Archaeologists typically assign sites to the preceramic Archaic when Archaic-age assemblages lacking diagnostic artifacts are recovered.

Newnan Horizon (7000-5000 rcybp) Across much of Peninsular Florida researchers have recognized the Newnan Horizon, characterized by short, narrow stemmed, broad bladed chipped stone hafted bifaces (Milanich 1994:76). A number of types have been defined, including Newnan, Marion, and Putnam (Bullen 1975). There is significant variation in the form of stemmed hafted bifaces from this period, leading to a less formal designation of the "Florida Archaic Stemmed" type, which includes any broad-bladed stemmed hafted biface. Lithic artifacts during this period were typically manufactured from thermally altered chert or silicified coral (Ste. Claire 1987). Dates place Newnan sites between 7000 and 5000 rcybp (Milanich 1994:77), although similar forms were likely produced into the Late Archaic.

Settlement in interior Florida, which contains much of the available chert and silicified coral for the production of stone tools, is characterized by a dichotomy between large, diverse assemblages and small lithic scatters. The large sites have been interpreted by Milanich (1994:79) as indicative of reduced seasonal mobility. Austin (2001) suggests, however, that the larger sites likely represent more intensive short-term reduction episodes near raw material outcrops. Several quarries have been identified, including the Senator Edwards site in central Florida (Purdy 1975). Newnan horizon hafted bifaces are routinely recovered in shell midden contexts along the middle St. Johns. The lack of toolstone in the middle St. Johns precludes their local production. Lithic provenance studies indicate that chipped stone tools were being imported into the region from West and Central Florida (Austin and Estabrook 2000).

Mount Taylor (ca. 6000-4200 rcybp) The Mount Taylor culture (ca. 6000-4200 rcybp) has been defined to describe the intensive late Middle Archaic and early Late Archaic occupation centered on the extensive wetlands of the middle St. Johns River, the adjacent Ocklawaha and Wekiva rivers, and associated Atlantic Coastal Lagoon (Goggin 1952; Wheeler et al. 2000). This is an archaeological construct, and it refers to a suite of site types and diagnostic artifacts. Many of the lifeways set in motion during this period, including subsistence practices and site selection, continued through European contact. Although the broad details of lifeways are known for this period, the Mount Taylor culture remains still remains poorly understood for several reasons. Mount Taylor period components are typically buried deeply under later components or submerged under alluvium or peat deposits. Moreover, many sites of this period have been destroyed or impacted by modern land-use practices. The majority of shell mounds appear to have been mined in part or whole for road fill during the middle of the 20th century (Milanich 1994).

Settlement patterns during this period are not well known (Wheeler et al. 2000). Seasonality studies of late Middle Archaic sites in the coastal Timucuan Preserve (Russo et al. 1993) suggest that these areas likely had well-established patterns of movement within these localities. Although this does not preclude movement either within the middle St. Johns, or to the Atlantic coast or interior, it does suggest that populations were relatively circumscribed. Based on botanical remains and hydrology, Grove's Orange Midden has been interpreted as being occupied multiseasonally (Russo et al. 1992). It is presumed that the large middens throughout the middle St. Johns represent multiseasonal to permanent year-round base camps that articulate with smaller task and season-specific localities (Wheeler et al. 2000).

Mount Taylor sites are present throughout the middle St. Johns Basin (Sassaman et al. 2000). Although sites are located adjacent to the main channel of the St. Johns, many are situated adjacent or within low-lying swamps or marshes. Wheeler et al. (2000) suggest that there are several general configurations, including ovoid midden-mounds, ridges of shell, complexes of shell fields, ridges, and mounds in addition to small, diffuse middens. The configuration of Mount Taylor occupations is made less clear in multicomponent sites, where Mount Taylor assemblages are partially or completely obscured by later deposits (Wheeler et al. 2000).

At sites that have been intensively studied, it is unclear how these sites are internally organized, and whether there are specific areas for habitation, refuse disposal, or other tasks. To date, no evidence for habitation structures has been identified. Along with the occasional post-mold, features that have been recorded at large sites such as the Lake Monroe Outlet Midden (8VO53) (Archaeological Consultants 2001) and Fort Florida (8VO48) (Johnson 2002) tend to be large shell-filled basins. Further evidence comes from the Lake Monroe Outlet midden, where lithic reduction tasks were apparently segregated from domestic refuse or processing tasks (Scudder 2001). Stratigraphically, Mount Taylor middens are characterized by shell midden lenses, typically composed of whole and crushed *Viviparus*, *Pomacea*, and bivalve. Strata can be composed of a mixture of the these taxa, or as concentrations of a single taxa. In many cases individual strata are composed of a single taxa, which may be burned, whole, or crushed. Another feature of Mount Taylor sites is the presence of concreted midden (Wheeler et al. 2000), which can occur either as thick, extensive lenses or as localized conglomerates. It has been suggested that concreted midden is formed by the interaction of ash, shell, and percolating water.

In addition to basal deposits of concreted midden, Mount Taylor sites typically contain saturated or submerged components up to a meter in thickness that appear to have been inundated after formation. Due to the cost and time involved in dewatering and excavating saturated deposits, these have only rarely been investigated. Wet site investigations of Mount Taylor age are limited to Groves' Orange Midden (8VO2601), a Mount Taylor and Orange period site on the eastern shore of Lake Monroe where archaeological deposits extend over 30 m into the lake (McGee and Wheeler 1994). The site is a segment of the much larger multicomponent Old Enterprise mound and shell field complex (8VO55). Stratigraphic excavations yielded five discrete strata. The earliest primary deposition (Stratum IV) dates roughly between 6000 and 5000 rcybp and is characterized by dense *Viviparus* midden. These early dates are supported by a date from 6200 rcybp from the base of Live Oak Mound (Sassaman 2003a), indicating that the establishment of wetland habitat and its exploitation by residents of the middle St. Johns occurred by at least 6200 rcybp, if not before. At Grove's Orange midden, this basal stratum underlies a thick peat deposit (Stratum III) which dates 5000 and 4300 rcybp (McGee and Wheeler 1994). This peat is thought to represent a seasonal marsh, which suggests a high water stand. Rare artifacts within this stratum attest to shifts in refuse disposal that likely relate to micro-environmental changes. Above this peat deposit is another dense *Viviparus* midden, dated between 4300 and 4100. These data not only demonstrate the variability in surface waters through time, but also demonstrate that much of the early record of the Preceramic Archaic lifeways is likely submerged and covered along Florida's lakes and rivers.

Ceremonialism was well developed in Mount Taylor culture, as evidenced by the construction of ceremonial shell mounds. Although traditionally viewed as relatively late-period constructions or the result of mundane activities (Milanich 1994), a consideration of early observations by Jeffries Wyman (1875) and C.B. Moore (1999), and more recent excavations at Bluffton (8VO22) and Mount Taylor (8VO19) mounds (Wheeler et al. 2000) the Harris Creek site (8VO24) on Tick Island (Aten 1999), Live Oak Mound (8VO41) (Sassaman 2003a), and the Tomoka Mound complex (8VO81) (Piatek 1994) on the Tomoka River demonstrate that many mounds were deliberately constructed during Mount Taylor times. Although Mount Taylor burials have only been recorded in a few cases (Endonino 2003a), similarities in the form and internal structure of these mounds indicates that many if not all were mortuaries.

Although only five mounds have been archaeological tested in modern times (Bluffton, Mount Taylor, Harris Creek, Live Oak, Tomoka), many more likely existed prior to their destruction during the 20th century. That many of the mounds contained preceramic deposits was well documented by Jeffries Wyman (1875). Wyman, then curator of Harvard's Peabody Museum, made extensive collections and observations of shell-bearing sites throughout the middle St. Johns River between 1860 and 1873. Through pedestrian surveys and collections, observations of cut-banks, and small excavations, Wyman recorded over 40 ridges, ridge complexes, and conical mounds throughout the basin. Later in the 19th century, C.B. Moore (1999) revisited many of these sites. His more intensive excavations provide both a confirmation of the preceramic origins of many mounds, as well as documented the stratigraphic sequences and mortuary nature of these sites.

Most mounds share similar external configurations and internal sequences (Endonino 2003a; Wheeler et al. 2000). Although they vary in size, Mount Taylor mounds appear to be of two different shapes. Many mounds are crescent-shaped ridges, with steeply sloping sides and asymmetrical summit mounts 5 to 11 m tall. Others, such as Bluffton and the Thornhill Lake mounds (8VO58) are round, truncated cones. Some of this variation may be due in part to later occupations above the Mount Taylor components. With some variations, a routine sequence has been identified. Where the cores of these mounds have been documented they typically have a basal shell layer. In the case of Bluffton this layer was intentionally burned (Wheeler et al. 2000). Small earthen mounds of allocthonous white sand or muck were then constructed on this midden. Burials were then placed into these deposit. In the case of Bluffton there was only a single interment, while at Harris Creek over 140 burials were likely interred over a period of time. Although grave goods are rare in some contexts (Aten 1999), some individuals such as at Thornhill Lake were interred with exotic artifacts. Subsequent to interment, the earthen mound was capped with shell, which in some cases was clearly excavated from preexisting midden deposits (Aten 1999; Piatek 1994). These capping episodes appear to have been repeated, possibly during major ceremonies or festivals (Sassaman 2003a).

The importance of wetlands is evident not only in the placement of sites, but in the subsistence remains. Mount Taylor lifeways were characterized by fishing-hunting-subsistence economy. Faunal analysis at Grove's Orange Midden (Russo et al. 1992; Wheeler and McGee 1994), Lake Monroe Outlet Midden (Quitmyer 2001), and Blue Spring Midden B (8VO43) (Sassaman 2003a) demonstrate the dominance of aquatic species, which could have been acquired from marshes, slackwater lagoons, and sloughs. Although it was once thought that shellfish contributed a small percentage of the diet, recent studies indicate that between 33 and 98 percent of the dietary meat weight was derived from freshwater shellfish. Studies have shown that shellfish diversity varies with site contexts, and may reflect local ecological variations (Quitmyer 2001). A diverse array of fish were collected, including catfishes, sunfish (*Lepomis sp.*), gar (*Lepisosteous sp.*), largemouth bass (*Micropterus salmoides*), and eel. Turtle was also collected, including such species as the soft shelled turtle (*Apalone ferox*), sliders, and mud/musk turtles.

Where waterlogged conditions have enabled the preservation of plant matter, such as at Groves Orange Midden (Newsom 1994; Russo et al. 1992) and Windover Pond (Newsom 2002) a stable pattern characterized by high diversity is established by no later than 8000 rcybp Pulpy fruits such as black gum, prickly pear, saw palmetto, maypop, wild plum, blackberry, persimmon, red mulberry, elderberry and grape appear to have been the most important (Newsom 2002). These fruits were supplemented with starchy seeds such as amaranth, pigweed, and knotweed, as well as the greens from these and other species. Numerous tubers were potentially eaten. Cabbage palm hearts and shelf fungi have also been identified (Newsom 2002).

Mount Taylor period assemblages are typified by mundane and decorative material culture manufactured from locally available bone, fired clay, and wood, in addition to exotic materials (Wheeler et al. 2000). Bones from deer and other terrestrial animals were used to make a variety of tools including gouges, awls, needles, fids, projectile points, and decorative pins. Wooden tools have been recovered from saturated deposits such as Groves' Orange Midden (Wheeler and McGee 1994) and include tool handles and net floats. Fired clay objects of various shapes and sizes have also been recovered from numerous contexts.

Nonlocal materials used to manufacture tools and items of adornment speak to the extensive trade networks which Mount Taylor groups were engaged in. Marine shell demonstrates contact or movement to coastal regions. Shell tool assemblages are dominated by woodworking tools, including *Busycon sp.* axes and adzes, as well as celts made from *Strombus gigas* shell. Marine shell was also used to make containers, which are often recovered with residue adhering to the interior surfaces, as well as awls and net mesh gauges. Decorative shell artifacts are also typical, and include marine shell beads and plummets made from large whelk columella, as well as decorative shells such as *Oliva sp*. Shark teeth are often recovered. Many have been drilled to facilitate hafting for use as a tool or as personal adornment. Contact with the interior and west coast is demonstrated by the presence of lithics. There is no source for raw material for chipped stone tools in the St. Johns basin, and many artifacts appear to have been traded into the region in whole and finished forms. Hafted bifaces are consistent with those of the Newnan horizon. Aside from hafted bifaces, Mount Taylor lithic assemblages are dominated by unifacial tools that appear to have been used for a wide range of applications including perforating, scraping, and cutting (Archaeological Consultants 2001).

The presence of ground stone beads and bannerstones provides evidence for contacts more far afield. Groundstone beads have been recovered from several mortuary and cache contexts, (Thornhill Lake mounds 1 and 2 [Moore 1999] and Coontie Island respectively [Clausen 1964]). Although their origins are unknown, they are quite similar to tubular beads produced in Mississippi and the Mid-south during the Middle Archaic. Bannerstones have been recovered from several mound contexts, including Thornhill Lake, Tomoka Stone, and Coontie Island. The forms are consistent in form and raw material with those manufactured in the Middle Savannah River in Georgia and South Carolina (Sassaman 2004).

Orange (4200-3500 rcybp) and Early St. Johns (3500-2500 rcybp) The appearance of pottery in shell middens of the St. Johns River and Atlantic Coastal Lagoon signals the end of the preceramic traditions and the beginning of the pottery producing traditions. Orange tradition fiber-tempered pottery has been dated as early as 4200 rcybp in the lower St. Johns, although pottery does not appear in the middle St. Johns until 200 years later (Sassaman 2003d). By 3500 rcybp fiber-tempered pottery ceases to be manufactured, signaling the end of the Orange period, and is wholly replaced by spiculate-pasted wares. Once thought to be diagnostic of the St. Johns period, radiocarbon dates (Sassaman 2003d) and paste characterization studies (Cordell 2004) demonstrate that spiculate pottery was produced as early as 4000 rcybp and continued through the end of the Late Archaic and into the St. Johns Period.

Orange period lifeways have been portrayed as continuing the basic trends set in motion during the preceding preceramic. Excluding the production of pottery, and new hafted biface types such as the Culbreath, Lafayette, Clay and Levy types (Milanich 1994), continuity is suggested by the continued use of marine shell and stone tools, although marine shell does appear in reduced frequency at some sites. As evidenced by subsistence data from Blue Spring Midden B (Sassaman 2003a) and Grove’s Orange Midden (Russo et al. 1992), populations continued to exploit aquatic habitats (Quitmyer 2001; Russo et al. 1993; Russo et al. 1992), routinely collecting from local shellfish beds, and capturing fish and turtles.

The economic importance of wetlands is further demonstrated by the continued focus of settlement adjacent to the river. Milanich (1994:86-87) asserts that differences in Orange site distributions reflect changes in demography and not basic lifeways. Orange sites are most likely to be found along productive wetlands and marshes, often in the same locales as earlier preceramic components, while there is a decrease in sites in the interior forests of northern Florida. The more numerous and larger Orange components may very well reflect an overall increase in population. This observation, however, must be tempered by the fact that preceramic components may not be adequately recorded due to inundation, stratigraphic ambiguity, or a lack of diagnostic artifacts.

Although there certainly is significant continuity, divergence in traditions within the St. Johns is clearly evident during Orange times (Sassaman 2004). The upper St. Johns is characterized by smaller sites that taken as a whole system constitute year-long settlement (Sigler-Eisenberg et al. 1985). In the lower St. Johns large, presumably multi-seasonal middens are surrounded by smaller probable fish-processing stations (Russo et al. 1993). In addition to these habitation areas, large shell rings have been identified both at the mouth of the St. Johns and along the coast (Russo and Heide 2001; Russo et al. 2002). These sites were likely accretionally but intentionally constructed, and were the loci of communal feasting and ritual activities (Russo 2004; Saunders 2004).

Settlement in the middle St. Johns has been less well documented, but it appears to replicate Mount Taylor site types, characterized by a dichotomy between extensive middens, mound complexes with abundant pottery, and small task sites. Because these sites have not been routinely investigated, data on their internal organization and function are scarce. Sassaman (2003a) has identified a possible Orange period semi-circular compound at Blue Spring Midden B. The compound was situated above a Mount Taylor midden and adjacent to a Mount Taylor mound. Three households and their associated refuse piles were identified. Although seasonality data has not been forthcoming, the site was repeatedly reoccupied, and potentially permanently settled. Extensive Orange pottery assemblages have been recovered from mound complexes such as Bluffton, Harris Creek on Tick Island, and Old Enterprise. It is not clear, however, whether or not Orange communities in the middle St. Johns actively mounded shell as their coastal neighbors did. At Bluffton the pottery was deposited adjacent to and not on top of the mound (Wheeler et al 2000). In excavations at Live Oak Mound, Sassaman (2003a) recovered only a small number of sherds, all from near the surface. This validates the observations of Wyman, who rarely observed thick deposits of pottery-bearing shell midden. While ceremonial activities likely occurred in these places that were clearly sacred to Mount Taylor communities, there is no clear evidence that Orange communities continued the tradition of mound building in the middle St. Johns.

Orange fiber-tempered pottery has been viewed typically as a chronological marker. Bullen (1972) constructed five subperiods, based on changes in vessel construction and surface decoration. The unilineal sequence consisted of a transition from Orange Plain to incised (Orange Incised and Tick Island) wares, which were eventually replaced by spiculate-tempered St. Johns Incised vessels. However, radiocarbon dates have shown that variation in tempering agents, vessel form, and surface treatment likely reflect spatial variation in the production and use of pottery (Cordell 2004; Sassaman 2004), not temporal trends as once thought. That is, periods 1-3 are coeval, and must be explained in terms of spatial patterns (Sassaman 2003d). Sassaman (2004) suggests that village sites such as Blue Spring Midden B are dominated by plain pottery that was rarely used over fires, while large and complex sites such as Harris Creek and Silver Glen Run are dominated by incised vessels that were routinely used over fire. He suggests, as Saunders (2004) does for the coastal Orange shell rings, that the different distribution likely represents different social contexts, where plain pottery was used in mundane contexts, and incised pottery was used primarily during ceremony and communal feasts.

The recent upheaval in the chronology and typology of fiber- and spiculate-tempered wares has left an approximately 1000 year gap between the Orange and St. Johns I periods. A "Transitional" period was defined by Bullen as a bridge between primarily fiber-tempered assemblages and incised spiculate-tempered wares (Milanich 1994:88). Isolating sites of this period has remained problematic (Miller 1998:76), likely because many of the wares thought to occur after the Orange period are actually coeval. Although the term "Transitional" should be discarded, there is a need to document sites of this period. An early date of 3500 rcybp on a spiculate-tempered assemblage at the Joseph Reed Shell Ring (8MT13) in southern Florida (Russo and Heide 2002) indicates that this interval will likely be populated with components as more dates are acquired.

St. Johns (ca. 2500-500 rcybp)

Although St. Johns pottery dates as early as 4000 rcybp, fully developed St. Johns culture begins around 2500 rcybp and continues into European contact. The archaeological culture was defined by Goggin (1952), who used changes in pottery styles to identify subperiods. The St. Johns I (ca. 2500-1250 rcybp), is typified by plain "chalky" spiculate-tempered wares, and the St. Johns II (ca. 1250-500 rcybp), typified by plain and check-stamped varieties. These ceramic types are formally referred to as St. Johns Plain and St. Johns Check Stamped, respectively. Additional subperiods have been identified by the presence of foreign wares or local copies of them, as well as changes mortuary ritual (Milanich 1994:247): St. Johns I (2500-1900 rcybp), Ia (1900-1500 rcybp), Ib (1500-1250 rcybp), IIa (1250-950 rcybp), IIb (950-487 rcybp [A.D. 1050-1513]), and IIc (A.D. 1513-1565). As Miller (1998:79) notes, however, these divisions are not easily traced because the diagnostic artifacts or sites are rare.

Although there are clearly numerous changes in social organization, material culture, and ceremonialism, that were incorporated from external contacts, the St. Johns period is actually marked by conservatism (Miller 1998:78). Along the St. Johns River, St. Johns I and to a certain extent St. Johns II lifeways continued seemingly unchanged "from that of their late Archaic, Orange-period predecessors" (Milanich 1994:254). In part this is due to the overall similarity in environments through time, as essentially modern conditions were established by the end of the Orange period. Regional studies indicate that St. Johns I components are likely to be found on sites with Orange components, and this trend continues with a similar frequency of reoccupation for St. Johns II components (Miller 1998; Sassaman et al. 2000). Year-round villages, short-term task sites, and large ceremonial mounds are present throughout St. Johns River and its tributaries, and along the coastal lagoons from Jacksonville into Brevard County. Although equally distributed on the coast and along the St. Johns, St. Johns period sites are also located in interriverine localities. Increases in population from Orange to St. Johns II times are suggested by increases in sites per century. Unfortunately, village contexts have rarely been excavated, so it is unknown how large the residential populations of each these places may have been.

Continuity with Orange period subsistence practices is also evident. Coastal assemblages are dominated by oyster and coquina, in addition to estuarine fishes (Milanich 1994: 257). Subsistence data from the St. Johns period wet site deposits at 8VO202 on Hontoon Island indicate that populations continued to focus on the collection of aquatic resources, such as gar, catfish, largemouth bass, alligator, and turtle, in addition to *Viviparus* and bivalve (Wing and McKean 1987). A wide array of plants were also exploited, including many that were collected during the preceding Archaic (Newsom 1987). Cultigens that supported large populations and complex forms of social organization elsewhere in the Southeast occur in relatively limited frequencies. Bottle gourd (*Langeria siceria*) seeds and rind fragments and *Cucurbita pepo* gourd fragments were recovered in St. Johns II contexts, although these were likely used for containers or net floaters. Maize, a staple throughout much of the Southeast by St. Johns IIb times, was only present in historic contexts. Although cultivation or encouraged gardening may have been practiced, it does not appear to have been widespread or intensive in the middle St. Johns.

Changes in material culture throughout St. Johns I and II times were primarily restricted to pottery decoration and hafted biface types (Milanich 1994:247, 263). Hafted bifaces were typically small and crude, and include the Jackson, Florida Copena, Bradford, Columbia, Broward, Taylor, Westo, Florida Adena, Gadsen, Sarasota, and Ocala types (Bullen 1975). Plain St. Johns wares dominate St. Johns I components. Locally produced Dunns Creek Red vessels were produced during Ia and Ib times, while during Ia copies of Deptford and Swift Creek and during Ib Weeden Island vessels were produced. These often were deposited in mortuary contexts. At A.D. 750, potters began to apply check-stamped designs with wooden paddles. During IIa times, late Weeden Island pottery and copies were made, while elements of the Southeastern Ceremonial Complex are evident in IIb assemblages. During St. Johns IIa or IIb times, there is a shift to the use of small hafted bifaces such as Pinellas, Ichetucknee, and Tampa Points. Other tools found throughout St. Johns period assemblages were shell adzes, celts, picks and hammers. Bone tools include a variety of awls, pins, pendants, beads, and fishhooks.

While subsistence and technology remain relatively unchanged, ceremonial and political life clearly changed in relation to external contacts (Goggin 1952, Milanich 1994:260-262). Mounds of the St. Johns I period were low, truncated cones constructed of sand. Bundle burials, extended interments, and cremations were placed into the mound. Many mounds were reused for multiple interments, which may indicate that interred individuals were members of the same lineage, as in Weeden Island mounds. During the St. Johns Ia period, larger mounds were constructed, and exotic items such as galena and copper were interred, along with locally made St. Johns Plain and Dunns Creek Red pottery. Towards the end of Ia, Hopewell influences are evident in the construction of log tombs. Mounds of Ib age show evidence for Weeden Island influences. St. Johns IIa mortuary practices appear similar to earlier practices in that they continue to be used for multiple, likely kin-based burials (Milanich 1994:268).

Beginning with the St. Johns IIb subperiod, the construction of mounds takes on a different character, and is clearly influenced by Mississippian cultures to the north and west. Although it is unknown precisely what level of social organization was present at this time period, the symbolism and quantity of material culture is similar to chiefly societies elsewhere in the Southeast at this time. At least three large pyramidal mounds were present in the middle St. Johns basin, including Shields, Mt Royal, and the Thursby Mound located across the St. Johns channel from Hontoon Island. These sites were large earthen works, likely constructed in stages. C.B. Moore (1999) excavated all of these sites, and recovered caches of copper, galena, silver and gold, *Busycon* shells, greenstone celts, and clay vessels and effigies in addition to scattered or poorly preserved human remains. The silver and gold attest to these sites being occupied into the European contact era (Milanich 1994).

CHAPTER 3
HONTOON ISLAND NORTH (8VO202)

Kenneth E. Sassaman, Asa R. Randall, Meggan E. Blessing, and Peter R. Hallman

The remains of a massive shell ridge-and-mound complex at the north end of Hontoon Island is recorded in the Florida Master Site File as 8VO202, Hontoon Island Midden. This ascribed name understates the enormity of the shell and earth constructions that once covered this portion of the island, and it provides no help in spatially discriminating this complex from all others on the island. Thus, site 8VO202 is herein renamed "Hontoon Island North," the chief ridge-and-mound complex on the island and a locus of mapping and testing by the 2003 and 2004 St. Johns Archaeological Field Schools.

After reviewing previous work at Hontoon Island North, we describe in this chapter the results of a three-prong strategy of mapping, shovel testing, and stratigraphic excavation conducted in 2003, followed by limited horizontal excavations at the base of the deposit in 2004. The overall aim of the field work was to locate and assess the extant portions of this badly damaged site, with particular emphasis on documenting intact basal components. As we have seen at virtually all shell-bearing sites in the Hontoon Island and Blue Spring area, basal components at Hontoon Island North date to the Middle Archaic Mount Taylor period. The site to date has been regarded as a largely St. Johns midden and mound complex, postdating the time of Christ. Our results suggest instead that most of the shell and associated materials at Hontoon Island North accumulated much earlier, and that St. Johns deposits are limited to remnants of the apex of the largest ridge, a submerged component in the lagoon, and what little remains of a smaller, outer ridge that once-fronted the St. Johns River.

PREVIOUS INVESTIGATIONS

Hontoon Island North was investigated in the 1860s by Jeffries Wyman (1875), visited but not excavated by Clarence B. Moore (1893, 1894) in the 1890s, and tested for wet-site deposits by Barbara Purdy (1987, 1991:102-138) on several occasions in the 1980s. The 2001 St. Johns Archaeological Field School conducted limited shovel testing at the site (Endonino 2003b) in advance of more extensive work in 2003 and 2004.

Jeffries Wyman

In his 1860s expeditions to the St. Johns River valley, Jeffries Wyman (1875:28-30) described the original configuration of a massive ridge-and-mound complex at the north end of Hontoon Island. He notes that the St. Johns River at this spot passed through two sets of mounds, the one to north known as Thursby Mound (and later excavated by Moore), and the one to the south, on the island, consisting of two shell ridges and two conical mounds. The shell ridge fronting the river on the south side was estimated by Wyman to be 600 feet long and 12-14 feet high. The river had already eroded the length of this ridge, leaving the sheer, cut-bank profile that appears in a photo published by Moore (1894). The western end of this same ridge also terminated abruptly at a lagoon. The opposite end sloped gradually toward a second, much larger lagoon.

To the rear (landward and south) side of this first ridge Wyman observed a second, larger ridge. A “deep valley” separated the two parallel ridges (Wyman 1875:28) by about 100 feet. The eastern end of the rear ridge was at least 25 feet tall when Wyman observed it. No further details about the size and shape of this feature can be inferred from his short account, but Wyman does add that two conical mounds of sand and shell were located to the “rear of the eastern end of the inner ridge,” the larger of the two estimated at 25 feet in height. Wyman dug a five-foot-deep hole at the apex of the smaller mound, and a trench 4 to 6-feet wide, 2 to 4-feet deep, was dug up the side of the larger mound to its apex. Fragmented human bone and pottery sherds were found in the upper two feet of his excavations. Only *Viviparus* and *Pomacea* shell was observed in deeper mound fill. Although he apparently did not uncover articulated human remains, Wyman speculated that both conical mounds were probably burial mounds.

Shell mining in the 1930s has erased most of the features that Wyman observed, although surviving elements of the “inner ridge” provide a glimpse into the size and orientation of at least part of this complex (see section on mapping below). Using Wyman’s descriptions and extant ridge remnants as points of reference, Ray McGee was able to project the probable configuration of the entire complex onto the modern land surface (Purdy 1991:106). A modified version of McGee’s projection is provided in Figure 3-1 along with the modern low-water level of the St. Johns River and other features discussed in turn below.

McGee’s projection suggest that about one-third of the plan area of the site was destroyed by mining and river erosion. The north or “outer” ridge would have originally extended farther into the modern channel of the St. Johns River, where Moore observed a cutbank at least 12 feet high. An estimate of the position of this cutbank is given in Figure 3-1. Insofar as Wyman observed a similarly steep bank at the west end of this outer ridge, the cutbank must have turned south, forming the eastern edge of one of two lagoons Wyman noted. One implication of this channel erosion is that the outer ridge began to form either in the channel or when water levels were well below present levels. This latter implies that the channel was much narrower than it is today, and/or that the northern bank has since aggraded as the channel migrated southward. With water levels lower than at present, the lagoon at the west end of the outer ridge must also have been at lower elevation than today. At least one meter of muck has accumulated in the cypress swamp to the immediate west of Hontoon Dead Creek Mound (8VO214), burying a shell midden estimated to date 6040 ± 70 rcybp (see Chapter 4). That so much muck accumulated over a period when water levels saw a net increase suggests that the area experienced periods of draw down of sufficient duration for peat and other macro-organics to oxidize and decompose. The outer ridge at Hontoon Island North may have started to form during one of these later draw downs, but it would have done so without the benefit of permanently impounded water in the adjacent lagoon.

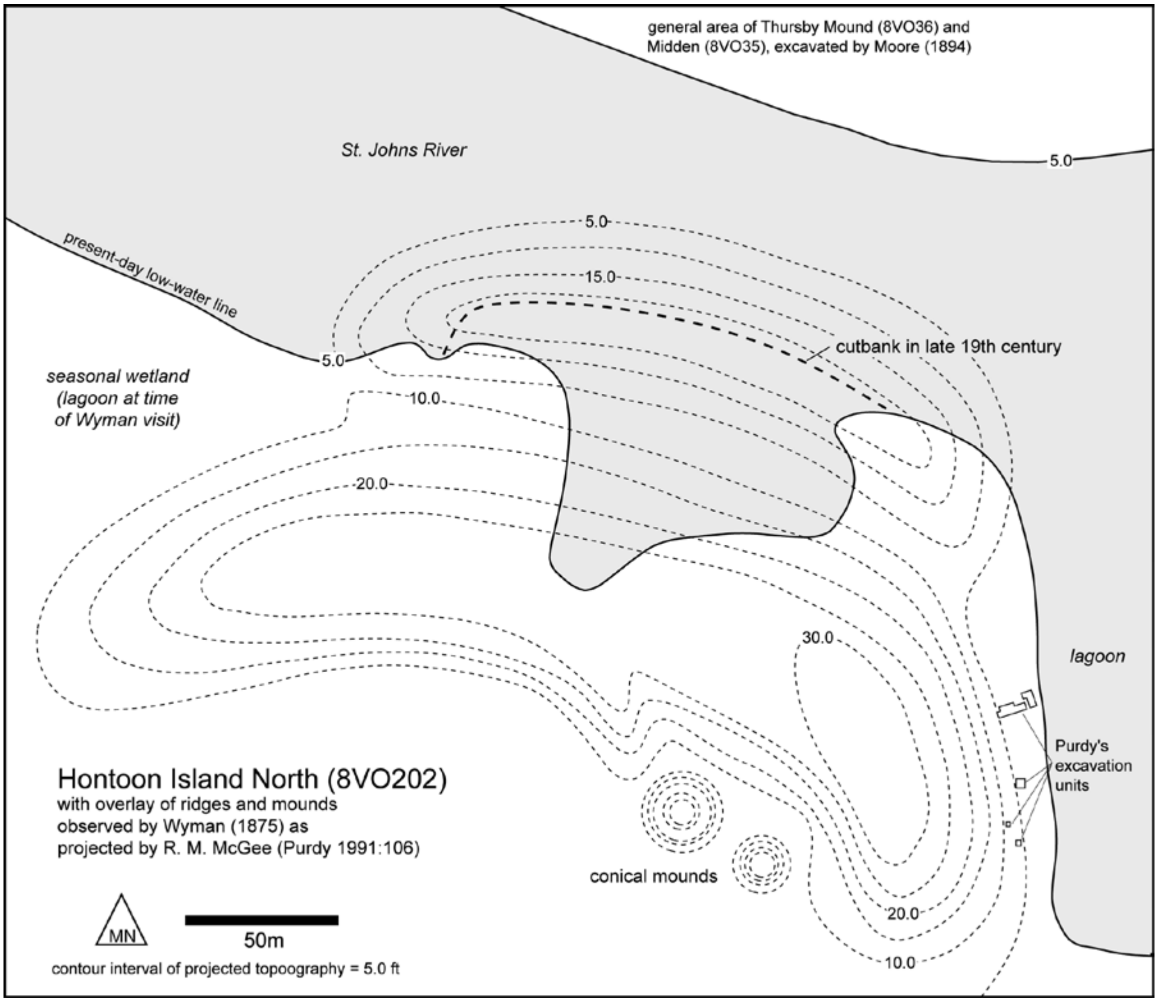

Figure 3-1. McGee's Projection of the ridge-and-mound complex described by Wyman (1875), showing locations of present-day low-water lines, the Thursby Mound (8VO36) and Midden (8VO35) across the river, Purdy's excavation units, and the probable late-19th century cutbank observed by Moore (1984).

Clarence B. Moore

The Thursby Mound (8VO36) and associated midden (8VO35), on the bank opposite Hontoon Island, were excavated by C. B. Moore in the early 1890s. His request to dig into the ridges and mounds on Hontoon Island were denied by the landowner, Mr. G. A. Dreka. However, it appears that Moore visited the island and made surface collections at the two conical mounds described by Wyman. Confusion surrounds the locations and designations of these two mounds. Purdy (1991:104) lists these features as 8VO182 and 8VO183, but the Florida Master Site Files locates 8VO182 in the seasonal wetlands to the west of Hontoon Island North. Repeated searches in the mapped location of 8VO182 revealed no traces of a mound, so we assume it is simply mislocated in the site files. Site files documentation indicates that Moore collected materials from both 8VO182 and 8VO183, which were donated to the Academy of Natural Sciences and subsequently accessioned by the Wagner Free Institute of Science. Given that Wyman makes no mention of mounds to the west of Hontoon Island North, we assume that 8VO182 and 8VO183 are the two sand-and-shell mounds that Wyman recorded to the "rear" of the inner shell ridge. When the site files were established by John Goggin in the 1950s, mounds were assigned distinct numbers even if they existed within the confines of larger sites. This appears to be the case for the two mounds noted by Wyman, which are within the bounds of 8VO202, Hontoon Island North. For all intents and purposes, 8VO182 and 8VO183 are defunct site numbers whose records can be subsumed under 8VO202. Furthermore, the location of 8VO182 in the site files appears to be erroneous and needs to be struck from the record.

Purdy's Expeditions

Over seven periods of field work in the 1980s, Barbara Purdy and colleagues from the University of Florida delved into the saturated deposits along the edge of the inner ridge that remained after shell-mining operations in the 1930s removed most of the shell-and-ridge complex. Shell mining presumably began with the removal of the cutbank along the outer ridge (Figure 3-1), and then proceeded to the inner ridge from an access point that now serves as the harbor for the park. Mining of the inner ridge was much more complete along the eastern aspect, location of the apex, than along the western aspect, where concreted midden and areas of limited shell may have discouraged further excavation. An apron of intact ridge enclosing the deep mining pit at the eastern end of the inner ridge was the focus of Purdy's work. Fronting water to the east, this portion of intact ridge trailed off into the lagoon and provided an opportunity for the recovery of organic deposits with remarkable preservation.

Evidence for exceptional organic preservation in the waters surrounding Hontoon Island had already been established before Purdy's work commenced. In 1955 a dragline operator pulled a 12-foot-long wood carving of an owl from the St. Johns River channel fronting the Thursby midden (8VO35) (Bullen 1955). In this same location two smaller carvings of an otter and a pelican (Purdy 1991:110) were recovered during a drought in 1977 and assigned site file number 8VO238. These discoveries prompted a cultural resources inventory of Hontoon Island a year later (Dunbar et al. 1978), and an evaluation of its wet-site potential as part of a state-wide survey of wet sites two years later (Purdy 1991:106).

Purdy's work on the near-shore saturated deposits of Hontoon Island North began in 1980 with a 3 x 3-m unit near the base of the remnant of the inner ridge (Figure 3-1). The stratigraphic sequence of this unit consisted of a 50-cm thick overburden of culturally sterile organic matter overlying a 10-cm thick shell-free midden with early historic artifacts of European manufacture, followed by 30-60 cm of freshwater mussel midden and 60+ cm of freshwater snail midden over sterile, basal sand (Purdy 1991:107). A second unit was excavated in 1982, this one 2 x 2-m, followed by a major trenching operation in 1984 with a field school crew. A 2-m wide trench with a 6-m long lateral extension began on the terrestrial portion of the ridge slope and continued into the lagoon some 16 m. A footpath separated the terrestrial and lagoonal portions of this discontinuous trench (Purdy 1987:9). Another 4-m extension of the trench into the lagoon was made in 1985, and a final extension into the lagoon in 1988 with a two-month *Earthwatch* project (Purdy 1991:108). The terrestrial portion of the 1982 trench was backfilled after excavation, but the portions located in the lagoon remain open to this day. These open units are shown as the northern-most units in Figure 3-1, situated between the projected toe of the inner shell ridge and the low-water level of the lagoon. Over the four years of the St. Johns Archaeological Field School to date (2000-02; 2003-04), water levels in the lagoon have fluctuated from well above the footpath that bisected Purdy's 1982 trench to below the base of her excavation units in the lagoon. Our mapping of the open units was made in late May of 2003, when water levels were low. Observed at that time was severe slumping and erosion of the walls of Purdy's trench units, an unfortunate condition that would be difficult to remedy by the addition of loose fill alone.

The sequence observed in the 1980 unit was generally duplicated in Purdy's other units, with the upper organic zone expanding in thickness out in the lagoon, and the upper two zones missing in units on the terrestrial portion of the ridge slope, where the shell strata thickened. A series of radiocarbon and thermoluminescent assays were obtained on samples taken from columns to establish an (uncalibrated) age range of ca. 740 B.C. to A.D. 1850 for the wet deposits, with most of the dates falling in the latter half of this span (Purdy 1987:11). The basal snail midden returned age estimates clustering in the range of A.D. 900-1350 and contained thousands of St. Johns II sherds and preserved organic remains. Age estimates for the overlying mussel midden and the shell-free midden above it fall in the sixteenth century A.D. and thus postdate European contact. The presence of early Spanish artifacts in this upper stratum corroborated the radiometric age estimates. These deposits were roughly coeval with the Thursby mound across the river, which likewise contained items of early European contact.

A single test unit some 40-m west of the trench in the area of mined shell provided evidence for a preceramic component at Hontoon Island North (Purdy 1987:12), although details about this unit and its content are not reported. A comparable preceramic component was not encountered in the lagoon. Purdy (1991:130-131) surmised that preceramic-age occupants some 6000-5000 years ago established settlement on "a sand bank that was slightly elevated above the water level. As the midden grew, it expanded toward the lagoon." This is the opposite of what we have encountered at shell mounds and ridges elsewhere in the area. With water levels lower than at present, preceramic use of the Hontoon Island North could have extended well beyond the current shoreline and below the water table, as it does at Hontoon Dead Creek Mound (see Chapter 4) and Blue Spring Midden B (Sassaman 2003a). That a preceramic component was not observed beneath the St. Johns components in Purdy's excavation can not be owed to inhabitability of this now-wet portion of the site. Instead, the extension of the St. Johns component into the swamp suggests a site formational process somewhat akin to the refuse disposal practices associated with Mississippian mounds elsewhere in the Southeast (e.g., Smith and Williams 1994), where refuse is thrown off the tops of mounds and accumulates near the base. Alternatively, as discussed further below, St. Johns inhabitants may have deliberately deposited midden at the water's edge to expand the mound complex.

2000 St. Johns Archaeological Field School

As part of a “nonsite” approach to reconnaissance survey of Hontoon Island, two shovel-test transects oriented perpendicular to the length of the island intercepted the boundaries of Hontoon Island North (Endonino 2003b:100-101). Each transect consisted of 21 shovel tests, one starting at the location of Purdy’s trench, the other 60 m to the south. Twelve positive shovel tests in units on the east end of both transects contained abundant St. Johns sherds, vertebrate fauna, *Viviparus* shell, and, in areas of saturated soils, wood chips similar to those recovered in Purdy’s units. Artifact, bone, and shell density diminished in frequency from east to west, roughly duplicating the projected arrangements of ridges and conical mounds shown in Figure 3-1. Additional shovel tests in 2003 (see below) were needed to completely bound the site and better define the internal distribution of intact subsurface midden.

METHODS AND RESULTS OF MAPPING

One of the major goals of the 2003 field school was to develop a complete and detailed topographic map of Hontoon Island North. Aside from the usual reasons for mapping any archaeological site, added value was expected from the opportunity to match remnants of mounded shell to Wyman’s description, as McGee did, and to extrapolate stratigraphic sequences within these remnants to stages of ridge formation.

All mapping at 8VO202 was accomplished with the use of a Nikon Total Station, Model 310 DTM. Topographic mapping began in the open area to the east of the docks and main park building, on the peninsula that defines the northeast corner of the island, fronting both the St. Johns River to the north and the lagoon to the east. A base line was established in this open area, with Datum A set at an arbitrary N1000.00 E1000.00 and at an arbitrary elevation of 5.00 m. Datum B (N1000.00 E954.71) was set 45.29 m on a 270 degree azimuth from Datum A; its elevation was established as 4.91 m. Mapping proceeded to the north and south of this baseline, encompassing the former locations of the eastern margins of the inner shell ridge. The northern area consists of open, generally flat terrain, occupied today by the picnic and playground area of the park.

The terrain to the south of this baseline is more complex, consisting of both the apron of remnant ridge fronting the lagoon, as well as the large shell-mining pit that penetrates the water table. Both the highest and lowest surface elevations are found in this portion of the site. At over 6.0 m in elevation, the remnant of ridge just north of the mining pit contains at least 2.5 m of stratified shell deposits, including some of the only intact St. Johns period strata. Given the projected location of ridges observed by Wyman, another 4 to 5 m of shell deposits were mined from this location. The ca. 40-m wide, 2.5-m deep mining pit to the immediate south of this remnant exposes shell deposits along its entire interior rim, and these continue to erode gradually from the combined effects of animal burrows, uprooted trees, and slope wash. The basin of the mining pit holds a few feet of groundwater much of the year. During the first week of the 2003 field school, in mid-May, the bottom of the pit was drying and could be traversed by foot across much of its expanse. Heavy rains the following week reversed the drying trend and left several inches of standing water in the pit. Throughout the five-week field season water levels in the river and lagoon hovered around 3.5 m. Groundwater was likewise encountered at this depth in shovel tests and test pits that penetrated this deep.

As mapping continued throughout the wooded portions of 8VO202, several satellite data were established. We were especially careful to map in great detail locations where escarpments were formed by shell mining, as these features reflect not only locations of remnant midden, but also the points of reference for siting the ridges and mounds observed by Wyman.

In all, over 1400 points were recorded with the Total Station. The resultant topographic map (Figure 3-2) shows a sharply sculpted landscape, with distinct scars from mining in the southeast, south-central, and northwestern parts of the site. The map also shows the locations of shovel tests, auger tests, and our five test units (TU1-5), as well as select features of the modern built environment, such as the dirt road, dock, main building, pavilions, and bathhouse. Purdy's excavations that were left open were also recorded in our mapping efforts, and her earlier tests to the south of the trench have been added from a map Purdy had made in 1983.

Fitting the projection of Wyman's observations by McGee to our topographic map is a somewhat subjective exercise, although surviving remnants of both the inner ridge apex and its western end provide two solid points of reference. An overlay of the Wyman projection (Figure 3-3) suggests that the outer ridge has been largely eliminated by mining, with only small portions of its western and eastern aspects possibly intact. Bucket augers driven into the deposits of the northeast peninsula turned up apparently intact, ceramic-age shell strata to depths of over 3 m (see section of augering below). A tree tip-up at the opposite (western) end of the projected outer ridge revealed shell strata containing St. Johns check-stamped sherds. Piston cores driven into the subaqueous sediments of the harbor revealed no intact shell strata, suggesting that the midsection of the outer shell ridge was completely destroyed by mining operations.

The projected location of the second or inner shell ridge can be sited with reference to the end remnants mentioned above. The eastern aspect of this ridge is well defined by the large mining pit, which, we presume, was centered on the apex of the ridge and thus provided miners the greatest return on their efforts. Much of the western portion of the inner ridge was apparently left intact, especially in the area just to the northwest of the southward bend in the dirt road. Topography to the immediate north slopes downward in a linear feature oriented southwest-northeast of this intact area, marking, it would appear, a mining trench that followed dense shell but was terminated due to concreted midden and less dense shell to the south. This dome-like area between the dirt road and the mining trench was intensively shovel tested, augered, and examined with a single test unit (TU2), which intercepted human skeletal remains and was thereby terminated. As we discuss further below, this western remnant of the inner ridge may contain a Mount Taylor period mortuary feature similar to the one Bullen salvaged at Harris Creek on Tick Island (Aten 1999).

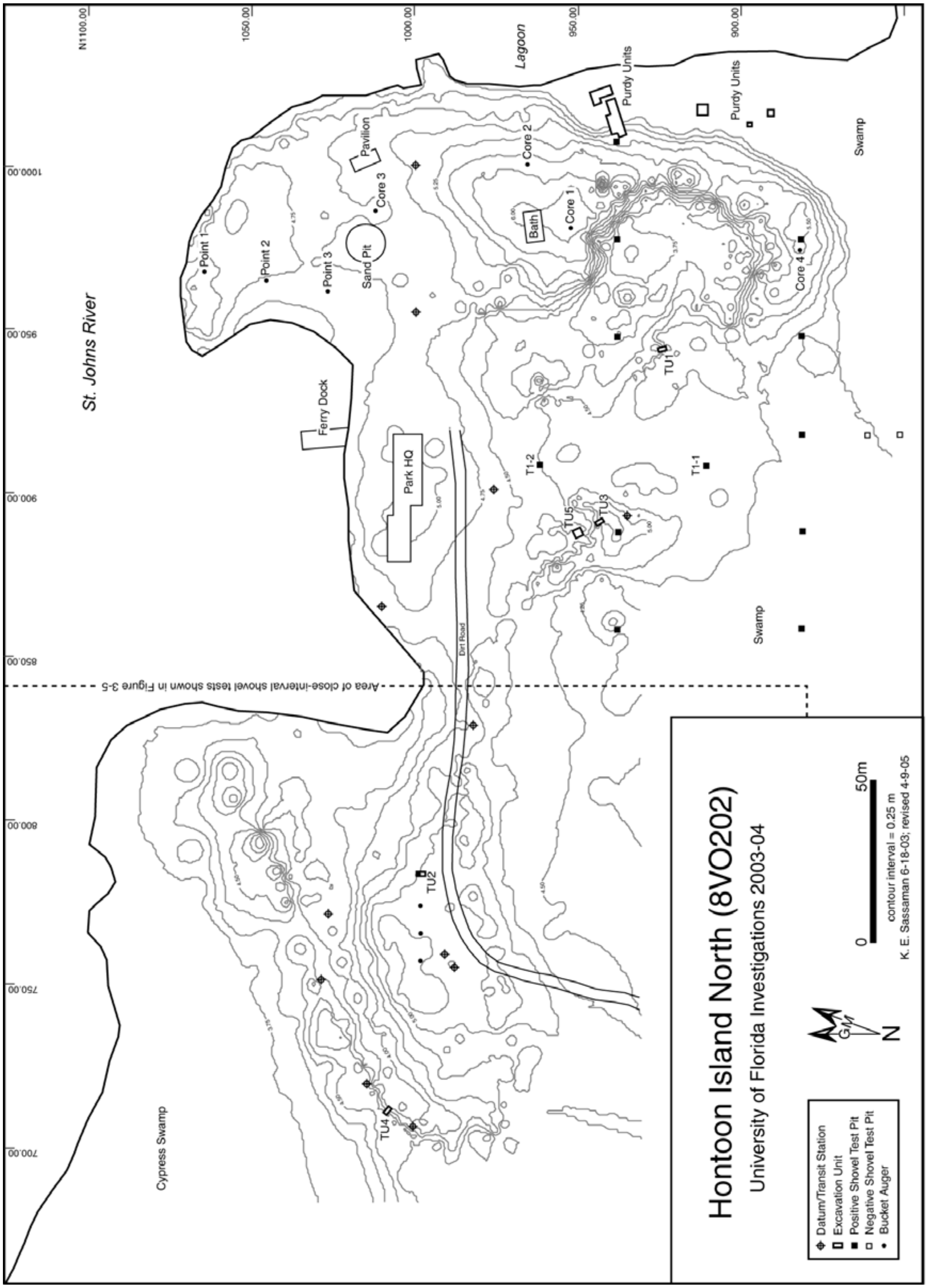

Figure 3-2. Topographic map of Hontoon Island North (8VO202), showing locations of 2003-2004 test units.

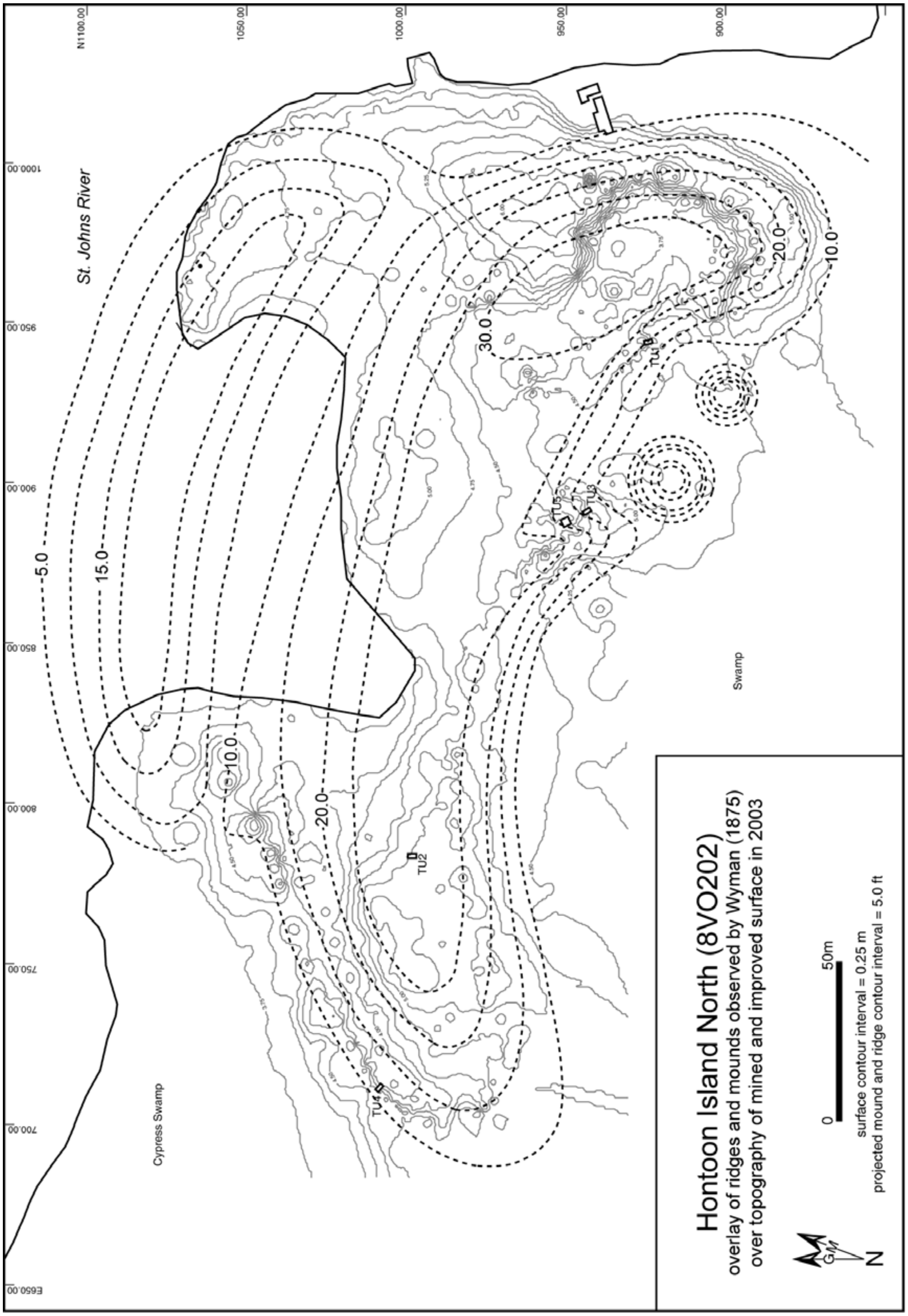

Figure 3-3. Overlay of Wyman's ridge-and-mound complex on 2003 surface topography, Hontoon Island North (8VO202).

No surface traces exist for the two conical mounds described by Wyman southeast of the inner ridge. Wyman notes that the cores of each of these features consisted of shell so we presume that they were completely leveled in the mining operation. Access points to the projected location of these features are not apparent in the extant topography, and subsurface testing to date has been insufficient to determine if the base of these mounds survived.

RESULTS OF AUGERING AND SHOVEL TESTING

Subsurface characterization of Hontoon Island North was accomplished through a combination of standard shovel tests and bucket augers. As mentioned, shovel test transects begun in 2000 helped to define the boundaries of the site, while closer-interval shovel tests on a grid provided information on the depth and integrity of subsurface deposits at the western end of the site. In areas with shell deposits exceeding 1.0 m in depth—notably the eastern end of the inner ridge near the mining pit and the peninsula to its north—bucket augers were sunk to examine strata as much as 3 m deep.

Bucket Augers

Four-inch-diameter bucket augers were sunk in seven locations to characterize surviving portions of the shell ridges in the eastern portion of the site. While augering with extensions up to 3 m permits deep testing with minimal impact, the technique has its limitations and pitfalls. Unconsolidated shell or sediment does not always remain in each bucket that is extracted, especially when it is saturated. Shell and sediment also sometimes collapses back into auger holes, making it difficult to distinguish intact strata from slump. Even under the best of circumstances, deposits can be removed in only one-foot intervals (the length of the bucket), and they have to be extracted from the closed bucket before they can be described. Despite these problems, bucket augers can be used effectively to characterize gross stratigraphic relationship, such abrupt changes in midden composition, the base of shell deposits, buried A horizons, and the like.

Augering commenced judgmentally with a test (Core 1) at the topographic high of the site, just to the north of the mining pit and 10 meters south of the bathhouse shown in Figure 3-2. Incapable of reaching the base of shell deposits in this locale, the crew proceeded to a lower elevation 21 m to the northeast (Core 2), where the water table was encountered at a depth of 2.2 m BS (3.5 m elevation), and shell midden continued below but was too loose and too saturated to be extracted. A third auger (Core 3) 45 m to the north of Core 2 encountered a vastly different profile consisting mostly of sandy clay matrix with minimal shell. A series of three additional augers (Core Point 1-3) following the point of the peninsula to the north finally succeeded in reaching the base of the shell deposit after penetrating over 3 m of stratified shell deposits with pottery. A final auger (Core 4) on the south rim of the mining pit revealed at least 2.4 m of shell deposits extending into the water table.

These seven auger tests form something of a north-south transect that we profile in Figure 3-4 along with the extant surface topography and projections of Wyman's ridges. Added to this cross-section is the profile of Test Unit 1, discussed in a section below. Each of these eight profiles is graphed in Figure 3-4 at their actual elevation relative to the scale provided and in a horizontal position true to scale of the extant surface topography shown in cross-section. Differences in the elevations of the tops of profiles and the surface topography are owed to the horizontal (east-west) displacement of profiles from the cross-sectional line. Profiles with starting elevations above the extant surface (TU1, Point 1) are to the west of the cross-sectional line; those with staring elevation below the extant surface (Cores 2, 3) are the east of that line.

These few auger tests provide limited perspective on what obviously are highly complex and varied stratigraphic sequences in the eastern portions of 8VO202. Nevertheless, some observations are highly significant and seemingly reliable. First, the remnant of inner ridge surrounding the mining pit is intact and at least its upper meter consists of St. Johns-era deposits. These thicken toward the lagoon to the east, as Purdy's work demonstrated, and, apparently to the north as well. Although downward displacement of sherds in augers is a constant risk in interpreting stratigraphy, the occurrence of multiple St. Johns sherds along the full depth of Core 2 corroborates the sequence Purdy observed in the lagoon. The lack of pottery in the lower reaches of Cores 1 and 4 may signal the presence of preceramic deposits, although the usual cautions about small sample size and negative evidence apply here. The results of Test Unit 1 confirm that prepottery shell-bearing deposits exist at the base of the inner ridge, as Purdy suggested, and resting, it would appear, on a terrace surface higher in elevation than the surface on which St. Johns deposits accumulated in the lagoon. This surface is marked in Figure 3-4 by the buried A horizon of TU1. This surface coincided with the top of the water table in May of 2003, and provides a benchmark for correlating other depositional components of the cross-section of Figure 3-4. We are confident that the 1+ m of shell deposits surviving mining in the area of TU1 and resting on this buried A horizon date to

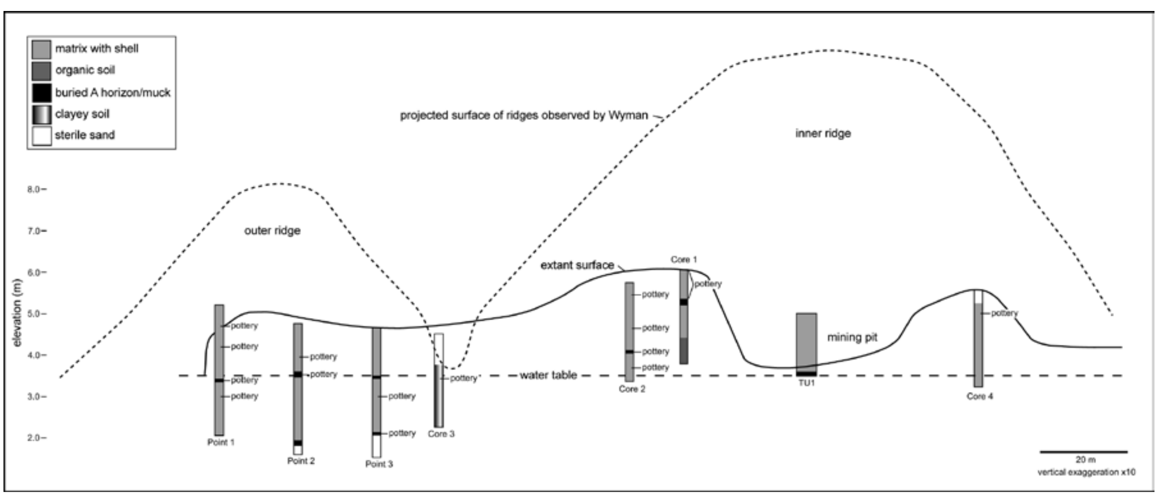

Figure 3-4. Schematic cross-section of the eastern end of Hontoon Island North (8VO202), showing topography of extant surface, the projection of ridges observed by Wyman, the water table, and generalized profiles of bucket augers and Test Unit 1.

the prepottery era (see section on test unit below). The buried A seen in TU1 was not reached in any of the three augers near the mining pit, but we suspect that the lower portions of Cores 1 and 4, which lack pottery, correlate with the prepottery shell-bearing deposits lying on top of this buried A. Support for this is found in the strong similarity between the organic-rich matrix at the base of Core 1 and the secondary midden of TU1. If this proves to be the case, the core of the inner ridge formed well before St. Johns times, with the addition of St. Johns midden to this ridge surviving today as the upper meter of the apron surrounding the mining pit, and in virtually all of the downslope deposits to the east and north that continue into the lagoon.

The second significant finding from augering is that the remnant of the outer ridge surviving shell mining appears to consist exclusively of pottery-era deposits and these exist well below the current water table. Two of the augers in this area (Point 2 and 3) penetrated archaeological deposits to reach sterile sands 1.3 to 1.6 m below the water table. If the buried A horizon at the top of sterile sands correlates to the buried A seen in TU1, then some of the midden accumulating at the base of the outer ridge may predate the St. Johns era. Buried A horizons or muck layers were recorded in all three "point" augers at the elevation of the current water table, but it is unlikely that these correlate to the buried A horizon of TU1 because below them are upwards of 2 m of shell-bearing deposits with occasional St. Johns sherds. One small fiber-tempered (Orange) sherd was also recovered at the depth of the water table in the Point 1 auger.

What little evidence we have to this point suggests that the outer ridge formed largely, if not entirely during the St. Johns era, and was initiated either in the waters of the river channel or during a draw down in water that exposed old surfaces. That none of the augers on the point revealed the remarkable organic preservation of wood and other plant matter recovered in Purdy's work in the lagoon suggest that the ridge likely formed during a time of lower water. A drop of about 1.5 m would be sufficient to expose land on which the observed shell-bearing deposits accumulated. As we noted earlier, a draw down such as this would have severely reduced the surface area of water in the lagoons to the east and west. The possibilities remain that some of the midden under the outer ridge dates to the prepottery era and formed when water levels were down in the mid-Holocene, and/or that the outer ridge that formed during St. Johns times was at least partially submerged, as it appears to have been in the area tested by Purdy.

Finally, Core 3, located to the landward side of the outer ridge, produced a unique sequence of largely clayey matrix with minimal to moderate amounts of mostly crushed shell. This is close to the projected location of the "valley" observed by Wyman between the two ridges. The profile of this core is consistent with the formation of sediments in standing water that occasionally experienced low-energy erosion from run off and possibly channel cut-through during high-water (flood) episodes. Again, the small window of observation afforded by bucket augering is insufficient to accurately characterize these deposits, but they truly differ from all other profiles. Furthermore, the upper 50-60 cm of this core appears to consist of mixed and contorted sediment that was likely deposited during the mining operation and subsequent land leveling.

Shovel Tests

Shovel testing in 2003 was designed to finalize the boundaries of Hontoon Island North and provide observations on subsurface deposits to assist in siting test units for stratigraphic excavations. The two shovel test transects completed in 2000 traversed the southern portion of the site and continued westbound into the seasonal wetland lacking archaeological deposits. These negative shovel tests were not sufficiently deep to test for possible submerged deposits in the wetlands, but they certainly established that the near-surface and surface remnants of the shell-bearing features of 8VO202 terminate some 150 m west of the lagoon area tested by Purdy. The southern boundary in this eastern aspect of the site was not established in 2000, so a single transect running north-south was executed in 2003 with its point of origin 30 m south of the southeast corner of park headquarters (Figure 3-2). Two negative shovel tests south of the southern transect dug in 2000 duplicated the observation that near-surface and surface deposits of the ridge-and-mound complex terminate at the edge of seasonal wetlands. Again, subsurface testing in this portion of the site was not sufficient to determine if archaeological deposits exist beneath the thick surface stratum of swamp muck and clay.

Most of the shovel testing at 8VO202 was concentrated in the western end of the site where the lowest aspect of the inner ridge appears to have survived shell mining. The locations of shovel tests in this area are provided in Figure 3-5, and the materials recovered in positive tests are tabulated in Table 3-1. Running in an east-west direction across the bottom of this map are shovel tests of a transect excavated in 2000 to define site boundaries. Three additional transects (T2, T3, and T4) were excavated in 2003 on a perpendicular axis to the locate the north and south boundaries of this western aspect. The westernmost transect (T3) consisted of three positive tests with vertebrate fauna and shell sandwiched between several negative tests, the latter situated in both areas to the north and south. Apparently sterile subsoil was reached at about 70 cm BS in two of the three positive shovel tests (T3-STP6, STP7); concreted shell was encountered in the third positive test (T3-STP4) at 58 cm BS. All of the negative shovel tests north of the positive tests of Transect 3 intercepted groundwater some 30-50 cm BS.

One-hundred meters to the east, Transect 2 consisted of several positive shovel tests containing shell, much of it concreted, and vertebrate fauna, along with one negative test south of the 2000 transect. None of the Transect 2 shovel tests encountered sterile subsoil.

Equidistant between Transects 2 and 3, Transect 4 consisted of nine positive shovel tests with shell, vertebrate fauna and occasional artifacts, terminated on either end by negative tests. Seemingly sterile subsoil was reached in T4-STP8 at 95 cm BS, and in T4-STP11 at 79 cm BS. All other positive tests terminated at concreted midden from 52 to 94 cm BS.

Additional transects running north-south were oriented between Transects 3 and 4 to examine the area most severely impacted by mining operations. Concreted midden was consistently encountered at depths less than 90 cm BS, and none of the test

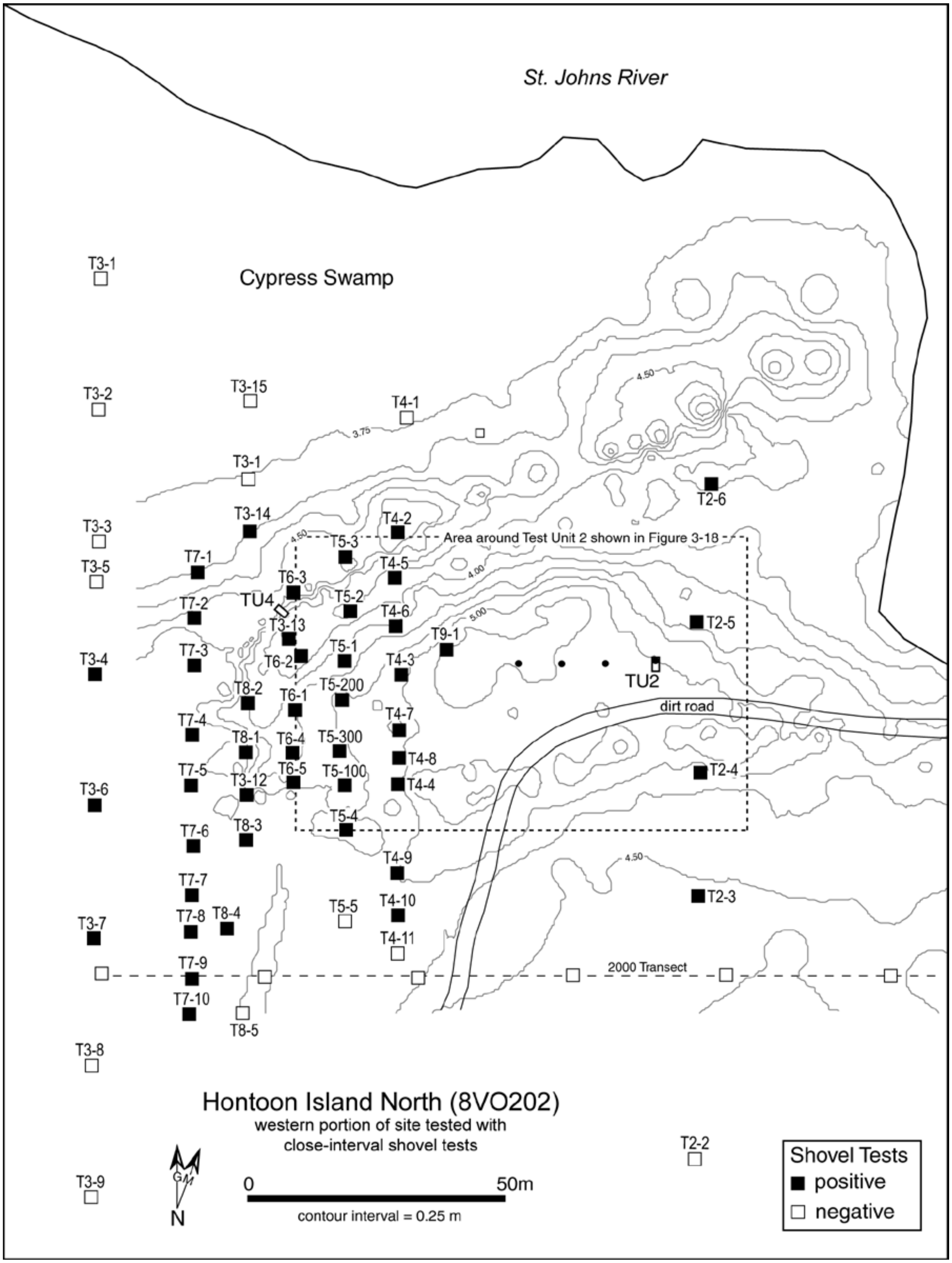

Figure 3-5. Topographic map of western portion of Hontoon Island North, showing locations of all shovel tests excavated in this area.

Table 3-1. Cultural Materials Recovered from Shovel Test Pits at 8VO202 Excavated in 2003.

Transect	STP #	Pottery Sherds		Lithic Tool	Lithic Flake	Shell Tool	Bone Tool	Marine Shell (g)	Vertebrate Fauna (g)
		St. Johns Plain	Crumb						
T1-2003	1	22	9						20.9
T1-2003	2							1.9	14.1
T2-2003	3								53.4
T2-2003	4								63.4
T2-2003	5		1						15.1
T2-2003	6	5							0.1
T3-2003	4					1			85.3
T3-2003	6								24.0
T3-2003	7								27.7
T3-2003	12			1					19.3
T3-2003	13					1			0.0
T3-2003	14								20.2
T4-2003	2		1			1		0.7	47.7
T4-2003	3			1					47.7
T4-2003	4								2.3
T4-2003	5				3				25.2
T4-2003	6						1		15.0
T4-2003	7								40.2
T4-2003	8				2				74.9
T4-2003	9				1				89.0
T4-2003	10			1					22.0
T5-2003	1								44.5
T5-2003	3	1							147.2
T5-2003	4								19.9
T5-2003	100								1.2
T5-2003	200								28.6
T5-2003	300							1.0	37.2
T6-2003	1								18.9
T6-2003	2								22.3
T6-2003	3				1				37.5
T6-2003	4			1					29.0
T6-2003	5								257.7
T7-2003	1	1							0.0
T7-2003	2					3			23.4
T7-2003	3						7		76.2
T7-2003	4							53.3	18.5
T7-2003	5				1				45.1
T7-2003	6								11.4
T7-2003	7								69.9
T7-2003	8								40.4
T7-2003	9								56.0
T7-2003	10								70.0
T8-2003	1								19.0
T8-2003	2							20.5	13.3
T8-2003	3							4.3	97.5
T8-2003	4								16.3
T9-2003	1							3.3	49.4
TOTAL		29	11	4	8	6	8	85.0	1957.9

reached conclusively sterile subsoil. Several of the tests in this intervening area produced artifacts (Table 3-1), and all contained vertebrate fauna, occasionally in abundance.

Overall, the results of shovel testing in the western aspect of the site were encouraging but inconclusive. Each of the 45 positive tests in the western remnant of inner ridge yielded shell midden and vertebrate fauna, but most intercepted concreted midden, which prevented the crew from reaching sterile subsoil. Clasts of concreted shell midden were strewn about the general vicinity, particularly in locations of mining scars. Negative shovel tests to the north and south of the ridge remnant were generally terminated at the water table, estimated at roughly 3.5 m in absolute elevation, similar to the depth observed at the east end of the site. No where in the west end of 8VO202 were archaeological deposits encountered below the water table, but we hasten to add that more subaqueous testing in this area is needed.

Few artifacts were encountered, but those found include one Newnan-like point from T4-STP3 (Figure 3-6f), a marine shell adze from T7-STP4 (Figure 3-7d), a modified *Busycon carica* shell from T3-STP4 (Figure 3-7e), and a perforated canine from T4-STP6 (Figure 3-8d). In addition, a whole Type X marine shell tool (Goggin 1952:15) was collected from the surface near T7-STP3 (Figure 3-7f). This latter item is a *Busycon carica* shell perforated in two places for hafting and with a ground and bitted siphonal canal. Both the adze and the Type X tool are common to Mount Taylor assemblages in the middle St. Johns region (Wheeler et al. 2000:148-149). Other Mount Taylor-age artifacts were recovered from test units excavations (Figures 3-6, 3-7, 3-8), as described below, and provide reasonably secure associations for preceramic Archaic deposits across much of the site. Pottery from shovel tests in the western aspect of the site was limited to five St. Johns plain sherds in T2-STP6, and one crumb sherd each in T2-STP5 and T4-STP2. Notwithstanding these few sherds, results of testing to date indicate that the western aspect of the site consists largely, if not exclusively, of preceramic Archaic deposits.

The results of test excavations in TUs 2 and 4 provide further details about preceramic deposits in the western aspect of the site, but some additional generalizations are afforded from the results of shovel tests. Given the evidence at hand, it appears that the dome-like topographic feature in this area (bordered on the west by Transect 4 and on the east by Transect 2) occupies a natural rise in the terrain, estimated at ca. 50 cm above the water table. Concreted midden was encountered on both sides of this dome-like feature, as well as along the scarp of the mining trench that forms its northwest boundary. Most of the shell tools and lithic artifacts came from shovel tests on either side and at the terminus of this trench. Insofar as all these shell-bearing deposits date to the Mount Taylor period, the dome-like feature that was spared shell mining must likewise date no later than the Mount Taylor period. What remains uncertain is the extent to which this dome-like feature is anthropogenic. As we discuss in the section below on Test Unit 2, the possibility remains that this feature consists of a mortuary facility similar to the Mount Taylor mortuaries documented at the Harris Creek site (Aten 1999).

Figure 3-6. Selected lithic artifacts recovered in test units and shovel tests excavated at Hontoon Island North, 2003. a, b. small retouched flakes; c. haft element of stemmed biface; d. blade and partial stem portions of unidentifiable biface; e-f. Newnan or closely related points; h-j. various bifacially retouched tools, (j) possibly an adze.

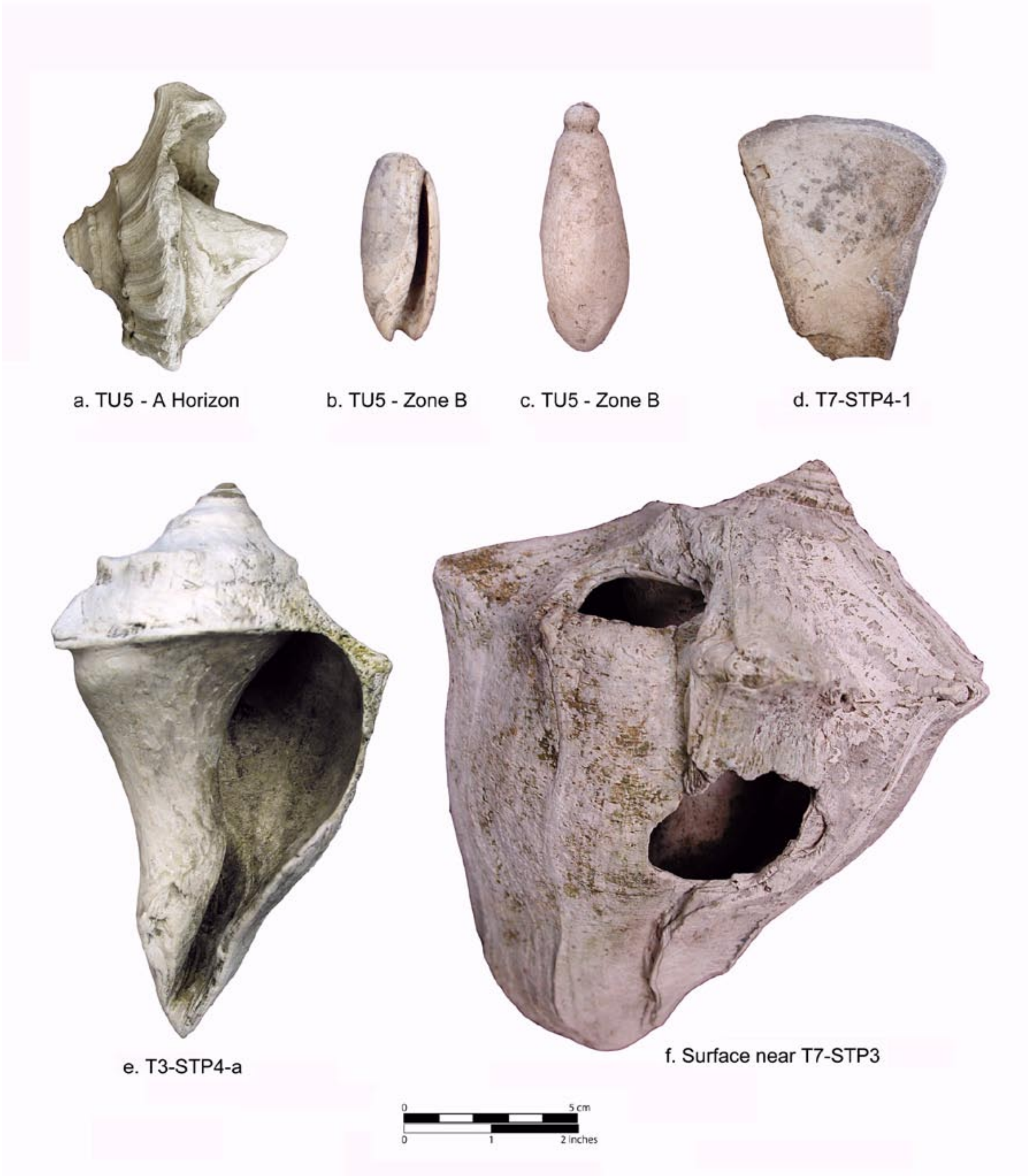

Figure 3-7. Selected marine shell artifacts recovered from the surface (f) and in test units and shovel tests excavated at Hontoon Island North, 2003. a. crown of *Busycon carcia* shell; b. *Oliva* sp. shell (found in close proximity to plummet and possibly functionally equivalent); c. plummet; d. adze bit; e. *Busycon carcia* shell with part of whorl removed; f. *Busycon carcia* shell perforated for hafting and with a ground and bitted siphonal canal (Goggin's [1952:15] Type X).

Figure 3-8. Selected bone, tooth, and antler artifacts recovered in test units and shovel tests excavated at Hontoon Island North, 2003. a-c. shark teeth, two perforated; d. perforated canine; e-f. worked antler tine; g-i. bone pin fragments; j-k. split and ground bone implements; m. antler billet.

RESULTS OF TEST UNIT EXCAVATIONS

Four 1 x 2-m stratigraphic test units (TUs 1-4) were opened in dispersed locations across Hontoon Island North during the 2003 field school. With the exception of one unit (TU2), each of the tests was located at the scarps of mining pits to take advantage of existing exposures. All such scarps had associated scree deposits of eroded midden that obscured the profiles of undisturbed fill. Thus the first step in preparing units for stratigraphic excavation was to remove this scree in one large wedge-shaped level that we termed the "profile cut." The basal depth of the scree was not always apparent as it generally consisted of shell-rich midden that was similar in texture and content to the underlying matrix. The procedure then was to take half of the unit down to the lowest surface elevation of the scree slope, processing all fill through 1/4-inch screens and bagging all artifacts, vertebrate fauna, and other potential ecofacts but not shell. Excavation then proceeded in arbitrary 10-cm arbitrary levels in the 1 x 1-m subunit proximal to the scarp until reaching sterile subsoil, or, in the case of two of the units (TUs 1, 4), groundwater. After recording the profile exposed on the wall opposite the scarp, the distal 1 x 1-m subunit was excavated by archaeostratigraphy. All matrix in both subunits was processed like the profile cuts with 1/4-inch screens. The floors of all levels in all units were inspected for features. When defined as such, features were mapped, photographed, and sectioned, with matrix passed through 1/8-inch screens and sampled for flotation processing. In addition, 50 x 50-cm subsistence columns were excavated into the scarp profiles of each unit in 10-cm levels within defined archaeostratigraphy. A minimum of 10 liters of matrix from each level was collected for flotation processing, and the remaining matrix passed through 1/8-inch screens. All materials greater than 1/8-inch were retrieved from the subsistence columns, including shell. All matrix from TUs 1 and 3 was processed by waterscreening; matrix from TU4 was dry-screened in the field and reprocessed with water back in the lab.

The exception to scarp excavations in 2003 was a single 1 x 2-m unit, TU2, in the western portion of the inner ridge that appears to have been spared mining due to its limited shell content. As we discuss fully below, TU2 exposed a profile that was vastly different than the other units, but we could not take it to completion because of an encounter with human skeletal remains. The methods for excavating TU2 differed as well from the others as it was taken down in more standard fashion as a complete 1 x 2-m unit, in arbitrary 10-cm levels within observable archaeostratigraphy. All matrix was processed by 1/4-inch waterscreening.

The final unit excavated at Hontoon Island North was a 2 x 2-m test (TU5) to the immediate north of TU3 that was intended to assess the preservation of features at the base of the shell deposit. Excavated in 2004, TU5 proved to be extremely challenging due to the intrusion of near-surface roots that obscured what appears to be an amalgam of postholes and other, larger pit features. Methods for excavating TU5 were similar to those used for the scarp units except that greater zonation in the floors of levels required complex subdivisions of provenience. Many such zones may have been the tops of pit features disturbed by roots and the mining operation, but in most cases these did not pan out after further excavation.

Before proceeding with descriptions of each of the test units, we must note the discrepancies between field and report nomenclature for strata. After completing arbitrary level excavation in the 1 x 1-m subunit of each scarp excavation, the observed archaeostrata were assigned Roman numerals in sequence from top to bottom to enable excavation of the remaining subunits. Invariably, stratigraphy became more complex as larger profiles were exposed, causing us to redefine strata in the final profile drawings. Thus, nomenclature of the levels forms and early profiles of each unit do not square with those reported here. Where appropriate, correlations between field and report nomenclature are provided. Except for TUs 3 and 5, which are less than 4 m apart, no attempt is made herein to directly correlate the nomenclature of strata between test units, for indeed they revealed very distinct profiles. The numerical sequence from top to bottom in each unit is consistent, but this does not imply that Stratum I or II in different units, for example, consists of the same matrix.

The discussion that follows is organized spatially starting with units at the east end of the ridge-and-mound complex (TUs 1, 3, 5), followed by units at the west end (TUs 2, 4). The relationship of these two portions of the site is discussed in a closing section of this chapter.

Test Unit 1

Test Unit 1 (TU1) was positioned to take advantage of a profile exposed by mining operations in the southeast part of the site, on the southwestern edge of the largest mining pit (Figure 3-2). Exposed in this unit was a 1.7-m profile of shell-bearing strata above a water table level in early June 2003 of ca. 3.5 m elevation. Excavation below the water table was not feasible, and thus this unit did not penetrate into sterile subsoil. However, the matrix exposed at the water table was similar enough to the buried A horizon observed in TUs 3 and 5 (see below) to suggest this unit was only 10-20 cm short of sterile subsoil.

Figure 3-9 is a composite stratigraphic drawing of the south, east, and west walls of TU1. Descriptions of the strata identified in this rendering are given in Table 3-2. A photograph of the south profile is annotated in Figure 3-10 with the four major stratigraphic unit recognized in this portion of the site.

Surface Stratum after Mining. Stratum I consists of the disturbed surface stratum resulting from shell-mining operations. This is a 24-cm thick stratum at the top of TU1 (south profile) with root mat, abundant organic matter and *Viviparus* shell, and a number of St. Johns sherds. Most of this stratum was removed as the “profile cut” of the scree slope, which contained 40 St. Johns sherds, mostly eroded, but also plain and one check-stamped sherd, as well as 50 “crumb” sherds (i.e., sherds less than ½-inch in maximum dimension) (Table 3-3). Stratum I also includes the downslope slump of this disturbed surface stratum (Figure 3-9), which, in subunit TU1A, produced an additional 57 St. Johns sherds (four check-stamped, the remainder eroded) and 39 crumb sherds (Table 3-3). A few small sherds were recovered from other strata in TU1, but in general sherds

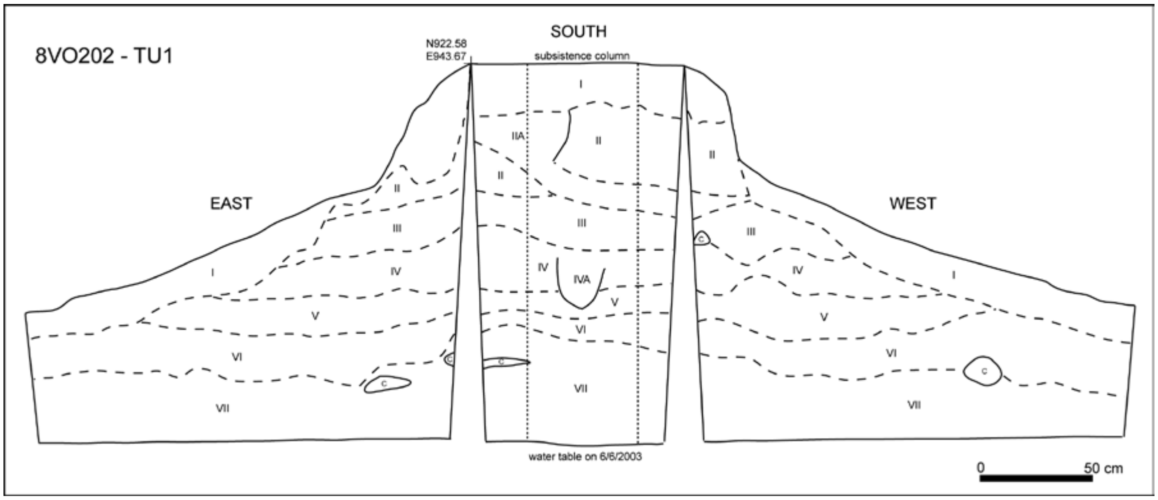

Figure 3-9. Composite stratigraphic drawing of the south, east, and west walls of Test Unit 1, 8VO202 (c = concretion).

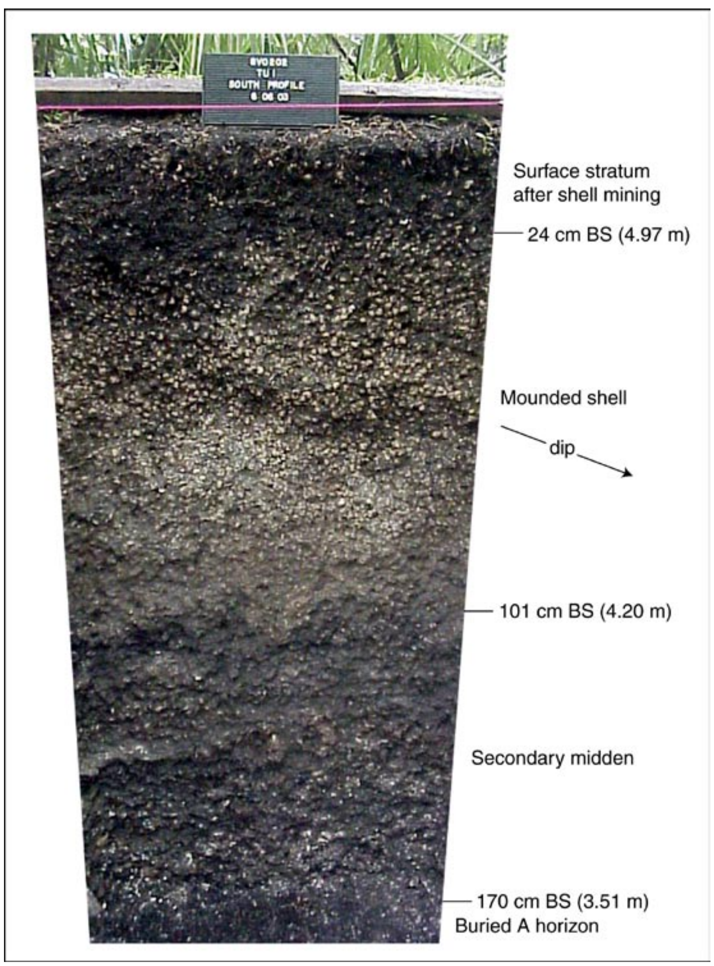

Figure 3-10. Photograph of the south wall of TU1 with annotations on the major stratigraphic units identified.

Table 3-2. Stratigraphic Units of Profiles of Test Unit 1, 8VO202

Stratum	Max. Depth (cm BS)[1]	Munsell Color	Description
I	24	10YR2/1	fine sandy loam with light root mat, moderate *Viviparus*, and St. Johns sherds; disturbed surface stratum after shell mining
II	59	10YR4/2	abundant whole *Viviparus*, and occasional crushed shell and root disturbances in fine sandy loam; probable mounded shell
IIA	68	10YR4/2	probable root disturbance
III	83	10YR4/2	abundant crushed and whole *Viviparus* in fine sandy loam; probable mounded shell
IV	101	10YR4/1	moderate whole and crushed *Viviparus* in medium sandy loam; probable basal stratum of mounded shell
IVA	109	10YR4/2	lightly concreted whole and crushed *Viviparus* in fine sandy loam
V	114	10YR2/1	moderate whole and occasional crushed *Viviparus* in medium sandy loam with greater organic content than strata above; probable surface on which shell was mounded
VI	128	10YR3/1	abundant whole and crushed *Viviparus*, and occasional *Pomacea* and bivalve shell in medium sandy loam with pockets of 10YR4/1 medium sandy loam; ashy consistency with occasional charcoal
VII	170	10YR3/1	discontinuous lenses of concreted and unconsolidated whole and crushed bivalve and *Pomacea* and occasional *Viviparus* in moist to saturated medium sandy loam
VIII	?	10YR2/1	not shown in profile but exposed in floor of unit at water table: fine sandy clay loam with rare shell; probable buried A horizon.

1. maximum depth in south profile below surface at southeast corner (N922.58 E943.67)

were confined to Stratum I. Given the disturbed nature of this surface stratum, these sherds probably were redeposited during mining operations from overlying layers.

Mounded Shell. Below Stratum I to a maximum depth of ca. 101 cm below surface (SE corner, TU1) are a series of consecutive strata (II-IV) that we interpret as mounded shell. Most of these strata were removed as part of the profile cut, which

Table 3.3. Inventory of Artifacts and Other Remains Recovered in Test Unit 1, 8VO202, by Level/Stratum.

Level/Stratum	St. Johns sherd ct	St. Johns sherd wt	Crumb sherd ct	Crumb sherd wt	Lithic tool ct	Lithic tool wt	Debitage ct	Debitage wt	Shell tool ct	Shell tool wt	Shell bead ct	Bone tool ct	Unmodified marine shell wt	Vert. fauna wt	Paleo-feces wt
TU1															
Profile Cut	40	253.8	50	40.6								3	11.0	192.2	
A														146.8	
B														149.1	
C														75.7	
D											1			141.5	
E														261.7	
F														271.3	24.0
G														325.5	24.8
H												2		138.3	
I			1	0.1								2		533.7	204.5
wall cleanup													2.4	178.1	
TU1A															
Str. I	57	224.6	39	39.5									2.3	149.8	
Str. II (IV)	4	36.1					1	1.3						139.5	
Str. III (V)					1	1.6	2	1.1	1	3.4		3		665.9	271.9
Str. IV (VI)					1	36.1						1		755.9	
Str. V (VII)	1	0.5							1	53.2			18.0	439.5	45.3
wall collapse/cleanup	1	2.8												100.4	15.4
Total	103	517.8	90	80.2	2	37.7	3	2.4	2	56.6	1	11	33.7	4664.9	585.9

contained numerous sherds, although sherds were not definitively associated with any matrix beneath Stratum I. Arbitrary 10-cm level excavation at the base of the profile cut began in TU1 at ca. 88 cm BS, near the base of Stratum IV. Only a single crumb sherd was recovered from any of the levels excavated from this subunit. Four sherds were found in the top of Stratum II in subunit 1A, the equivalent of Stratum IV in the profile. Insofar as this was proximate to the slump of Stratum I, these sherds are not likely in primary context. We conclude that pottery is absent in the 85-cm-thick shell of Strata II-IV. Vertebrate fauna and charcoal were relatively sparse in these strata, at least compared to underlying strata, as was inorganic matrix, except in the lowest stratum (IV), where medium sandy loam predominated. Shell in Strata II-IV is almost exclusively *Viviparus*, mostly whole in the upper stratum and increasingly fragmented toward the base.

In all the scarp units excavated at 8VO202, the dip of mounded shell could be inferred from the overall trends of surfaces or “basket-loads” within shell strata. The dip of shell strata in TU1 was most difficult to infer because its long axis was oriented parallel to the projected slope of the inner ridge observed by Wyman (Figure 3-3). The expectation for the short axis of this unit is for shell to dip to the west, as shown in Figure 3-10. A possible root disturbance (Stratum IIA) obscures this perspective on the south profile, but if there is a dip to the shell strata, it indeed is to the west.

Secondary Midden. A stratigraphic unconformity is observed at about 101 cm BS (elevation = 4.20 m) in the south wall that appears to reflect a contrast between mounded shell above and secondary midden below. Soil matrix darkens dramatically in this lower depositional unit, signaling an increase in charcoal, ash, and other organic matter. Vertebrate faunal remains likewise increase with depth, and paleofeces begin to appear. This ca. 70-cm thick accumulation of midden is divided into three strata (V-VII) based primarily on the type and condition of shell. *Viviparus* shell predominates throughout, but below an upper stratum (V) containing nearly exclusively *Viviparus* shell, Stratum VI includes *Pomacea* and bivalve shell, and below that is a thick stratum (VII) with proportionately more bivalve and *Pomacea* shell in discontinuous lenses of concretion.

We refer to this midden-like deposit as “secondary” because it lacks any of the preserved “floors” observed in TU3 at 8VO202 (see below) or those in TU2 at 8VO43 (Sassaman 2003a:31). Primary midden associated with living structures or related domestic features may be proximate to TU1, but no such evidence has been observed in the limited exposures available to date.

All arbitrary levels below Level A in TU1 were taken from the strata of this secondary midden, as were the lower three strata of subunit 1A. It seems clear from the artifact content of Strata V-VII of TU1 that this secondary midden accumulated in the prepottery era. Although no definitive diagnostic artifacts were recovered, indirect evidence points to a Mount Taylor component. All but one small piece of marine shell came from these levels, as did the only flaked stone tools, a small leaf-shaped biface (Figure 3-6a) and an adze-like bifacial implement (Figure 3-6j). A single marine shell bead was recovered from Level D, which corresponds roughly with Stratum VI.

Buried A Horizon. The water table was encountered in TU1 at roughly 170 cm BS (elevation = 3.51 m) at the point where shell-rich matrix gave way to dark, fine sandy clay loam containing little shell. Although excavation could not proceed below this depth because of water, we were able to cross-correlate this basal stratum (VIII) with the buried A horizon exposed in TUs 3 and 5 (see below). This then is the original ground surface on which the earliest human activity at the site took place.

Noteworthy in the floor of TU1/1A, at the top of this buried surface, was a concreted mass of bivalve shell some 53 x 65 cm in plan and 4-5 cm thick (Figure 3-11). Designated Feature 2, this mass of shell was apparently dumped in a single load on either a flat surface or very shallow pit. The light blue-gray color of shell on the upper side of this mass suggested it was subjected to heat. This coloration contrasted sharply with the fresh, unburned appearance of shell on its underneath side. After mapping and photographing it, the entire mass was lifted as a block and removed to the lab for dissection. Below the cemented shell was a thin lens of vertebrate fauna, including several pieces of turtle shell, but no visible charcoal. Only very small particulate charcoal was observed in the shell cap. Most of the mass remains so tenaciously cemented that it would have to be pulverized to search further for datable organic matter or other remains. Given the contrast in coloration between its upper and lower sides, and the limited charcoal, this feature most likely represents a dump of shell and bone that was altered by the heat of an overlying fire that was possibly unrelated to its processing for consumption.

Test Unit 3

Located approximately 60 m northwest of TU1, TU3 was sited to take advantage of mining scarps left along the projected south slope of the inner ridge observed by Wyman. Topography in this portion of this site is complex, as mining operations apparently were reaching their limits. Multiple 2 to 3-m wide gouges were cut into shell deposits along this ridge slope, leaving a ridge-and-swale appearance to the surface. Test Unit 3 was oriented somewhat perpendicular to the overall slope of the intact deposits, providing an opportunity to document the dip of mounded shell along the length of this unit.

Test Unit 3 was excavated in the same manner as TU1. The initial profile cut removed the upper 41 cm of disturbed fill at the south end of the initial 1 x 1-m subunit. Excavation in 10-cm arbitrary levels proceeded from this base to sterile sand below the buried A horizon at ca. 143 cm BS. At an elevation of ca. 4.0 m, the top of the buried A horizon (i.e., premidden/mound ground surface) in this area of the site is 50 cm higher than in the area of TU1, and is thus above the water table. Excavation of the adjoining 1 x 1-m subunit (TU3A) began within archaeostratigraphy defined in the north profile, but was converted to 10-cm levels after removing the surface scree. A large live root running the length of the test unit on the west side (and that we chose to leave in place) was among several reasons for abandoning excavation by archaeostratigraphy in the second subunit. Level depths and designations for this second subunit are consistent with those of the initial subunit.

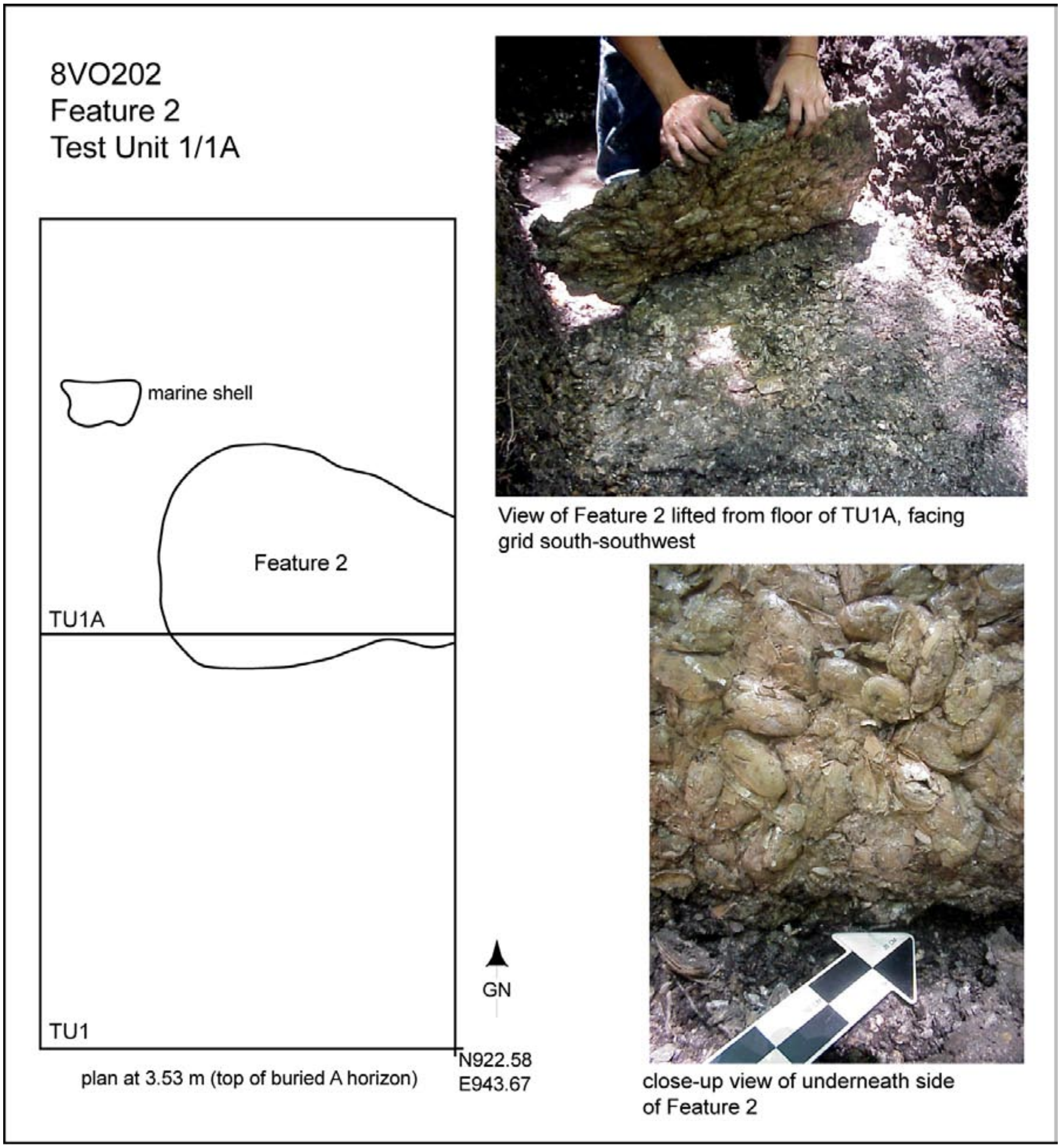

Figure 3-11. Plan drawing of Feature 3 at top of buried A horizon, and photos of the underneath side of the feature as it was removed from the ground.

Exposed in over 180-cm of stratigraphic excavation, the profile of TU3 revealed intact mounded shell over a possible house floor or related surface, which, in turn, was lying over 60-cm of midden resting on a buried A horizon into which several pit features were dug. Mounded shell in this unit contained an usually high proportion of whole apple snail (*Pomacea*) as well as lenses of bivalve shell, most notably the burned and crushed bivalve shell that we interpret as a house floor or activity surface. The midden below this floor produced an abundance of vertebrate fauna, and relatively large numbers of lithic items and marine shell fragments, as well as paleofeces. The only pottery recovered from any level of TU3 was a crumb sherd in Level B and in the upper stratum of the subsistence column. Apparently, the bulk of the sequence in TU3 is preceramic.

Figure 3-12 is a composite stratigraphic drawing of the south, east, and west walls of TU3. Descriptions of the strata identified in this rendering are given in Table 3-4. A photograph of the south and east profiles is annotated in Figure 3-13 with some of the key stratigraphic units, which are discussed in turn below.

Surface Stratum after Mining. The upper stratum of TU3 (Stratum I), like TU1, is redeposited and slumped fill left from mechanical removal of shell. Unlike the profile cut that exposed this stratum in TU1, pottery was absent in its counterpart in TU3 (Table 3-5). Stratum I in this unit also contained a greater diversity of shell than in TU1, including both *Pomacea* and bivalve, along with the usual *Viviparus*. The underlying Stratum II is also likely to be redeposited fill, as it lacks the structure and bedding of mounded shell strata below.

Mounded Shell. Apparently mounded shell begins to appear in the TU3 profile with Stratum III, and continues with the thick Stratum V below, with a combined depth of ca. 80 cm BS or 4.66 m in elevation. Levels A-D correspond roughly to these strata. The intervening Stratum IV is an ashy intrusive feature or disturbance emanating from the overlying stratum.

Despite the loss of visual clarity brought by several root and near-surface pit-like disturbances (hatched zones), the mounded shell strata in TU3 show a dip to the south (Figure 3-13), consistent with the projection of Wyman's description which places the long axis of this unit perpendicular to the backslope of the inner shell ridge (Figure 3-3). Both Strata III and V are dominated by *Pomacea* shell, with many whole and large specimens, especially in the deeper of the two. Although the strata are mostly shell with minimal soil matrix, low to moderate amounts of vertebrate faunal remains were recovered from Levels A-D, as were two lithic flakes, one bone tool fragment, some unmodified marine shell, and small bits of paleofeces (Table 3-5). Discontinuous lenses of crushed bivalve shell suggest that these strata were not deposited in one episode. At least one hiatus within Stratum V may have allowed for the short-term accumulation of food remains and other waste before additional shell was deposited. The subtle break between Strata III and V may signal a similar hiatus in mounding.

Burned Shell Surface. An undulating stratum 5-10 cm thick is identified at ca. 80 cm BS (4.66 m) by burned and crushed bivalve shell in an ashy silt matrix. Designated Stratum VI, this lens has an overall domed appearance as it tapers downward along the east wall; its configuration in the opposite profile is obscured by a near-surface disturbance. The dome-like elevation of this stratum appears to be due to an underlying stratum (VII) of whole and crushed *Pomacea* similar to Stratum V above. Both the burned shell stratum and this underlying whole-shell deposit contained moderate frequencies of vertebrate faunal remains, along with several lithic flakes, some modified bone, and a bit of modified marine shell (Levels E, F). In its form and content, this burned shell stratum resembles those documented in TU2 at Blue Spring Midden B

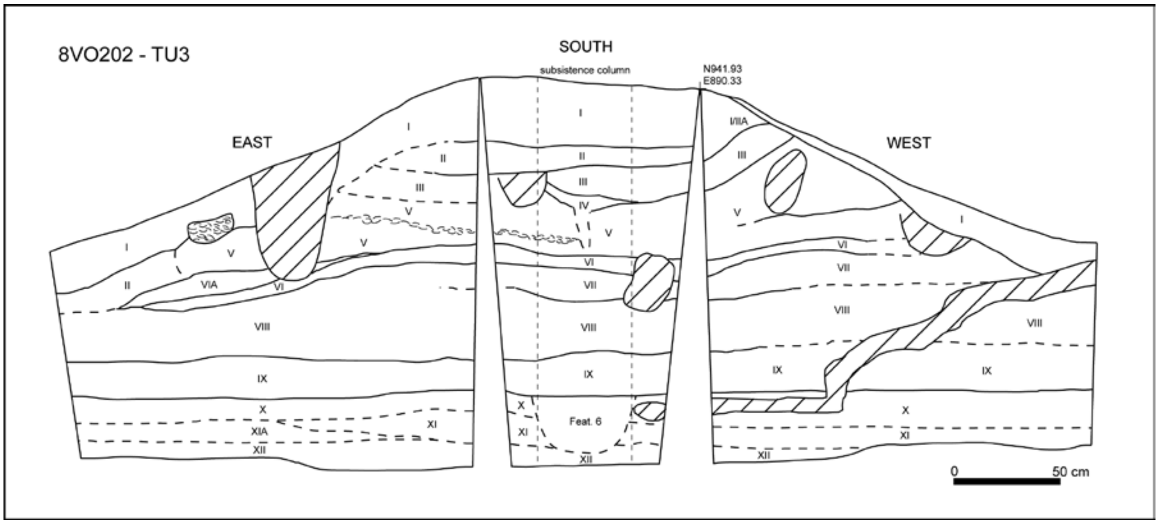

Figure 3-12. Composite stratigraphic drawing of the south, east, and west walls of Test Unit 3, 8VO202.

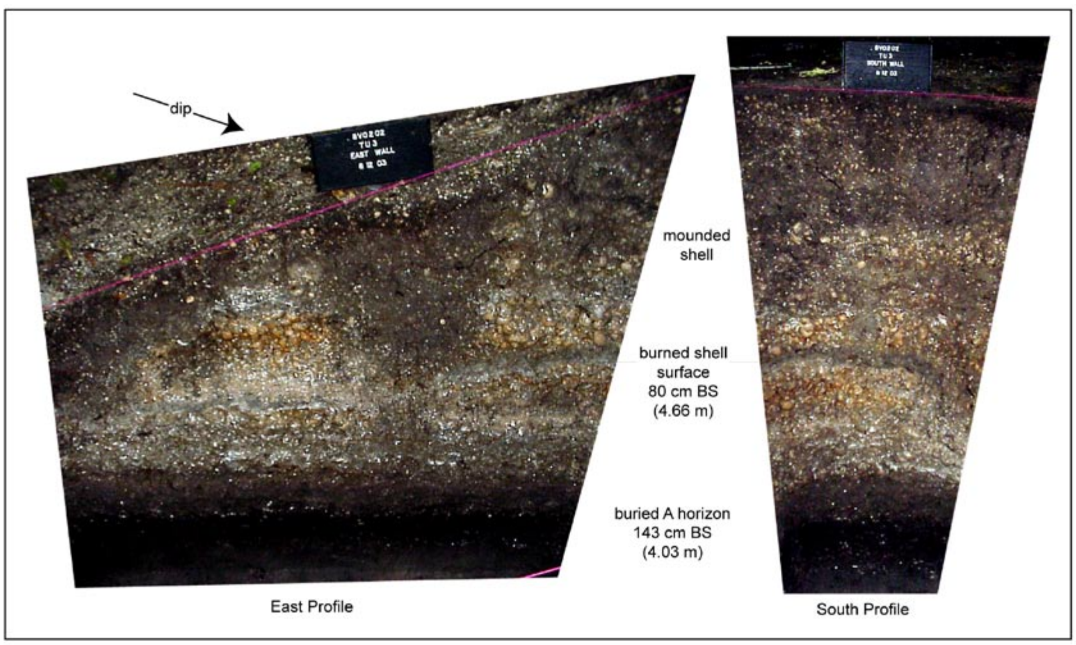

Figure 3-13. Photograph of the south and east walls of TU3 with annotations on major stratigraphic units identified.

Table 3-4. Stratigraphic Units of Profiles of Test Unit 3, 8VO202

Stratum	Max. Depth (cm BS)[1]	Munsell Color	Description
I	27	10YR4/1	medium sandy loam with light root mat, moderate *Viviparus*, and occasional *Pomacea* and bivalve; shell mostly crushed; disturbed surface stratum after shell mining
II	39	10YR4/1	medium sandy loam with increased density of crushed shell over Str. I; possibly continuation of disturbed stratum after shell mining
III	54	-	whole and crushed *Pomacea* with occasional *Viviparus* and bivalve shell in minimal soil matrix; mounded shell
IV	77	10YR5/2	fine silty sand with ashy texture and minor crushed shell; possible root or animal burrow
V	81	-	exceptional large, whole and crushed *Pomacea* with minor lenses of crushed bivalve in minimal soil matrix; mounded shell
VI	91	10YR6/1	burned crushed bivalve in ashy silt; possible floor of structure
VII	102	-	whole and crushed *Pomacea* with discontinuous lenses of crushed bivalve shell in minimal soil matrix
VIII	128	-	mosaic of whole and crushed *Pomacea*, *Viviparus*, and bivalve in minimal soil matrix; highest density of vertebrate faunal remains
IX	143	10YR3/1	fine sandy loam with whole *Viviparus*, occasional *Pomacea* and bivalve shell
X	156	10YR2/1	highly organic and moist fine sandy loam with low shell density; buried A horizon
XI/XIA	167	10YR3/1	moist fine sandy loam with moderate whole *Viviparus*; zone of leaching from A horizon and midden above
XII	?	10YR5/1	sterile fine silty sand

1. maximum depth in south profile below surface at southwest corner (N941.93 E890.33)

(8VO43), which are interpreted as house floors (Sassaman 2003a:62-65). They also resemble the burned shell lenses observed at Hontoon Dead Creek Mound (8VO214), although in this latter case, the lenses are virtually devoid of vertebrate fauna and artifacts (see Chapter 4).

Table 3.5. Inventory of Artifacts and Other Remains Recovered in Test Unit 3, 8VO202, by Level/Stratum.

	Crumb sherd		Lithic tool		Debitage		Bone tool		Unmodified marine shell	Vert. fauna	Paleo-feces
Level/Stratum	ct	wt	ct	wt	ct	wt	ct	wt	wt	wt	wt
TU3											
Profile cut					1	0.2				250.5	
A							1	48.3	18.9	95.5	
B	1	0.9							2.4	139.0	5.9
C					1	1.0				88.5	4.2
D					1	4.1			2.9	132.8	
D (Zone B)										16.0	
E					1	0.1	2	8.2	1.8	126.5	
F					6	3.5				144.9	
G			1	23.1	2	0.4			4.2	132.8	3.7
H					4	3.6				557.5	27.9
I					1	0.2	1	1.7		267.7	
J							2	7.1		122.9	
K					1	0.1				93.2	
L										25.2	5.9
M										51.7	36.4
N										2.8	
wall collapse/cleanup										206.3	
TU3A											
Surface scree/mixed			1	36.3	1	1.1			28.1	352.5	5.9
H			1	0.9	3	1.0			1.6	1117.9	12.8
I					31	8.7			5.1	445.7	66.6
J			1	1.8	3	1.0	1	0.5		261.6	9.3
K					1	0.1			61.6	205.8	25.1
L									10.1	141.3	26.9
M					1	0.2				43.1	
N										2.2	
wall collapse/cleanup									32.9	161.7	
Total	1	0.9	4	62.1	58	25.3	7	65.8	169.6	5185.4	230.6

Primary Midden. Below the burned shell stratum and the whole *Pomacea* shell beneath it are two consecutive strata that we interpret as a primary midden because of its apparent association with architectural features. The first of these strata, Stratum VIII, is a consistent 30-cm thick deposit of whole and crushed bivalve, *Pomacea*, and *Viviparus* with minimal soil matrix but the highest density of vertebrate faunal remains. Encompassed by levels G-I, this stratum also produced the highest density of lithic artifacts, mostly flakes but also two bifaces (Figure 3.6c, h), and paleofeces, although the latter not nearly as dense as in the secondary midden of TU1. The stratum below this shell-rich midden, Stratum IX, is a 20-cm thick deposit with a lower density of vertebrate fauna and shell in a fine sandy loam matrix. The distinction between Strata VIII and IX was subtle along the west wall, but the root running the length of this profile may be to blame for the lack of better contrast.

Buried A Horizon. The same buried A horizon observed in TU1 was documented in TU3 as Stratum X. Shell, vertebrate fauna, and artifacts dropped in frequency in this stratum except in zones that proved in some cases to consist of pit features that emanated from this buried surface into the subsoil below. Among the larger and better-defined pit features was Feature 6, which is described in detail below.

The entire profile of the buried soil was revealed in TU3 thanks to its higher elevation than in TU1. Below the buried A horizon was a zone of leaching, Stratum XI/XIA, underlain by a fine silty sand (Stratum XII) that appears to be culturally sterile. An unresolved issue concerning this buried soil is the relatively high frequency of *Viviparus* shell in the stratum below the buried A horizon. During excavation we assumed that this shell was merely displaced from the midden above through root action and animal burrowing, but the density of shell in the buried A horizon is lower than the strata immediately above and below. The discontinuous nature of shell in Stratum XI is evident in the east wall, where a distinction between XI and XIA signals a possible depositional facies. If the shell below the buried A horizon was deposited and not simply displaced downward, then the buried A horizon itself may be depositional and not pedogenic. That is, the dark organic sediment of Stratum X may have formed during a period of higher-than-present water levels, perhaps as a peat that was later decomposed as water levels dropped. Arguing against this scenario is the uniform thickness of the horizon between TUs 1 and 3. If it were depositional, the horizon would be thicker in areas of lower elevation, but it is not, at least not in the area of TU1. The formation of this horizon for now remains uncertain, although we suggest that it represents a surface that was stable enough to allow habitation in the area of TU3, and presumably of sufficient duration to allow the accumulation of organic matter and its contribution to soil formation. In this sense, the horizon meets the definition of an A horizon and is referred to as such until further study proves otherwise.

Summary. Test Unit 3 proved to be the most complex of the profiles exposed at Hontoon Island North. Its upper strata of mounded shell dip in the direction of the projected backslope of Wyman's inner shell ridge, consistent with the observations made in TU1. Below the mounded shell in TU3 is a burned shell surface whose configuration and composition are indicative of a living or activity surface, possibly a house floor.

That this was a prepared surface is suggested by the underlying shell stratum that has the appearance of being dumped as a small (house?) mound. Vertebrate fauna and artifacts in this and the underlying shell-bearing strata are relatively dense. The distinction between this deposit and the corresponding deposit in TU1 parallels the distinction between primary and secondary midden inferred from profiles at Blue Spring Midden B. Future comparisons of shell fragmentation in the subsistence columns of TUs 1 and 3, like those made at this other site (Sassaman 2003a:66), hold potential for independently evaluating the distinction between primary and secondary midden. Analyses of all the subsistence columns from Hontoon Island North await the acquisition of research funds.

The apparent evidence for architectural features at the base of TU3 prompted additional testing in the area during the 2004 field school. Shell-mining to the immediate north of TU3 offered the potential to search for additional features without disturbing more of the remaining shell deposits. A 2 x 2-m unit, Test Unit 5, was excavated for this very purpose.

Test Unit 5

Shell-mining in the vicinity of TU3 was relatively thorough but in no location did it appear to penetrate below the buried A horizon. The greatest depth of mining was to the immediate north of TU3, at an elevation of ca. 4.40 m, some 40 cm above the buried A. We were thus encouraged that the sorts of features observed at the base of the shell deposit in TU3 had survived mining operations. To explore this possibility, a single 2 x 2-m unit (Test Unit 5) was opened in 2004 approximately 4 m to the north of TU3. Positioning this unit was difficult because of the dense stand of large trees in the area. We had hoped to align TU5 with the long axis of TU3, but this proved impossible.

The surface of TU5 was relatively flat and free of major roots, and excavation proceeded with 10-cm arbitrary levels using the southeast corner as a local datum (N947.774 E888.937). Bits of corroded metal and other modern debris in Level A attested to the near surface disturbances of shell mining. Large tree roots were also exposed in this first level and continued to be problematic through much of the excavation. In the end, the unit was taken down about 60 cm BS (ca. 3.90 m) to reveal a nearly intact buried soil profile with a major intrusion in the northeast corner and lesser disturbances wrought by the combination of roots, tree tip-ups, and shell mining. Several features were observed beginning at the base of the buried A horizon (see below), although few of these are definitively cultural.

Figure 3-14 gives the drawings of all four profiles of TU5, and descriptions for all the recognized strata are provided in Table 3-6. Nomenclature for strata of this unit deviates from that applied elsewhere in that lower-case Roman numerals were used to denote redeposited and disturbed fill overlying the intact strata. Upper-case strata in these profiles correspond precisely with those defined for TU3 (Table 3-4).

Of the four profiles, the west one is most intact and free of disturbance below the upper 20 cm. Most of the upper 30-35 cm of the unit consists of redeposited fill (Stratum

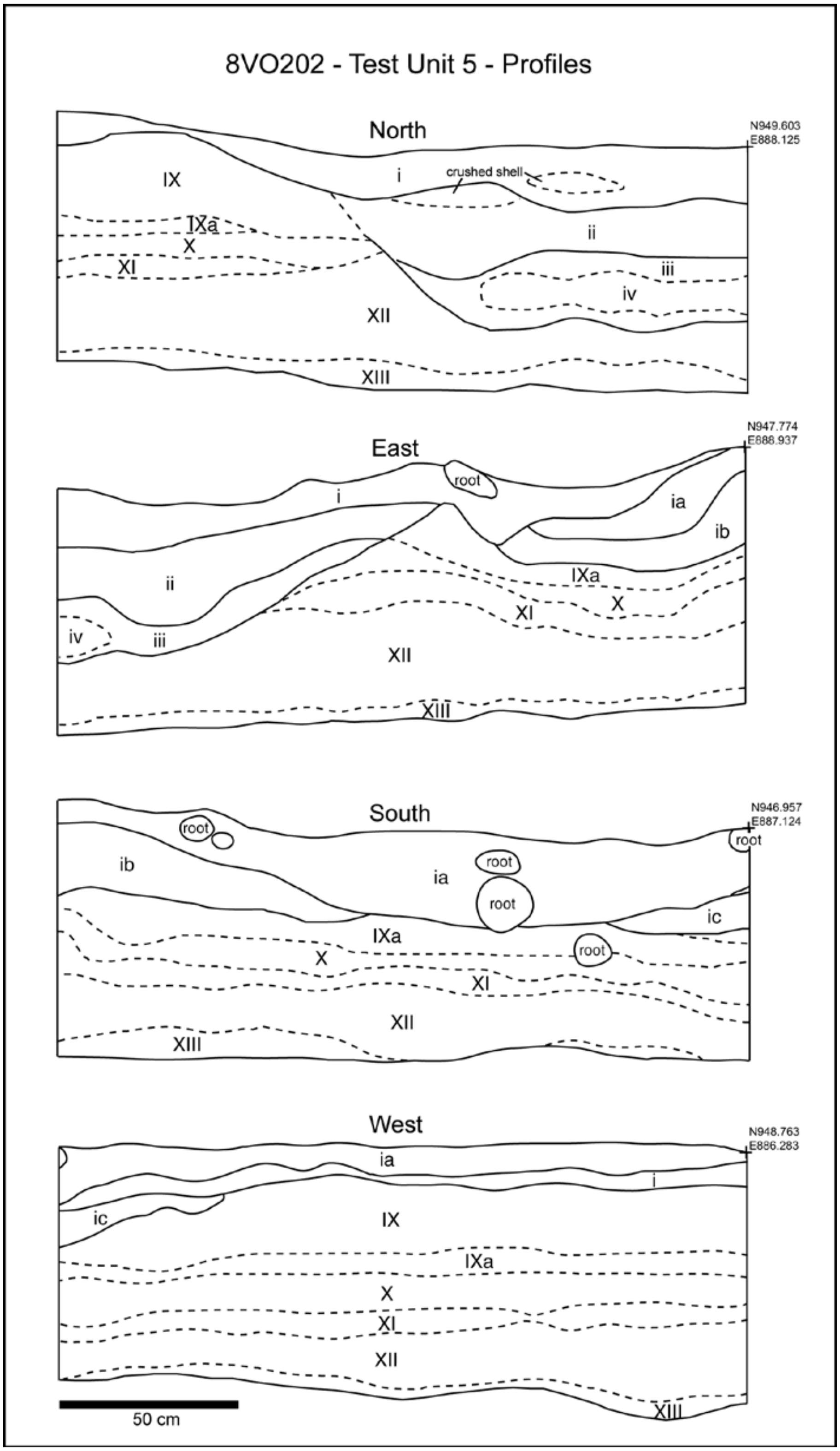

Figure 3-14. Drawings of profiles of Test Unit 5, 8VO202 (lower-case Roman numerals denote redeposited fill).

Table 3-6. Stratigraphic Units of Profiles of Test Unit 5, 8VO202

Stratum	Max. Depth (cm BS)[1]	Munsell Color	Description
i	25	10YR3/1	fine sandy loam with moderate whole and crushed *Viviparus* shell, discontinuous lenses of finely crushed shell; root mat and large tree roots; redeposited fill/slump after shell mining
ia	33	10YR3/1	fine sandy loam with minor crushed and whole *Viviparus* shell, root mat and large tree roots; redeposited fill/slump after shell mining
ib	33	10YR3/2	fine sandy loam with low density of whole *Viviparus*, and occasional *Pomacea* and bivalve shell; probably redeposited fill after shell mining
ic	35	10YR4/2	fine sandy loam with moderate density of whole and crushed *Viviparus* and moderate bivalve; probably redeposited fill after shell mining
ii	47	-	whole and crushed *Viviparus* and bivalve with minimal ashy matrix; upper fill of recent large basin-shaped pit
iii	58	10YR3/2	fine sandy loam with whole and crushed *Viviparus* and bivalve; lower fill of recent large basin-shaped pit
iv	54	10YR3/2	fine silty sand with minor shell inclusions; central fill of recent large basin-shaped pit
IX	34	10YR3/2	fine sandy loam with whole and crushed *Viviparus*, and occasional *Pomacea* and bivalve; intact primary midden
IXa	44	-	whole *Viviparus* and bivalves with minimal fine sandy loam matrix
X	50	10YR2/2-2/1	highly organic and moist fine sandy loam with low shell density; buried A horizon
XI	55	10YR3/2	fine sandy loam with whole *Viviparus* and bivalves
XII	60	10YR4/2	moist fine sandy loam with minor whole *Viviparus*; zone of leaching from A horizon and midden above
XIII	?	7.5YR6/2	sterile fine silty sand

1. maximum depth in south profile below surface at southeast corner (N947.774 E888.937)

i-ic) that varies in its density and type of shell. Various items of modern historic manufacture attest to its recent deposition from earth-moving and erosion upslope. A large basin-shaped feature defined in Figure 3-14 as Strata ii-iv is also a recent disturbance, most likely inflicted at the time of shell mining. There was no clear surface indication that such a large and deep disturbance would be encountered, a point to bear in mind in any future efforts to open horizontal excavations at the bottoms of mining pits. Fortunately, the deposition of slump over much of the original surface exposed by mining has helped to preserve what was left of the premidden/mound surface, denoted in Figure 3-14 as Stratum X. This stratum appears fully intact along the south and west profiles. In these profiles and portions of the other two some of the primary midden overlying the buried A horizon is also intact. Denoted as Stratum IX, this midden is as much as 18 cm thick in the west profile. Between it and the buried A horizon (Stratum X) is an irregular layer of mostly whole *Viviparus* and bivalve shell, designated Stratum IXa. This same layer of whole shell with a bit more fine sandy matrix recurs below the A horizon (Stratum XI), effectively sandwiching the A horizon with shell. This gives the appearance of depositional events, but this outcome may have resulted from long-term pedogenic processes. Whether depositional or pedogenic, the surface on which this shell and organic matter lies appears to have been stable for a relatively long time. The profile below the A horizon and associated shell (i.e., Strata XII and XIII) matches generally the subsoil of TU3 with the addition of more potential features that gave the base of the unit a complex, mosaic-like quality.

The zonal complexity of plans of TU5 actually began to be realized at depths much shallower than the buried surface. After removing three arbitrary 10-cm levels across the entire unit, as well as massive tree roots, the floor of Level C was divided into seven distinct zones (Zones A-G) based on variations in color, shell content and condition, and texture. In removing these zones separately we hoped to be able to maintain better control over emergent features as further levels were removed. Few such zones maintained the sort of spatial integrity we anticipated and most were not designated as features. By the time excavation reached the top of Stratum X (the buried A horizon), the plan of the unit had become more homogenous except for the recent basin-shaped pit in the northeast corner. New potential features emerged as the A horizon was stripped back and these were generally assigned feature numbers, mapped in plan repeatedly, and finally sectioned or cored to determine their integrity in profile.

Materials recovered in arbitrary and archaeostratigraphic levels of TU5 are listed in Table 3-7. Besides the historic-era debris noted, the upper levels (A, B) contained only a small to moderate amount of vertebrate faunal remains. The zonal areas defined at the base of Level C went down to varied depths and were comprised of vastly different volumes of matrix, but generally contained a mix of vertebrate fauna, a few pieces of worked bone, some flaked stone (mostly debitage), and paleofeces. Despite the complexity of the zonation, this assemblage matches nicely the assemblage recovered from the primary midden above the A horizon in TU3. Excavation of the A horizon (Stratum X) in TU5 produced a moderate amount of vertebrate fauna, some paleofeces, a good bit of marine shell, including a complete plummet (Figure 3-7c), and two shark teeth, one drilled (Figure 3-8b, c). The underlying stratum (XI) showed the expected

Table 3.7. Inventory of Artifacts and Other Remains Recovered in Test Unit 5, 8VO202, by Level/Stratum.

Level/Stratum	St. Johns sherd ct	St. Johns sherd wt	Flaked stone[1] ct	Flaked stone[1] wt	Shell tool ct	Shell tool wt	Bone tool ct	Bone tool wt	Unmodified marine shell wt	Vert. fauna wt	Paleo-feces wt	Historic ct
A										81.2		7
B										220.8		1
C			1	0.2						198.5	33.2	
Zone A										136.1		
Zone B			1	0.4	1	49.3	2	6.1	20.9	639.3	59.0	
Zone C			1	0.8			1	2.6		650.8	70.0	
Zone D							1	2.5		141.5		
Zone E			1	0.2					7.2	75.5	2.5	
Zone F			1	0.4						25.5	2.6	
Zone G										46.1		
Str. X (A horizon)					1	1.7	1	0.4	157.8	1444.3	64.8	
Str. XI	1	1.9	1	0.5					16.7	82.4	13.9	
Wall/floor cleanup										74.3	3.5	
Point plots			1	8.0					59.9			
Total	1	1.9	1	8.0	2	51.0	5	11.6	262.5	3816.3	249.5	8

[1] all except point-plotted item are pieces of debitage

drop in recovery but surprisingly produced the only pottery sherd in the unit, a single St. Johns specimen. We suspect that this sherd intruded from the mined surface above. The complete Newnan point (Figure 3-6g) that was found at the top of Stratum XI near the east wall is a more probable signifier of age for the buried surface.

In sum, excavation of TU5 revealed the buried soil profile and some of the overlying midden observed in TU3. Scaled horizontally and vertically in Figure 3-15, the stratigraphic correlation of profiles of these two units shows a preserved buried soil horizon extended over at least 6 m. Under present water levels, this buried soil in this portion of the site is above ground water and can be excavated with conventional methods. Excavation of its lower elevation in the vicinity of TU1 would require dewatering, and it too is likely to be fully intact. Thus, despite extensive shell mining across the eastern half of 8VO202, the premidden/mound ground surface remains more-or-less undisturbed. Its feature assemblage, though cryptic at this point, has good potential to hold evidence for the prepottery communities that initiated shellfishing and mound construction an estimated 6000 or more years ago.

Features of Test Units 3 and 5

Eighteen pit stains that were defined as features at the base of the buried A horizon in TUs 3 and 5 are illustrated in plan in Figure 3-16. These features fall into three groups: (1) small, circular stains ranging from 8 to 15 cm in diameter and variable in depth and profile, but generally shallow and amorphous; (2) slightly larger pits from 17-21 cm in diameter with amorphous and shallow profiles; and (3) large, basin-shaped pits ranging from 50 to 90 cm in diameter. The only features with good symmetrical cross-sections are the three at the base of TU3, shown in the photo of Figure 3-17.

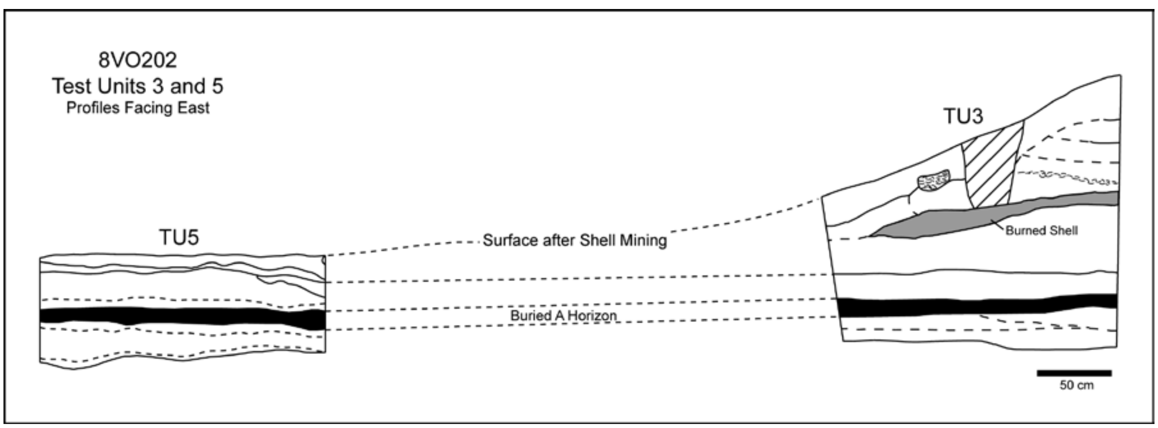

Figure 3-15. Schematic cross-section of profiles of TUs 3 and 5, showing surface after mining, buried A horizon, and other stratigraphic features.

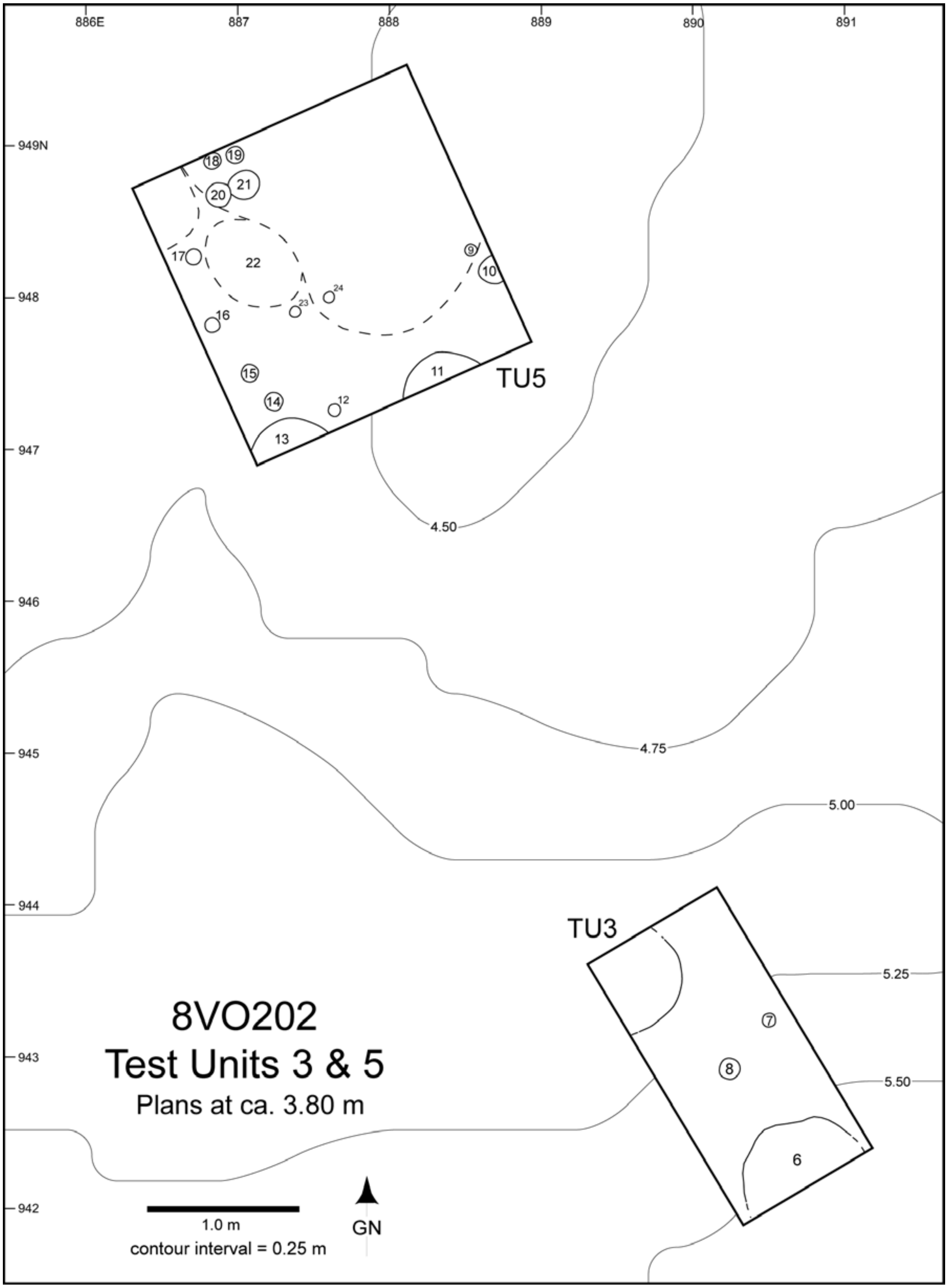

Figure 3-16. Plan of features in Test Units 3 and 5, 8VO202.

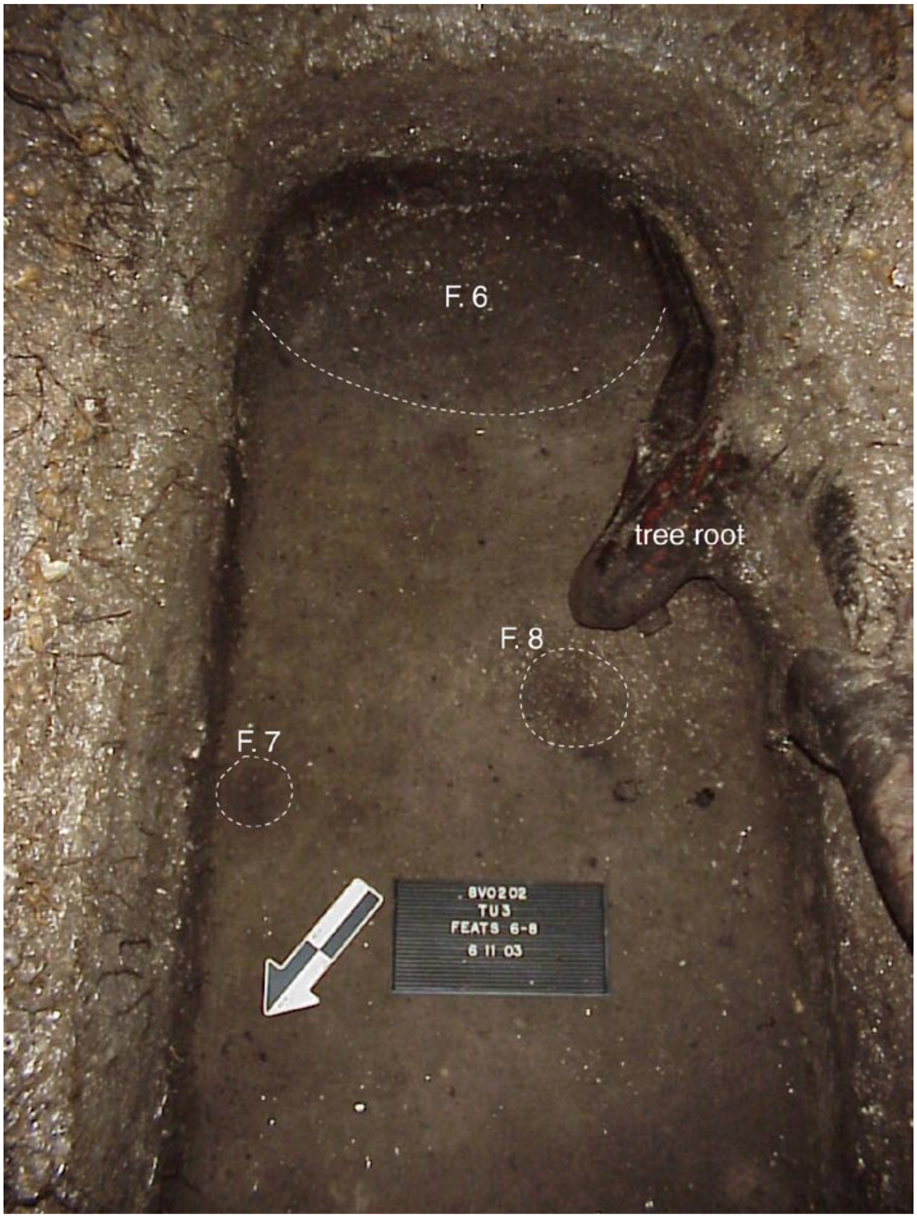

Figure 3-17. Photograph of the plan of Test Unit 3 at ca. 3.85 m elevation, showing outlines of Features 6-8, 8VO202.

Feature 6 in TU3 is an approximately 80-cm wide pit that probably emanated at or near the top of the buried A and is thus at least 27 cm deep. It extended into the south wall of TU3, giving the profile shown in Figure 3-12. As this portion of the feature was part of the subsistence column taken from the south wall, samples for flotation and 1/8-inch waterscreening await analysis. From the excavation of the north half of this feature we note that it contained whole, unburned *Viviparus* and crushed bivalve, vertebrate faunal remains, and charcoal. Its silty matrix was black (7.5YR2.5/1). No diagnostic artifacts were recovered from the fill removed from the north section. Insufficient charcoal exists for a conventional radiocarbon assay, but this is a good candidate for AMS dating when funds are secured. Other features with this same general size and shape in TU5 and possibly at the northwest corner of TU3 lacked the integrity of Feature 6.

Features 7 and 8 in TU3 are circular stains with symmetrical, hemispherical profiles some 7 cm below the plan shown in Figure 3-16. These features would have maximum depths of ca. 22 cm if they originated from the top of the A horizon. The wider of the two, Feature 8, contained whole, small *Viviparus* shell and particulate charcoal. The smaller of the two, Feature 7, was simply a diffuse stain of darkened soil (10YR2/2) against the (10YR5/1) background matrix below the A horizon. Many similar stains were defined at the base of TU5, but none had the same profile integrity as Features 7 and 8.

We are confident that the features defined in TU3 relate to domestic activities at the site, with the posthole-like features possibly signaling the presence of a structure. It is tempting to "connect the dots" of the posthole-like features in TU5 (Features 12, 14-19) to project the wall of a structure, although doing so would result in a circular construction little more than 2-m in diameter. Claims for particular architectural features are premature, to be sure, but the evidence from TU3 alone encourages us to suggest that features penetrating the subsoil have the potential to inform on community patterning and related spatial dimensions of site use if large enough areas are opened.

Test Unit 2

During the first phase of field work in 2003, shovel testing in the western portion of 8VO202 repeatedly produced evidence of preceramic deposits in midden exposed by mining (see above). Many of these shovel tests were placed in a somewhat linear mining trench fronting the northwest perimeter of the inner shell ridge, where chunks of concreted shell midden were strewn about the surface and exposed in profiles. Apparent preceramic deposits were also found in a high area roughly 50 x 50 m in extent, just to the south of the western mining pit (Figure 3-18). Some 1.5 m higher than the floor of the adjacent mining pit, this small area of high ground presumably was truncated by mining operations, although it was spared the deeper mining observed to the immediate north and far to the east. An advanced level of subsurface concretion may have thwarted the attempts of miners to extract shell from this area. Additionally, this portion of the site proved to contain relatively little shell, and thus may have been passed over by the miners as an unproductive area.

Test Unit 2 was placed at the eastern edge of this area of higher ground, between two tests of a north-south shovel-test transect that uncovered apparent preceramic deposits. This 1 x 2-m unit was oriented lengthwise to grid north, with a SW datum of N996.457 E782.359 and a surface elevation of 5.09 m. Excavation proceeded in 10-cm arbitrary levels within observable stratigraphic units. All fill was passed through 1/4-inch hardware cloth with the aid of water.

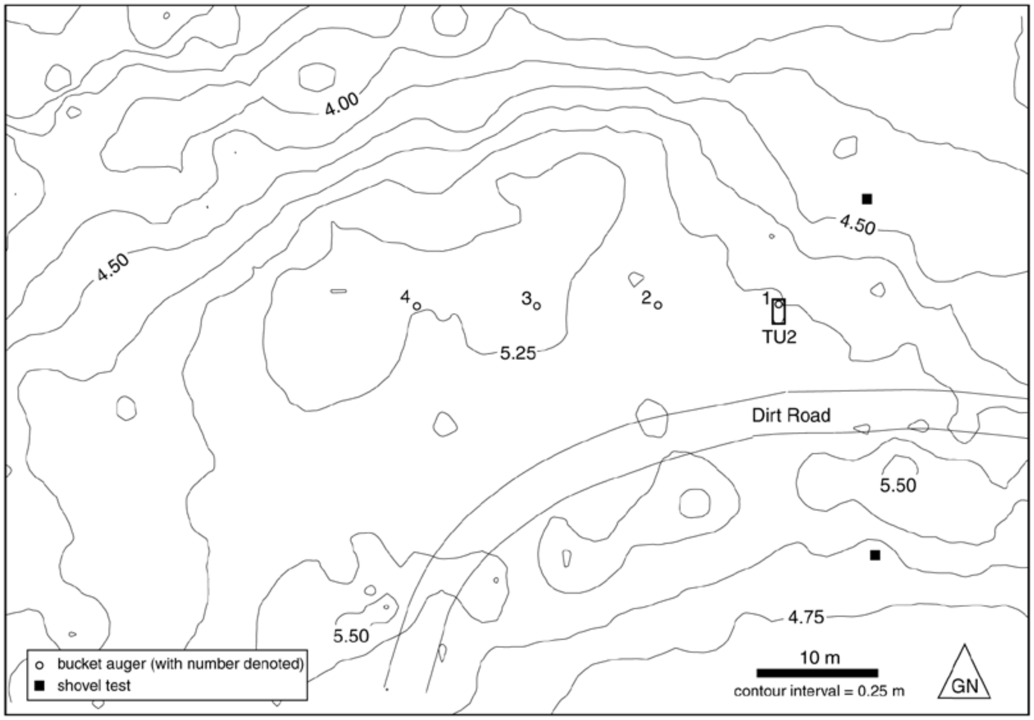

Figure 3-18. Topographic map of the elevated area surrounding Test Unit 2 (TU2), showing locations of bucket augers and shovel tests.

Human remains were encountered at approximately 40 cm BS in TU2. In accordance with Florida state law, excavation was halted shortly after human remains were uncovered. In consultation with Brenda Swann of Florida Bureau of Archaeological Research (BAR) and State Archaeologist James Miller, TU2 was backfilled after basic contextual information was collected. None of the human remains found in intact strata was removed. An interim report to BAR was issued the following week (Sassaman 2003b) as excavations continued in other portions of the site. The paragraphs that follow are adapted from that report.

Level A consisted of a thin humic layer over a grayish-brown sandy matrix with moderate amounts of crushed and whole freshwater shell, predominately *Viviparus* and bivalves, along with traces of *Pomacea* (Figure 3-19). A few small St. Johns plain sherds and chert flakes were recovered (Table3-8), along with trace evidence of modern refuse (bottle cap, glass), and occasional vertebrate fauna of apparent prehistoric age. This upper stratum assumed a relatively sharp contact with underlying midden, suggesting it was redeposited over a truncated surface from shell mining. Maintenance of the nearby dirt road may be among the modern land-use practices that accounts from this stratum (Stratum I).

This surface stratum continued into Level B (10-20 cm BS), particularly in the north half of the test unit. Revealed first in the south half of the unit, and eventually exposed across the unit, was an underlying dark, organic stratum of fine silty sand

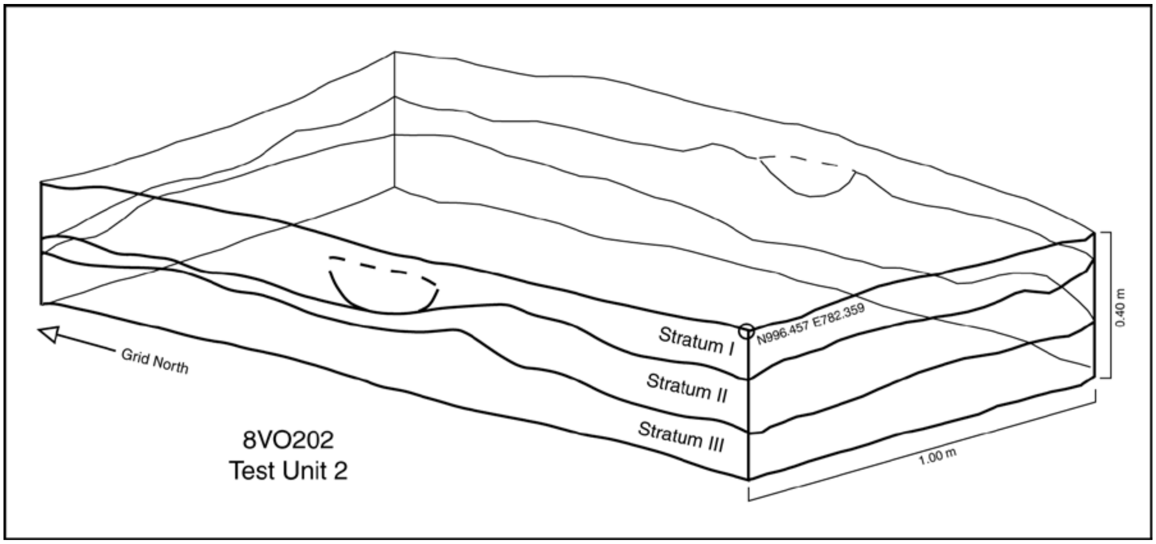

Figure 3-19. Three-dimensional projection of profiles of Test Unit 2, 8VO202.

midden with moderate amounts of shell and pockets of concretion (Stratum II). This deposit varied in thickness from only a few centimeters to as much as 23 cm. Pottery was not recovered from any fill of this stratum, but vertebrate faunal remains increased markedly over Stratum I. Thin and discontinuous lenses of crushed bivalve and *Pomacea* appeared throughout the lower half of this deposit. At approximately 30 cm BS, this especially dark midden transitioned into a somewhat lighter-colored midden (Stratum III) with low to moderate shell frequency, including occasional whole *Pomacea*. Again, pottery was not recovered in any of the fill removed and screened from this stratum. Vertebrate fauna continued to be recovered at moderate frequency, along with occasional charred nutshell, wood charcoal, a chert bifacial tool/blank, and fragments of marine shell. The recovery of relatively frequent hackberry seeds and an occasional *Euglandia* shell provides some evidence that Stratum III includes surfaces that were exposed for prolonged periods of time.

The first traces of human remains came in the form of isolated teeth, one each in the upper stratum of TU2 and in the shovel test immediately northeast of TU2. Because the upper stratum of TU2 also contained traces of modern refuse and had the appearance of secondary deposition (from road maintenance?), we did not consider these isolated teeth to be in primary context. Other possible fragments of human bone were likewise found amongst the vertebrate remains of Strata I and II in TU2, but none of these fragmentary and often concreted elements were definitively human.

Unequivocal human remains were first exposed in TU2 at ca. 40 cm BS in the south half of the unit. A decidedly human clavicle and other probable human remains were exposed in the undifferentiated matrix of Stratum III. These elements were exposed sufficiently to establish a positive human identification and to check for a possible pit

Table 3.8. Inventory of Artifacts and Other Remains Recovered in Test Unit 2, 8VO202, by Level/Stratum.

Level/Stratum	St. Johns sherd ct	St. Johns sherd wt	Crumb sherd ct	Crumb sherd wt	Lithic tool ct	Lithic tool wt	Debitage ct	Debitage wt	Bone tool ct	Bone tool wt	Unmodified marine shell wt	Vert. fauna wt	Paleo-feces wt	Historic ct
A	2	11.8	1	0.2			3	4.4			1.7	49.3		4
B			2	3.1			2	1.3			4.7	109.0		
B (Zone A)												54.4		
C												4.0		
D							1	0.7				448.9	23.6	
E					1	17.1	3	1.1			115.5	742.9		
F									3	2.9		484.7		
wall collapse			2	3.3			1	0.2				5.6		
Total	2	11.8	5	6.6	1	17.1	10	7.7	3	2.9	121.9	1898.8	23.6	4

outline. Excavation was otherwise halted at this point to record these observations and then backfill the unit.

Feature 3

The cluster of human skeletal remains and other unidentifiable vertebrate bone uncovered at 40 cm BS in TU2 was designated Feature 3. This cluster of bone was photographed (Figure 3-20) and drawn (Figure 3-21) after consulting with BAR, as well as Norman Edwards of Florida State Parks about the final disposition of the remains. As seen in these illustrations, none of the exposed elements appears to be articulated. Unequivocal human elements are sufficiently diverse and varied in size to suggest that more than one individual is represented. Combined with the lack of evidence for a pit feature surrounding this cluster of bone, the disarticulated nature of the remains argues against a primary interment. Likewise, there is little to recommend that the remains are intrusive to Stratum III. Overlying strata are undisturbed in the area of exposed bone, suggesting that they are directly associated with Stratum III, even if not in primary context (i.e., primary inhumation).

Human elements were identified by Cris Crookshank, a student of forensic anthropology. Given the limited exposure of bone, Crookshank was able to side only the clavicle (Figure 3-21), and a few of the identifications must remain uncertain. Nonetheless, human elements are clearly present, and despite the lack of articulation among elements, the context must be considered mortuary.

Hontoon Island North has never provided unequivocal evidence for mortuary contexts. As discussed earlier, Wyman (1875) suggested that the two conical mounds to the south of the shell ridges were burial mounds, but he apparently never observed primary or secondary burials and instead suggested that occasional scattered human remains at the site constituted evidence for cannibalism. In her 1980s work, Purdy (1992) also observed isolated human skeletal elements. She rightfully countered Wyman's assertion about cannibalism by suggesting that displaced human remains resulted from the reworking of midden deposit associated with mound building and other land altering activities (including shell mining?).

Our work in 2003 shows that mounded shell and associated midden in the central and eastern portions of the shell ridge do not contain human remains, although the scale of excavation to this point is admittedly very small. In contrast, the human bone exposed in TU2, near the west end of the shell ridge, is situated in distinctive strata, ones dominated by organic sediment, rather than shell. What is more, it lies in an area that is topographically superior to surrounding terrain and rife with concreted midden. The relief of this area is owed in large measure to the limited amount of shell mining, which, one might suggest, was due to the combination of concretion and low shell density. In any event, it seems reasonable to suggest that the area surrounding TU2 is stratigraphically distinct from all other tested contexts at 8VO202, and thus may very well consist of a macrofeature whose functions included the interment of human remains.

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Figure 3-20. Photographs of Feature 3 in context of Test Unit 2 (upper) and in closer view (lower).

Intentionally Left Blank

Figure 3-21. Plan drawing of Feature 3 with tentative identifications of human skeletal elements (adapted from drawing made by Katherine Finton and Cris Crookshank).

Limited subsurface testing in and around TU2 was conducted with the aid of a 4-inch bucket auger to delineate the depth and extent of the unusual strata in this elevated portion of the site. Figure 3-22 illustrates the profiles of four cores along a 30-m transect emanating from TU2; the locations of these cores is illustrated in Figure 3-18.

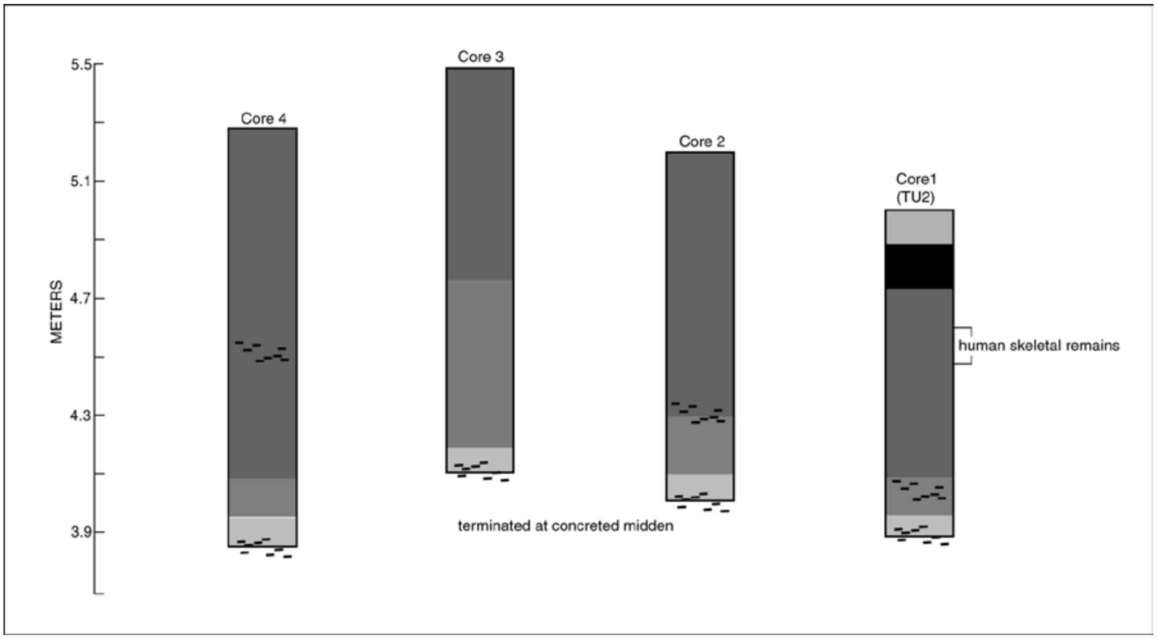

Figure 3-22. Schematic diagram of bucket auger profiles of transect emanating from TU2 and running 40 m west at 10-m intervals. Concreted midden signified by short horizontal dashes.

The dark midden designated Stratum III in TU2 continued another 40-50 cm below the floor of TU2, and was underlain by a slightly lighter, sandier midden with occasional concretion. Shell density throughout was low. The basal stratum of this core consisted of light gray, moist silty sand over impenetrable concreted shell midden.

Each of the three auger tests to the west of TU2 contained both the organic midden with limited shell, as well as deeper concretion in lighter-colored, sandy or silty matrix. The depth of the basal concreted midden conformed to the surface topography. None of these additional cores included the surface midden and thin underlying organic horizon observed in profiles in TU2. Given the relatively lower topographic position of TU2, as well as its proximity to both the dirt road and the mining pit escarpment, these upper strata may very well have been redeposited after an episode of erosion or land alteration.

Without additional testing, further commentary on the context and affiliation of human remains in TU2 is purely speculative. Given current information, the human remains in TU2 are most likely preceramic in age (i.e., pre-4200 rcybp). Given the unusual stratigraphic sequence of the area surrounding TU2, human skeletal remains may be associated with a specialized mortuary feature, such as the basal, preceramic component of Harris Creek (Aten 1999). Further discussion of the parallels with Harris Creek and other early mortuary contexts in northeast Florida will be considered in the closing section of this chapter.

Test Unit 4

Located on the north side of the linear mining pit at the northwest corner of the site, Test Unit 4 was sited to examine the projected downslope portion of the inner ridge described by Wyman. Shovel testing in the general area produced several artifacts of known or presumed prepottery age, as well as intact shell strata as least as deep as the water table elevation of ca. 3.5 m. The procedure for excavating TU4 followed those used for other scarp units at the site. The results in TU4 differed from these other units, however, in revealing profiles dominated by clean, whole shell beneath the usual scree surface deposit of the mining scarp. Like TU1, the excavation was terminated at the top of the water table after removing ca. 130 cm of shell deposits in 10-cm arbitrary levels.

A composite profile of the west and north walls of TU4 is provided in Figure 3-23, an annotated photo of the west wall in Figure 3-24, and the description of strata defined in these profiles is given in Table 3-9. The profile cut into the scree of this unit was taken down 80 below the surface northwest corner (N1008.20 E709.36). This cut included the disturbed surface strata (I) of the northern subunit (TU4A), as well as underlying shell strata (II-IV) that appears to be intact. Recovered from the profile cut were 45 machine-cut nails, two St. Johns sherds, a fragment of a bone awl (Figure 3-8g), one whole Newnan point (Figure 3-6e), a piece of debitage, a piece of unmodified marine shell, and a moderate amount of vertebrate faunal remains (Table 3-10). Excavation of arbitrary levels in TU4A began at 80 cm BS in a stratum of virtually clean, whole *Viviparus* shell (V) with discontinuous lenses of crushed shell with a bit of sandy matrix (Va, Vb). These levels (A-D) produced very little vertebrate fauna and no pottery, but a few lithic artifacts, and a drilled shark tooth (Figure 3-8a) were recovered.

The adjoining, downslope subunit (TU4B) was removed in three arbitrary levels (A-C), which produced some vertebrate fauna and a single St. Johns sherd in what amounts to redeposited slump (Stratum Ia). No additional pottery and only a small bit of vertebrate fauna were recovered from the two lower levels in Strata IVa and V before the unit was terminated at the water table depth of 3.5 m. A cypress post was exposed in the southwest corner of this subunit and designated Feature 5. The post was left in a balk surrounding an apparent post hole as excavation proceeded, then removed after mapping and photographing. Presumably the post was part of a fence line and the source of so many nails in the profile cut that was removed from the northern subunit. Obviously, the fence line postdates the 1930s, after shell was mined.

On balance, the deposits of TU4 consist of mounded shell and the associated scree or slump of shell-mining operations. As seen in Figure 3-24, the dip of the mounded shell in Stratum V is down toward the northwest, a trend consist with the undisturbed topography to the north, which forms the northern slope of the inner ridge described by Wyman. Unlike TUs 1 and 3, no midden deposits are associated with the mounded shell, neither crushed shell floors nor secondary midden. St. Johns sherds are confined to slump deposits near the surface, so the strata of mounded shell may very well date to the prepottery era, as artifacts from shovel tests in the vicinity would suggest. We do not

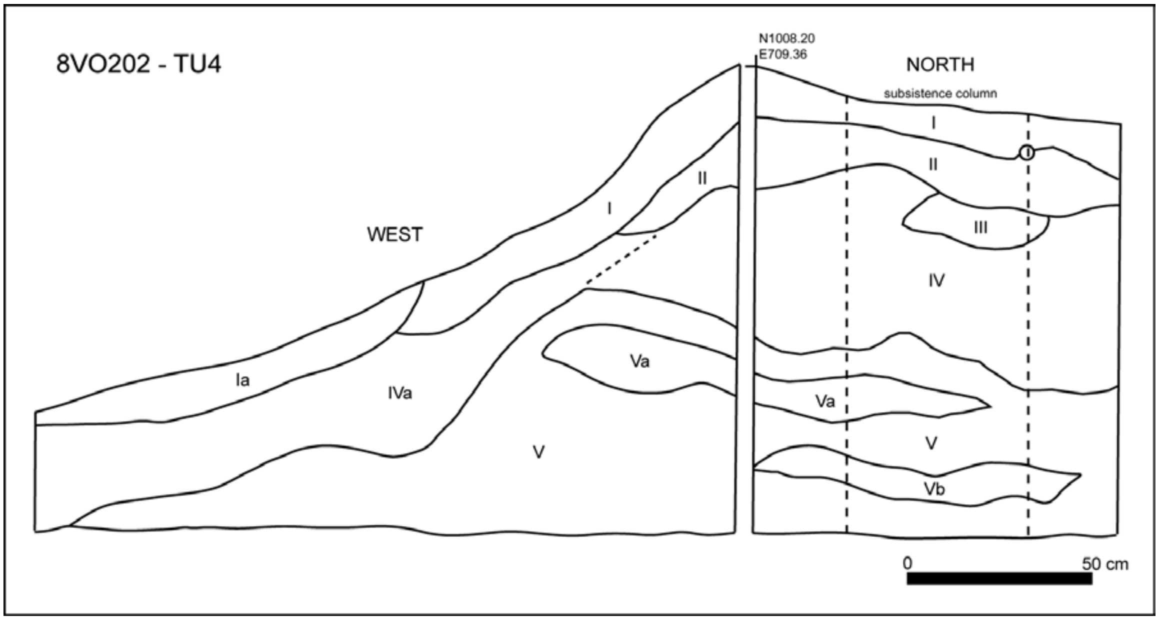

Figure 3-23. Composite stratigraphic drawing of the west and north walls of Test Unit 4, 8VO202.

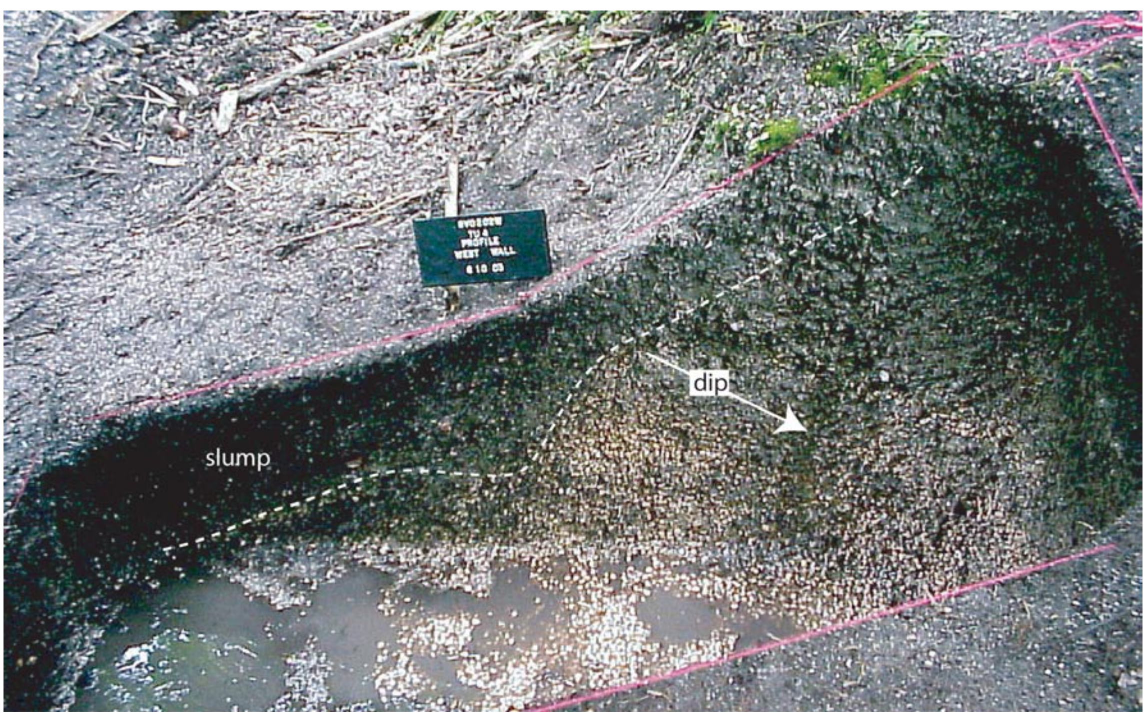

Figure 3-24. Photograph of west wall of Test Unit 4, 8VO202, showing redeposited fill (slump) and the dip of mounded shell.

Table 3-9. Stratigraphic Units of Profiles of Test Unit 4, 8VO202

Stratum	Max. Depth (cm BS)[1]	Munsell Color	Description
I	70	10YR2/2	fine sandy loam with moderate whole *Viviparus* and bivalve shell, root mat, and historic-era artifacts; redeposited fill/slump after shell mining
Ia	94	10YR2/2	fine sandy loam with minor *Viviparus* and bivalve shell, root mat, and historic era artifacts; redeposited fill/slump after shell mining
II	44	10YR4/2	fine sandy loam with whole *Viviparus* and crushed bivalve shell
III	52	10YR4/3	whole *Viviparus* and crushed bivalve shell and minimum fine sandy loam matrix
IV	91	10YR4/2	whole and crushed *Viviparus* and crushed bivalve shell with minimum fine sandy loam matrix; mounded shell
IVa	121	10YR4/2	whole and crushed *Viviparus* and crushed bivalve shell with minimum fine sandy loam matrix; redeposited slump
V	-	-	whole, clean *Viviparus* shell
Va	99	10YR5/2	crushed bivalve and *Pomacea* with minor *Viviparus* in minimal fine sandy matrix
Vb	122	10YR4/2	whole and crushed *Viviparus* and crushed bivalve in minimal fine sandy matrix

1. maximum depth below surface at northwest corner (N1008.199 E709.363)

know how deep shell deposits are in this part of the site. Attempts to dig below the water table in the unconsolidated shell of Stratum V were thwarted by collapsing shell, and we did not attempt to sample this area with a piston core, although that is certainly feasible and one of the outstanding needs for finalizing testing at this site. For now we note that the elevation of the water table in TU4 is precisely the elevation of the water table in TU1. If the mounded shell of TU4 is fully contemporaneous with the basal midden of TU1, as we suspect it may be, then the mounded shell accumulated at a time when water levels were lower than at present.

Table 3.10. Inventory of Artifacts and Other Remains Recovered in Test Unit 4, 8VO202, by Level/Stratum.

	St. Johns sherd		Lithic tool		Debitage		Bone tool		Drilled Shark tooth	Unmodified marine shell	Vert. fauna	Historic
Level/Stratum	ct	wt	ct	wt	ct	wt	ct	wt	ct	wt	wt	ct
TU4A												
Profile cut	2	43.8	1	9.4	1	0.4	1	2.7		2.5	494.8	45
A												
B									1		41.6	
C			1	10.2	1	1.8					12.7	
D					1	17.3					16.9	
TU4B												
A	1	8.8									66.7	
B											18.3	
C					1	1.6					5.9	
wall cleanup											29.1	
Total	3	52.6	2	19.6	4	21.1	1	2.7	1	2.5	694.2	45

DISCUSSION AND CONCLUSIONS

When visited by Wyman in the 1860s, Hontoon Island North consisted of two massive shell ridges oriented parallel to the St. Johns River, and two conical mounds landward of the ridges at its eastern end. Both Wyman and C. B. Moore observed pottery in the eroding river bank of the outer ridge, and Wyman uncovered pottery in the upper portions of the two conical mounds to the rear. Much of the ridge and mound complex was destroyed in the 1930s when shell was mined for road fill. Working in the lagoon to the east of the complex, Purdy (1989, 1991) documented intact, well preserved shell deposits dating to the last two millennia and dominated by St. Johns pottery. Limited testing in the terrestrial area of the site to the west suggested to Purdy that earlier archaeological deposits survived shell mining across portions of the site.

The goals of field school efforts in 2003 and 2004 were to bound and characterize the entire terrestrial component of 8VO202 with particular emphasis on locating intact preceramic deposits. All three units sited to expose shell ridge stratigraphy included preceramic (Mount Taylor) deposits at and immediately above the current water table, and each provided suggestive evidence for preceramic-era shell mounding. Test Unit 1 at the east end of the inner ridge included a 80-cm thick secondary midden on a buried A horizon at the water table overlain by mounded shell. A test unit 50 m to the west (TU3) revealed a primary midden with possible architectural features and overlying mounded shell near the slightly elevated center of the inner ridge. An additional 2 x 2-m unit (TU5) near TU3 verified the existence of preceramic features at the base of the ridge.

Preserved at the west end of the inner ridge is a dome-like area roughly 50 x 50 m that was spared deep mining for lack of dense shell. The discovery of human remains in a single test unit (TU2) curtailed excavation in this area. Limited bucket augering and the results of nearby TU4 provided circumstantial evidence for a mortuary feature similar to the Mount Taylor age component at Harris Creek (8VO24) on Tick Island, dating to ca. 5400 rcybp (Aten 1999). In sum, the preceramic component at Hontoon Island North is extensive but spatially differentiated into habitation space and primary midden (household compounds), secondary midden, and possibly a mortuary mound.

A model of Mount Taylor-period site structure presented in the upper portion of Figure 3-25 highlights the spatial differentiation inferred from stratigraphic comparisons of the test units. This model is merely hypothetical, although it is deduced from the empirical observations made to date, and, more importantly, it provides a point of departure for future research. The implied mortuary feature follows from the direct evidence for human interment in the western portion of the site, but also from its larger stratigraphic context. Bucket augering showed that the dome-like feature at the west end of the site consists of organic-rich midden with limited shell, clasts of concreted shell, and a basal or near-basal stratum of concreted sandy matrix with limited shell. The contours of this lowest stratum conform with modern surface topography, but we do not know if it represents a buried surface (i.e., terrace sands) or is anthropogenic. Sand layers were part of the Mount Taylor mortuary program, and were, in fact, a chief medium for the mortuary mounds at Harris Creek (Aten 1999) and Bluffton (Sears 1960).

Also present at both sites were layers of muck (Aten 1999:Figure 6) or "gumbo" (Sears 1960:Figure 2), which capped episodes of human interment and mounding. The organic stratum in Test Unit 2 at 8VO202 is reminiscent of these muck layers, especially in the manner in which it was placed off-center, like at Harris Creek. The thick layers of clean shell evident in Test Unit 4 at 8VO202 are reminiscent of the shell capping episodes at both Harris Creek and Bluffton. The dip of shell in TU4 conforms with the slope of the projected inner ridge observed by Wyman and the mining trench in this area follows the expected path of an apron of loose shell over an earth and shell mortuary mound. Diagnostic artifacts throughout the western portion of the site, though limited, point to the prevalence of a Mount Taylor component.

The projected household compounds in Figure 3-25 are based on the observation of possible house floors in Test Units 3 and 5. We have no prior knowledge about the sorts of structures occupied by Mount Taylor households, much less the size or arrangement of communities to which they belonged. We also have no solid evidence for season of occupation. We do, however, have convincing evidence that the site was occupied during Mount Taylor times, probably contemporaneous with mounding in the western part of the site. Habitations in direct association with mortuary mounds have not been observed at Mount Taylor sites elsewhere, but this may largely be credited to sampling bias and site destruction. Establishing the contemporaneity of the east and west Mount Taylor components at 8VO202 is a high priority for future research. Mount Taylor diagnostic artifacts in both areas suggest that mortuary and mounding activity at the west end of the site was coeval with some of the domestic activity at the east end of the site, but this needs to be demonstrated with independent radiometric dates from multiple contexts.

The pair of household compounds in Figure 3-25 is intended to imply that Mount Taylor compounds likely shifted in location as households were abandoned for reasons that may have included the flooding of lower land on the east side of the landform. As secondary midden accumulated around household compounds, the overall relief of land would have been accentuated. Moreover, as whole shell was added over middens and mortuaries, the landform assumed a mounded relief that rendered it increasingly invulnerable to flooding. We are relatively certain that much of the clean shell overlying Mount Taylor midden was placed there by Mount Taylor residents. The succeeding Orange period is virtually nonexistent at Hontoon Island North, as it is at Hontoon Dead Creek Mound to the south (see Chapter 4). Orange period mounding over Mount Taylor deposits was not observed at Harris Creek despite the prevalence of Orange components elsewhere on Tick Island.

At some unspecified time during the St. Johns period (i.e., post 3000 rcybp), mounding of shell resumed and by St. Johns II times, the site was a locus of intense activity involving the deposition of abundant check-stamped pottery. Both of the conical mounds, the apex of the inner ridge, and the entire outer ridge apparently were erected during the St. Johns period. Most of the evidence of this activity has been eradicated by shell mining. Surviving St. Johns deposits exist not only in the thick apron surrounding the large mining pit at the east end of the inner ridge, and in the adjoining lagoon that

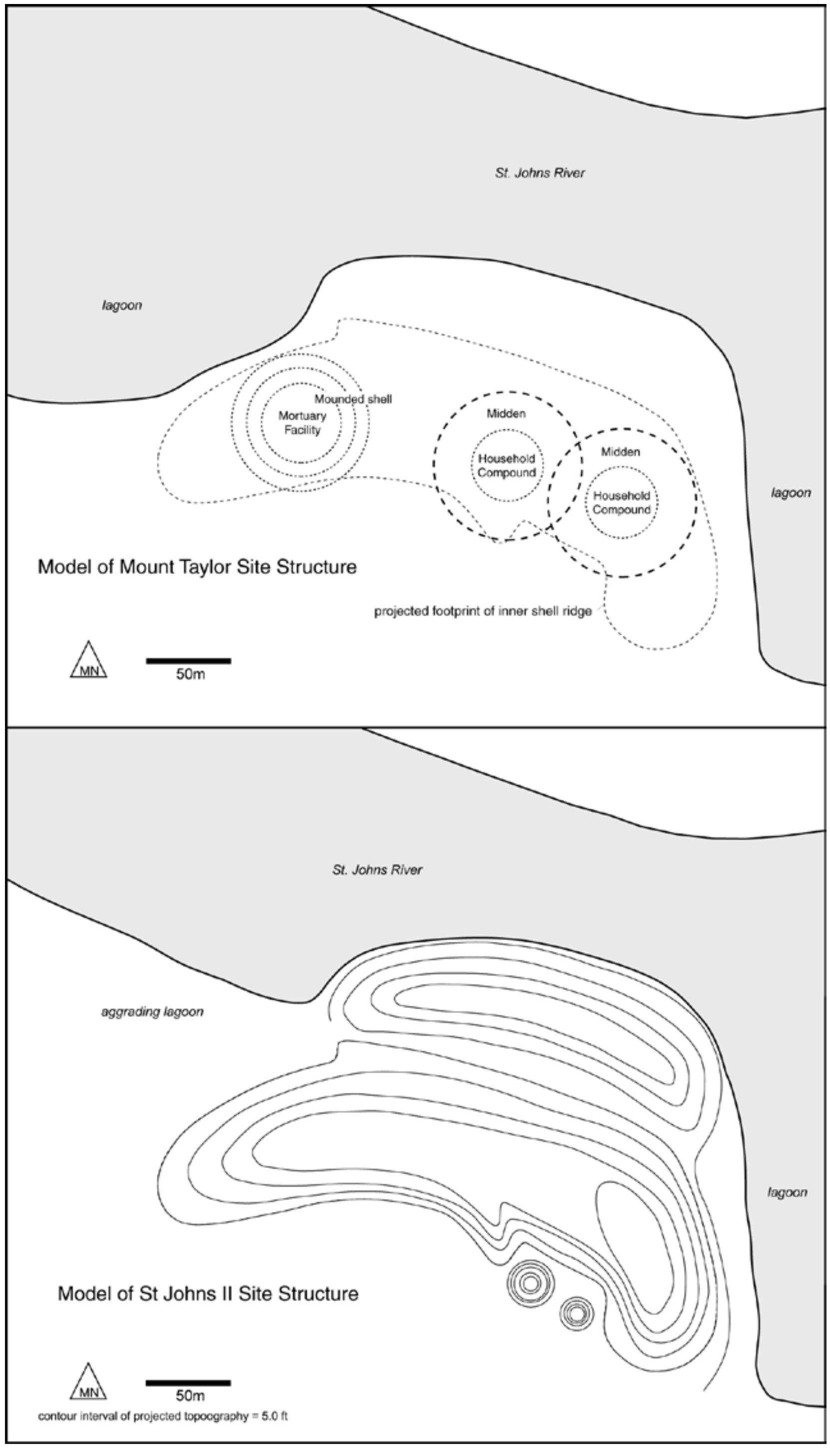

Figure 3-25. Hypothetical models of site structure during Mount Taylor (top) and St. Johns II (bottom) occupations.

Purdy tested, but also in the remnant of the outer ridge that now forms the peninsula of the park, just to the east of its harbor. As much as 3 m of stratified shell midden was located by bucket augering, most of it below the water table. That so much midden exists in now-submerged contexts suggest that either the outer ridge was initiated in the water of the river channel (as the midden in the lagoon seems to have been), or when water levels were drawn down at least 1.5 m from current levels. That none of the subaqueous fill retrieved from bucket augers on the peninsula exhibited the extraordinary preservation Purdy observed in the lagoon suggests that the outer ridge formed on land, not under water. We reserve the possibility that basal portions of the outer ridge may long predate the St. Johns period. Although water levels over the past 12 millennia have generally risen, a possible draw down of the river during St. Johns times may not only explain the terrestrial conditions under which the outer ridge formed, but also the aggradation of the lagoon to the west, which, today, supports a thick mantle of muck over the Mount Taylor-age surface.

In addition to the future research directions alluded to above, the 2003-2004 field schools collected bulk samples from four columns across the site that will be invaluable for dietary reconstruction, paleoenvironmental data, and radiometric dating. Analysis of these materials awaits the acquisition of research funds, as do accelerator mass spectrometer assays on the small bits of charcoal recovered. The research potential of these materials and the vast remaining subsurface record of 8VO202 is considerable.

CHAPTER 4
HONTOON DEAD CREEK MOUND (8VO214)

Kenneth E. Sassaman

A large, crescent-shaped shell mound on the southwest corner of Hontoon Island is recorded in the Florida Master Site File as 8VO214. Goggin (1952) referred to the site as "Northernmost Midden, Hontoon Creek," and recorded it as 8LA36, an erroneous Lake County assignment corrected in the 1970s. Site 8VO214 is among several located along the western margin of Hontoon Island, fronting the swamp adjacent to Hontoon Dead Creek. It is, however, the only shell mound of any consequence along the creek, and is thus herein renamed "Hontoon Dead Creek Mound." It is also the only intact shell mound on the island with surface relief exceeding one meter. At some 5 m in height, Hontoon Dead Creek Mound is the tallest extant construction on the island, although prior to 1935 it would have been eclipsed in height and breadth by 8VO202, at the north end of the island. It follows that before the modern era, 8VO214 was the island's second-largest mound. It occupies a venerable position today at the end of a nature trail frequented by park visitors. Aside from the weathered pock holes of pre-1970s looting and minor damage in 2004 from hurricanes, 8VO214 is in fine shape and well protected by State Park stewardship.

Except for some limited shovel testing in 2000 and intermittent surface inspections over the years, 8VO214 was not investigated earnestly by the St. Johns Archaeological Field School until the summer of 2004. A three-pronged approach was initiated that year involving: (1) topographic mapping of the mound and surrounding terrain; (2) trenching of the west slope of the mound; and (3) bucket augering of the adjacent cypress swamp to locate subsurface deposits. Details of the methods and results of each of these three objectives are provided below following a review of earlier work. Comparisons of Hontoon Dead Creek Mound to other mounds and sites in the Hontoon Island locality are given at the close of this chapter.

PREVIOUS INVESTIGATIONS

Compared to other shell mounds of comparable size, Hontoon Dead Creek Mound has witnessed very little investigation and is largely intact. Before 2004, excavation at the site was limited to minor testing by Wyman (1875) and subsequent, small-scale looting by parties unknown. Otherwise, work to date has involved nothing more than mapping and opportunistic surface collecting.

Jeffries Wyman

The first published description of Hontoon Dead Creek Mound was made by Wyman (1875) in his explorations of St. Johns' freshwater shell mounds. He gave its dimensions as 500 feet long and 13 feet high. Wyman also noted that the south end of the mound was truncated, and that the north end sloped gradually down to the natural surface. These dimensions match nicely those observed today, although the mound is perhaps a bit higher than Wyman described it when viewed from the level of the cypress swamp to the west. As we will see below, the placement of this mound directly on the edge of a low terrace escarpment enhanced relief along the western, swamp-facing margin.

Wyman dug into the mound in an unspecified location near its apex. He found very little material culture and limited vertebrate fauna. He does note the presence of a few sherds in upper humic zone, and “old fire places” throughout the shell layers, consisting of “charcoal, ashes, and calcined shells” (Wyman 1875:29). Among the vertebrate remains observed were fragments of human bone “broken up in the same way as those of animals used for food” (Wyman 1875:29), implying, as Wyman occasionally did elsewhere, that cannibalism was practiced by the mound’s builders.

Purdy Expedition 1987

Ray McGee used surveying instruments to map Hontoon Dead Creek Mound in 1987 in conjunction with worked directed by Barbara Purdy (1987, 1991) at 8VO202. His unpublished topographic map is an accurate rendition of the mound and shows it in a virtually unmolested state. A small irregularity recorded by McGee in the contours of the west slope near the apex proved to be a location of relatively recent looting and an opportunity to expose and record mound stratigraphy (see below).

St. Johns Archaeological Field School 2000-2001

As part of the “full-coverage” survey conducted at Hontoon Island in 2000 and 2001, an eastbound transect of shovel tests set at 30-m intervals (Transect 2) was initiated at the base of 8VO214 (Endonino 2003b:99, 102). Despite the proximity of the transect to the east slope of the mound, not a single trace of shell, vertebrate fauna, or cultural material was observed. The survey crews both years also scoured the surface of the mound to locate artifacts and bone, but found only a small bit of marine shell and a single flake of quartz crystal (Endonino 2003b:102). This low density of cultural material, as well as vertebrate fauna, is consistent with the observations made by Wyman (1875).

Subsequent reconnaissance survey around the perimeter of the island, detailed elsewhere in this report, shows that buried midden deposits extend south and north of the mound, along the terrace edge, for hundreds of meters. Thus, although the landward side of the mound appears to be free of associated midden, the terrace edge it occupies has a virtually continuous distribution of archaeological deposits. As a more-or-less continuous distribution, these terrace-edge deposits are difficult to subdivide into meaningful units. The mound, on the other hand, has discrete boundaries and can be justifiably recorded as a single site. Even though these terrace deposits clearly bear relevance in our understanding of human land-use and settlement patterning, for the sake of management and ease of communication, 8VO214 refers exclusively to the mound and its associated, submerged midden deposits in the swamp to the west (see below).

METHODS AND RESULTS OF MAPPING

To facilitate mapping and a grid for spatial control, a baseline was established along the spine of the mound. An arbitrary point, Datum A, was set at the top of the mound, toward the north end, and a second point, Datum B, some 33 m to the south. A line connecting these two data is approximately 20 degrees west of magnetic north. The north end of this short baseline (Datum A) was arbitrarily established as N1000.00 E1000.00 m and with an arbitrary surface elevation of 10.0 m (absolute elevation above mean sea level is approximately 4.5 m or 14.8 ft). Coordinates for Datum B to the south are N967.020 E 1000.00 m and with an elevation of 11.29 m. Three-foot sections of galvanized conduit were driven into the ground at the locations of both baseline data.

Mapping of the mound and surrounding terrain proceeded with the use of a Nikon Total Station DTM-310. Over the course of mapping, temporary transit stations were established in 15 locations and marked with flagging pins. Striving to minimize the amount of vegetation cut for lines of sight, transit work was often slow and tedious. Nonetheless, the students were successful in recording three-dimensional data on 916 points across the mound and surrounding terrain. The resultant topographic map, projected with a contour interval of 0.25 m, is provided in Figure 4-1.

As seen in Figure 4-1, Hontoon Dead Creek is a subdued crescent, with an elongated cone at the south end and a ramp-like feature trailing downward to the north. The long axis of the mound conforms to the overall contour of the terrace although it juts out about 25 m beyond the terrace margin into the cypress swamp. Whether this protuberance into the swamp existed before humans mounded shell will have to await further testing, for our trenching and coring did not delineate the western extent and depth of submound, terrace sands. However, given the larger surface trends of the terrace to the north and south of the mound, much of the protuberance is likely natural. Most other landform projections along the terraces of Hontoon Island and the eastern bank of the St. Johns River are locations of archaeological deposits and clearly signal the human preference for access to wetland habitat. Thus, the construction of Hontoon Dead Creek enhanced an already punctuated terrace margin.

The apex of the mound has an absolute (mapping) elevation of slightly more than 12.0 m or a relative height of 5 m above the cypress swamp to the west and 4 m above the terrace to the east. The mound slope to the west, toward the swamp, is steeper than the slope to the east. The length-wise slope falls sharply to the south from the apex, and gently to the north, where the hiking trail is sited. After dropping some 2 m in elevation over a 40-m distance from the summit, the ramp-like contours to the north flatten over a stretch of some 20 m, in the location of Datum A, giving it the appearance of a small platform or plateau. Comparison of the shape and size of Hontoon Dead Creek to other mounds in the area is reserved for a later section of this chapter.

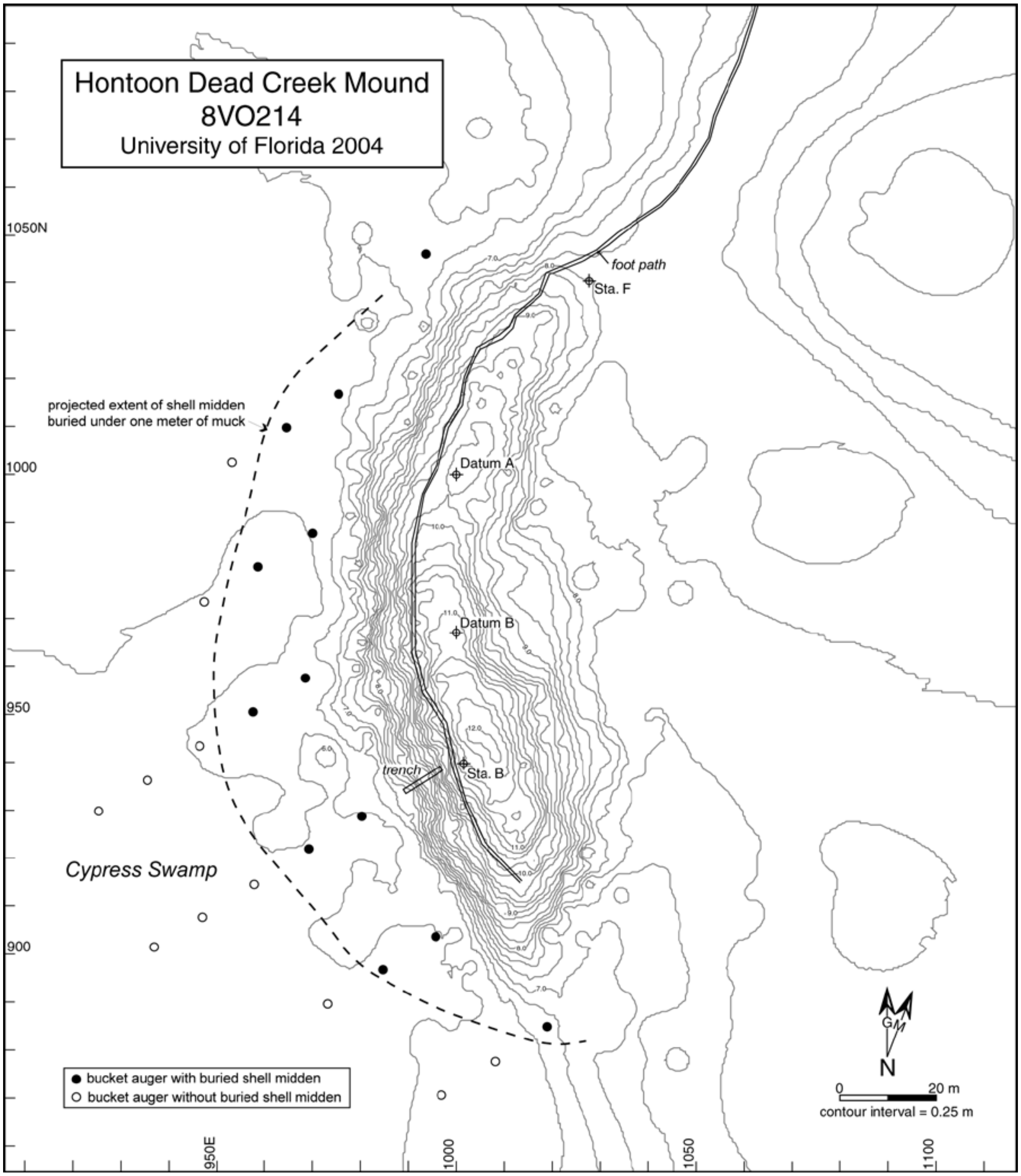

Figure 4-1. Topographic map of Hontoon Dead Creek Mound (8VO214).

METHODS AND RESULTS OF TRENCHING

Digging into a mound that is largely intact is not something to be done lightly. As in our work at other mound sites in the area, we sought to minimize the amount of excavation needed to expose the largest and deepest profiles possible. To date, this meant testing only those portions of mounds exposed by looters, shell miners, or other destructive agents. Being mostly intact, Hontoon Dead Creek Mound offered few opportunities for such testing. However, one location on the west slope near the apex of the mound featured a wide, shallow depression that suggested it was previously excavated and back-filled. This is the irregularity in slope contours noticeable in McGee's map and seen in our own map in the location of our trench. The dimensions of this depression are hard to define because its edges are diffuse and thus presumably weathered from age. A conservative estimate on its diameter would be 6-7 m. A berm of redeposited fill in the center of this depression is either a secondary, natural disturbance or backfill from prior digging.

Unlike the looters of Live Oak Mound (8VO41), who left behind ample evidence of their illicit behavior (Sassaman 2003a:76), those digging at Hontoon Dead Creek Mound did not provide us with absolute proof of their actions. Thus, we cannot be sure that the location chosen for trenching was indeed disturbed by looters. Without question the location was disturbed, and from the placement of a large palm tree in redeposited fill, the disturbance occurred several decades ago. The disturbance could possibly have been a tree tip-up. The consequence of several such tip-ups are evident on the mound slopes today, although these are generally much smaller pocks, roughly 2-3 m in diameter. Of course, a large oak dislodged from the side slope has the potential to open a hole many times that size, but if such were the case we would expect to observe the fallen tree, even if it fell decades ago. A fallen live oak observed by Wyman (1875:25), which he estimated to be 300 years old, is still preserved at the summit of 8VO41. It apparently takes much more than 125 years for fallen hardwoods this large to be converted to mulch.

If the site were indeed looted in this and other places, and that seems likely, the results must have been too meager to encourage continued digging. The same results that deterred C. B. Moore from more thorough digging at some sites appears to have been the salvation of Hontoon Dead Creek Mound. The results of our work confirm that little material culture exists at this site, at least not in the exposed surfaces and side-slope deposits we tested.

The area of presumed looting was cleared of surface vegetation and leaf litter and then staked off from the top of the slope with a meter-wide trench some 9 m long on a level plane. The upper end of the trench was actually near the edge of the foot patch, well below the apex of the mound. The trench was thus positioned to expose only the lower half of the mound; another 10-m extension upslope would have been needed to reach the apex.

The trench was divided into five test units. Numbered consecutively from the base of the mound, each of the first four test units (TUs 1-4) were 1 x 2-m units; the final unit (TU5) was a 1 x 1-m unit at the top. By subdividing the trench we were not only able to maintain some horizontal control along the slope, but also expose the deposits in leap-frog fashion so that perpendicular profiles could be recorded and intervening units excavated by stratigraphic units. Accordingly, excavation proceeded simultaneously in TUs 1 and 3, and shortly later, in TU5. Excavation in each of these units was conducted in arbitrary levels, either 10 or 20-cm thick levels, depending on the complexity of the matrix. As circumstances dictated, the intervening units, TUs 2 and 4, were also excavated in arbitrarily levels because each was dominated by either homogeneous secondary deposits or massive disturbances. Irrespective of level excavation methods, all matrix was passed through 1/4-inch hardware cloth.

Figure 4.2 provides a schematic profile of the excavation levels in each of the five test units of the trench. The initial level in each unit, Level A, was a wedge-shaped cut designed to achieve a flat surface at the lowest elevation in each unit, typically at the southwest or northwest corner. The exception was TU3, where the initial level penetrated much deeper due to the pervasive disturbance of a palm tree root. Excavations thereafter crosscut intact strata of the mound and thus do not provide much in the way of vertical control beyond some gross measure of depth below surface. As it turns out, the vertical control afforded by excavation in archaeostratigraphic levels (i.e., layers of mound fill) would have been extraneous given the limited content of mound matrix. In any event, the goal of trenching was to expose and record stratigraphic profiles and thus the use of arbitrary levels was the most expedient method to expose as much as possible in the time available.

Excavation of the upper levels of each unit proceeded without incident but difficulties were encountered as deeper levels were removed. Groundwater was encountered in Level G of TU1, forcing us to terminate excavations until the water level dropped over the field season. We were able to resume excavation in TU1 the last week, removing an additional level and a half before groundwater again suspended operations. We were never able to reach the base of mound fill in this or any other unit, although augering in the floor of TU 1 and elsewhere enabled us to estimate that another 20-30 cm of mounded shell existed beneath the water table. An additional buried shell midden (discussed below) was observed in augers and piston cores sunk below the mounded shell.

The second difficulty arose in TUs 4 and 5, where unconsolidated shell began to collapse from the walls and threaten the deeper profiles. We never anticipated being able to excavated these units down to the base of the mound for indeed that would have resulted in 4-m deep profiles of largely unconsolidated shell. But even the 2-m deep profiles of TUs 4 and 5 became vulnerable to collapse as excavation proceeded, forcing us to shore up the walls with plywood and stakes. It is unfortunate that these upslope units could not have been excavated to base, but doing so would have required removal of the upper half of the profile to ensure safety. The destruction of this context was not justified under the present circumstances.

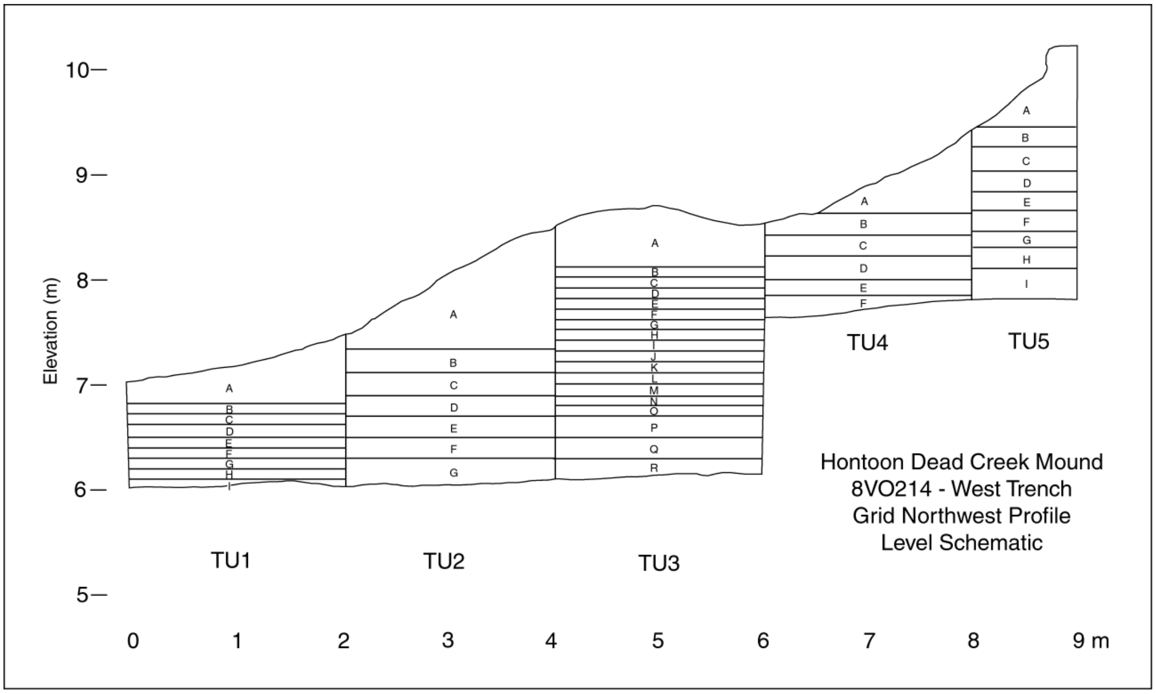

Figure 4-2. Schematic of levels in each of the five test units comprising the west trench of 8VO214.

Artifact Recovery

Very little material culture was recovered in over 13 m3 of excavated mound fill, confirming the observations made by Wyman and our own inspection of the mound surfaces. Only three small St. Johns plain sherds were recovered, two in Level A of TU3, and one in Level C of TU 2 (Table 4-1). The former context is clearly disturbed, the latter likely associated with the palm root centered in TU3. Fourteen flakes of chert were scattered thinly across disturbed and undisturbed contexts with no obvious clustering. Four beads (one made from shell the others made from bone), three shark teeth, five fragments of marine shell, and six pieces of modified bone were likewise thinly dispersed across levels. With the exception of the St. Johns sherds, all of these artifacts are familiar to Mount Taylor assemblages in the region, although admittedly, none are terribly diagnostic of any particular period.

The only class of material remains recovered beyond trace frequencies was vertebrate fauna, but even this pales in comparison to the density of animal bone from 8VO202, Blue Spring Midden B (8VO43), or the shell-bearing sites along the margins of Hontoon Island, such as 8VO7494.

Table 4-1. Inventory of Artifacts and Other Remains[1] Recovered from Excavation of Trench at 8VO214, by Test Unit (all weights in grams).

		TU1	TU2	TU3	TU4	TU5	Other[2]	Total
Sherd	ct		1	2				3
	wt		9.2	23.8				33.0
Lithic	ct	2	3	3	3	3		14
	wt	3.5	2.9	17.1	1.3	72.8		97.6
Shell bead	ct				1			1
Bone bead	ct		1		1	1		3
Shark tooth	ct		2				1	3
Marine shell	ct		2	1		1	1	5
	wt		75.5	136.8		23.8	9.1	245.2
Modified bone	ct	2	1	1		1	1	6
	wt	4.6	1.4	3.1		2.9	4.7	16.7
Vert. fauna	wt	1118.6	2008.4	1070.7	911.5	398.2	66.6	5644.0
Historic[3]	ct		1					1

[1] not tabulated by unit are 74 pieces (217.0 g) of ferruginous sandstone, 97.3 g of fired clay, 20.4 g of botanical material, and two paleofeces at 28.4 g.
[2] consists of wall scrapings, and baulks between TUs 1 and 2, and between TUs 3 and 4.
[3] one shotgun shell casing

Recording Mound Stratigraphy

The 9-meter-long profile of the west trench was largely intact, and although it did not penetrate to the base of the mound, a large portion of near-basal strata was represented, as was a 2-m deep sequence of stacked strata indicative of repeated shell deposition, burning, and crushing. Recording the details of the trench profiles was challenging from the standpoint of time and lack of experienced personnel. Given the rarity of opportunities to observe large profiles of intact Archaic mounds, the decision was made early in the project to photograph the profiles at sufficient resolution and with minimal distortion so that a composite photograph would provide a relatively accurate record of stratigraphy. Given the narrow width but great depth of the trench, photographs taken from the vantage point of the ground surface above would be necessarily distorted, but would capture a large field of view. Conversely, shooting the profile straight on from inside the trench would avoid distortion but capture only a small portion of the profile in each shot. However, a composite photograph could be constructed from the individual shots so long as the shots overlapped sufficiently to enable their assembly into one.

A composite photographic record of the profiles was not only desirable, but probably necessary given the constraints of a narrow and deep trench. With a Nikon D100 digital camera outfitted with a wide-angle lens, we took 188 photographs of the four profiles of the trench, effectively recording at high resolution every detail of texture, content, and color that was observable to the naked human eye. A 2 x 8-inch plank roughly 3 m long was used to maintain consistency in camera position as we moved down and across the profiles. The board was marked with a line every 50 cm along its length to enable vertical consistency, and a horizontal cloth tape was strung along the length of the profile on either side to enable horizontal consistency. Starting at one end of the trench, a student held the board upright against the wall opposite the profile being photographed, and the author placed the back of the camera against the board with its base flush with the increment mark and took the shot in shaded daylight with the flash option. The camera was moved down to the next increment, a shot taken, then down the board at 50-cm increments repeatedly until reaching the bottom. The board was then moved to the next position and the sequence repeated. Each line of shots was initiated from the top, where a menu board listed the panel in numerical sequence for each profile. After the profiles were prepared for photographing, the recording process took about three hours to complete.

Assembling the 188 photographs into composite profiles took considerably more time. Using Adobe Photoshop, the photos were combined into vertical panels, then each of the panels combined into entire profiles. Edge matching was challenging because even fields of view as small as 50 x 50 cm suffered distortion around the perimeter. Fortunately, overlap among photos was sufficient to work exclusively with the central portions of each shot. Minor variations in scale, color, hue, and contrast were adjusted as needed.

For heuristic purposes, the four composite profiles were assembled into a single orthographic projection, shown here in Figure 4-3. This projection is not terribly useful as an analytical tool because it deliberately distorts both the vertical and horizontal planes, plus the end profiles had to be “stretched” to enable full view of the inner profile. The individual profiles, when viewed in two dimensions, are a fairly accurate rendition of the actual profiles but these too are not terribly useful as analytical tools, at least not in the reduced-scale print output of Figure 4-4. As interactive digital files, however, the composite photographs are highly useful records of the profiles that can be zoomed in to observe even individual shells at high resolution. In a later section of this chapter, photos of several of the key features of the profile are provided at large scale to illustrate the interpretive value of these digital images.

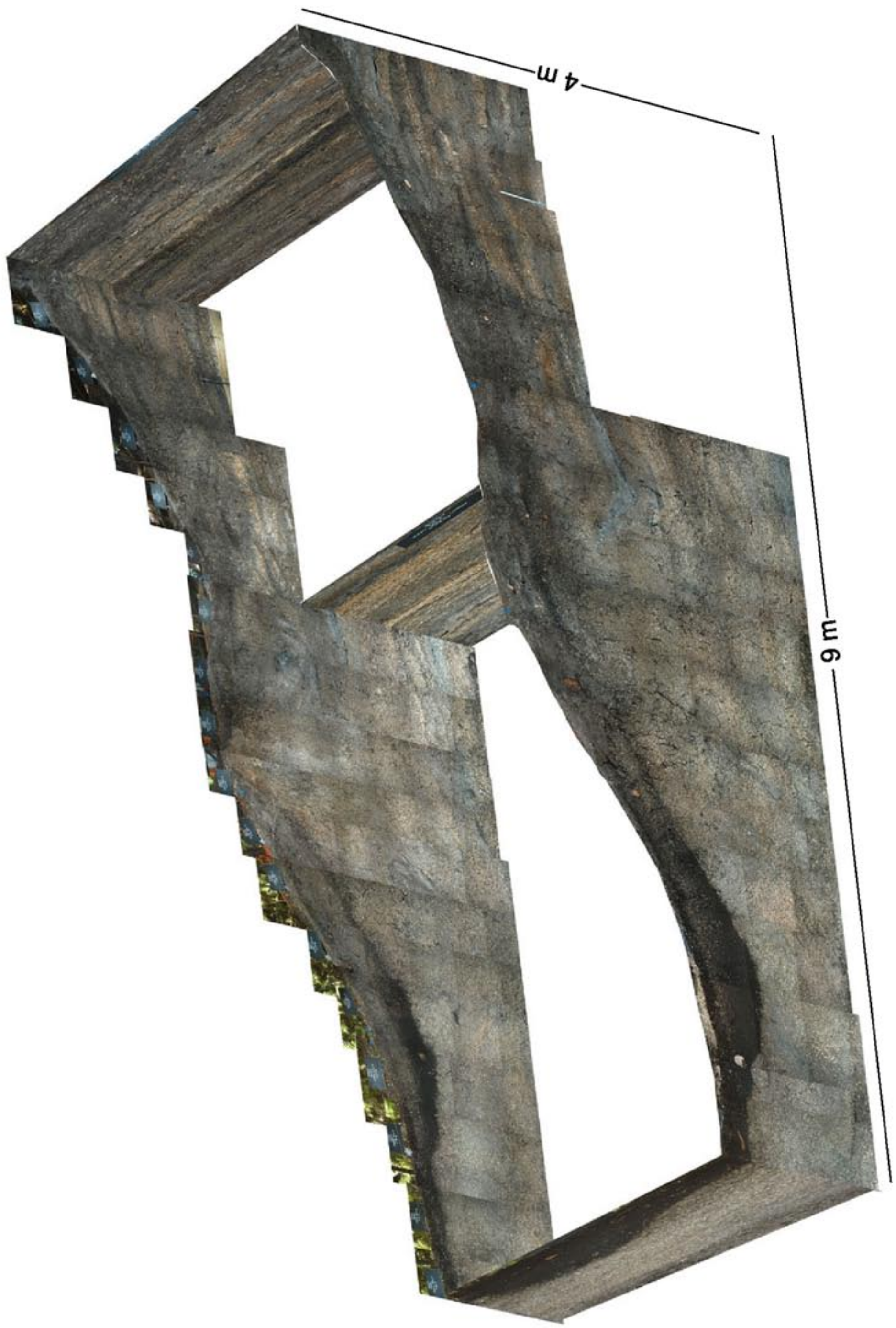

Figure 4-3. Three-dimensional projectional of photographic composites of profiels of trench at 8VO214. Three-dimensional exaggeration 4x.

Figure 4-4. Composite photograph of grid northwest profile of West Trench, Hontoon Dead Creek Mound (8VO214).

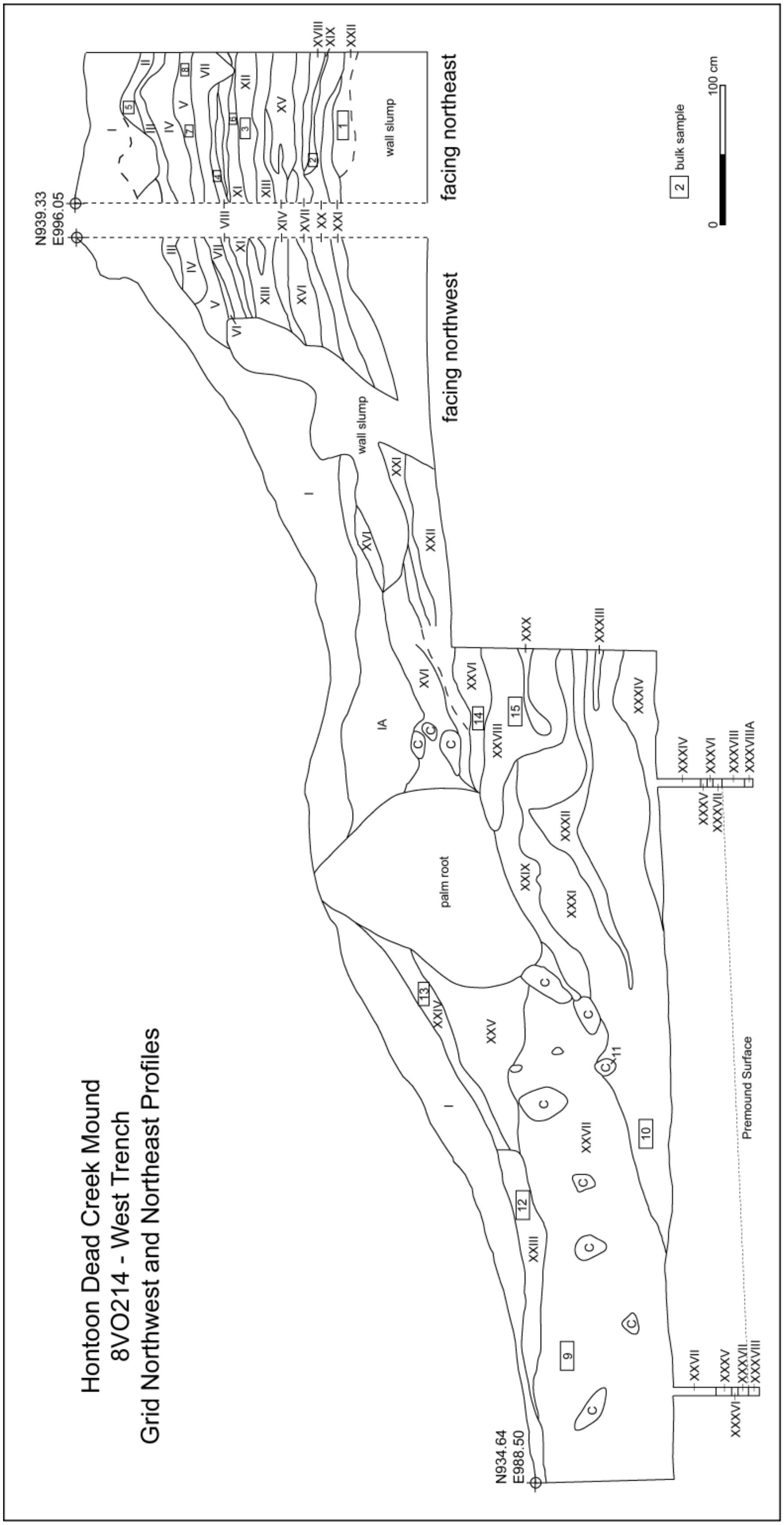

Figure 4-5. Grid northwest and northeast profiles, West Trench, Hontoon Dead Creek Mound (8VO214).

With photographic records capable of being rendered into detailed line drawings, traditional profiles may become obsolete, especially considering how much time they take to record. However, we chose to record as much detail as possible with the time available, completing the grid northwest profile and the two short end profiles before backfilling the collapsing unit. Shown in Figure 4-5 is the long profile and its end member at the upslope end of the trench. The description of mound stratigraphy that follows below is derived from the configuration and nomenclature of this composite profile.

Mound Stratigraphy

Labels for stratigraphic units were assigned in the field using Roman numerals in sequence from top to bottom. These were later adjusted in Figure 4-5 to integrate all strata into one sequence. Table 4-2 provides brief descriptions of each of the strata as they are keyed to the profiles.

Thirty-eight strata are recognized in the profiles using relatively conservative criteria for stratigraphic differentiation. Most of these units represent distinct depositional events that varied in the quantity, type, and condition of shell involved. These individual units can be grouped into four major depositional types: (1) submound midden; (2) interior core platforms; (3) bulkhead and platform cap; and (4) stacked sequence of burned shell surfaces over thin mounding stages. Each of these macrounits is described in turn below.

Submound midden. The trench excavation was halted when groundwater was reached at about one meter below the surface at the toe of the mound. Augering in the floor of TU1 showed that unconsolidated shell continued well below the water level and additional augers placed in the cypress swamp to the west indicated the presence of a buried shell midden below swamp muck. To ascertain the depth of shell below the water in the trench and to determine if the buried shell midden extended underneath the mound, two piston cores were driven into the floor of the trench in the centers of TUs 1 and 3. The locations of cores are shown in the trench profile and a photographic description is provided in Figure 4-6.

Core 1, placed in the center of Test Unit 1, penetrated through the mounded shell to reach the terrace sands (Str. XXXVIII) at about 55 cm below the floor of the trench. Lying directly on top of these sands was a thin shell-bearing deposit (Str. XXXVII) with Viviparus and the shells of other small aquatic gastropods, occasional charcoal, and small vertebrate bone in a fine sand matrix. A 5-cm-thick stratum of fine sand (Str. XXXVI) overlaid this shell midden and was, in turn, overlain with a second shell-bearing stratum (Str. XXXV) similar to the one resting directly on the terrace surface. Mounded shell observed in the lower portion of the trench profile (Str. XXVII) was observed overlying the buried shell midden at a depth of 30 cm below the trench floor, or roughly 130 cm below the surface at the northwest corner of Test Unit 1.

Table 4-2. Stratigraphic Units of Northwest and Northeast Profiles of the West Trench, Hontoon Dead Creek Mound (8VO214).

Stratum	Description
I	Surface stratum of whole and crushed *Viviparus* shell and occasional crushed *Pomacea* and bivalve shell in fine sandy loam matrix with numerous roots, leaf matter, and insect/animal burrows. Redeposited mound fill from combination of looting, tree tip-ups, and slumping.
IA	Unburned whole and crushed *Viviparus*, *Pomacea*, and bivalve shell in fine sandy loam matrix of redeposited mound fill from looting.
II	Unburned whole and crushed bivalve shell.
III	Burned whole and stacked bivalve shell.
IV	Unburned whole and crushed *Viviparus* and *Pomacea* shell and minor crushed bivalve shell in 7.5YR fine sandy loam matrix.
V	Burned and concreted crushed bivalve shell.
VI	Concreted crushed *Viviparus* and bivalve shell.
VII	Unburned whole *Viviparus* shell.
VIII	Burned whole *Viviparus* shell in 10YR2/1 fine sandy loam matrix.
IX	Unburned whole *Viviparus* shell.
X	Burned whole *Viviparus* shell in 10YR2/1 fine sandy loam matrix.
XI	Unburned whole and crushed *Pomacea* shell.
XII	Burned whole *Viviparus* and crushed bivalve shell in 10YR3/1 fine sandy loam matrix.
XIII	Unburned whole and crushed *Viviparus*, *Pomacea* and bivalve shell.
XIV	Burned crushed bivalve shell.
XV	Unburned whole and crushed *Viviparus*, *Pomacea* and bivalve shell in 7.5YR6/0 fine sandy loam matrix.
XVI	Unburned whole *Viviparus* and minor crushed *Pomacea* shell in 7.5YR6/0 fine sandy loam matrix.
XVII	Burned crushed bivalve shell.
XVIII	Unburned whole and crushed *Viviparus* and bivalve shell.

Table 4-2. continued.

Stratum	Description
XIX	Burned crushed bivalve shell.
XX	Unburned whole and crushed *Viviparus*, *Pomacea* and bivalve shell.
XXI	Burned crushed bivalve shell.
XXII	Mix of burned and unburned whole and crushed *Viviparus* shell in ashy fine sandy loam matrix.
XXIII	Buried A horizon (downslope mound surface at time of abandonment); 10YR3/3 fine sandy loam with unburned whole *Viviparus* shell.
XXIV	Homogenous 10YR2/2 muck.
XXV	Unburned whole and crushed *Viviparus* shell in light gray fine sandy loam matrix.
XXVI	Burned and concreted crushed *Viviparus* and bivalve shell.
XXVII	Unburned crushed and minor whole *Viviparus* shell in variable 10YR4/2-7/1 fine sand to clayey loam matrix and clasts of concreted *Viviparus* shell and small, contorted lenses of unburned whole *Viviparus* shell.
XXVIII	Unburned whole and crushed *Viviparus* shell.
XXIX	Unburned whole *Viviparus* shell.
XXX	Unburned, finely crushed *Viviparus* shell.
XXXI	Unburned whole and crushed *Viviparus* shell in brown to light gray-blue fine sandy loam matrix.
XXXII	Unburned whole and minor crushed *Viviparus* shell.
XXXIII	Unburned, finely crushed *Viviparus* shell.
XXXIV	Unburned whole and crushed *Viviparus* and other small gastropod shell in 10YR6/1-7/1 fine sand with rare charcoal.
XXXV	Submound shell midden: unburned whole and crushed *Viviparus* and other small gastropod shell in 10YR3/1 with occasional charcoal.
XXXVI	10YR6/1 fine sand with moderate unburned, whole *Viviparus* shell.
XXXVII	Mix of 10YR6/1 fine sand and 10YR2/1 silty fine sand with moderate *Viviparus* shell and occasional charcoal.

Table 4-2. continued.

Stratum	Description
XXXVIII	Terrace sands: 10YR2/1 silty fine sand with stringers of 10YR6/1 fine sand with occasional unburned, whole *Viviparus* shell.
XXXVIIIA	Sterile 10YR6/2 fine sand.

This same sequence was observed in Core 2, placed in the center of Test Unit 3. This core originated at a slightly higher elevation than Core 1, but actually penetrated deeper into the terrace sands to reach a zone of eluviation (Str. XXXVIIIA). The buried surface of the terrace is several centimeters higher than it is in Core 1, attesting to a gentle slope of the premound/premidden surface down toward the swamp. In turn, the buried midden lying directly on the terrace surface thins in Core 2, suggesting that it did not extend much farther eastward, beneath the core of the mound. Mounded shell over the buried midden in Core 2 (Str. XXXIV) contains less crushed shell that its counterpart in Core 1.

In sum, a submound stratum of shell-bearing midden with charcoal and vertebrate bone thickens and deepens toward the swamp. The westward extent of this buried midden in the swamp was determined by augering (see below). Observed in all augers that intercepted buried midden was moderate to abundant food remains, including charred and uncharred hickory nutshell. All indications are that this buried deposit is a true "kitchen" midden in the sense of secondary refuse of subsistence activities. A radiocarbon assay on nutshell for midden in the swamp returned an age estimate of 6040 ± 70 rcybp (7150-7130 and 7020-6710 cal B.P). Aside from its stratigraphic inferiority to the mound, the precise temporal and cultural relationships of this buried midden to the mound remain uncertain. However, the lack of significant soil development at the top of the buried midden suggests that the termination of midden accumulation and onset of shell mounding was roughly coeval. Additional observations on the relationship of the buried shell midden to the mound is reserved for a later section of this chapter.

Interior platform(s). The lower strata in TUs 2 and 3 (Str. XXXI-XXXIV) consist of largely whole *Viviparus* shell and other occasional gastropods in a matrix of fine sand that varies from brown to light gray-blue. The latter coloration suggests reduction from heat, but none of the shell is burned. Overall, these deposits have the appearance of rapidly accumulated basket-loaded shell. Unlike the buried shell midden below, this mounded shell contains very little vertebrate fauna and only minor flecks of charcoal. It was likewise free of concreted midden. Thin stringers of finely crushed, unburned shell (Str. XXX and XXXIII) interrupt an otherwise thick deposit of mounded shell (Figure 4-7A); the former is stratigraphically superior to the latter and exists in a stratum of whole, unburned *Viviparus* shell (Str. XXVIII) that may represent the fill of a pit dug into the

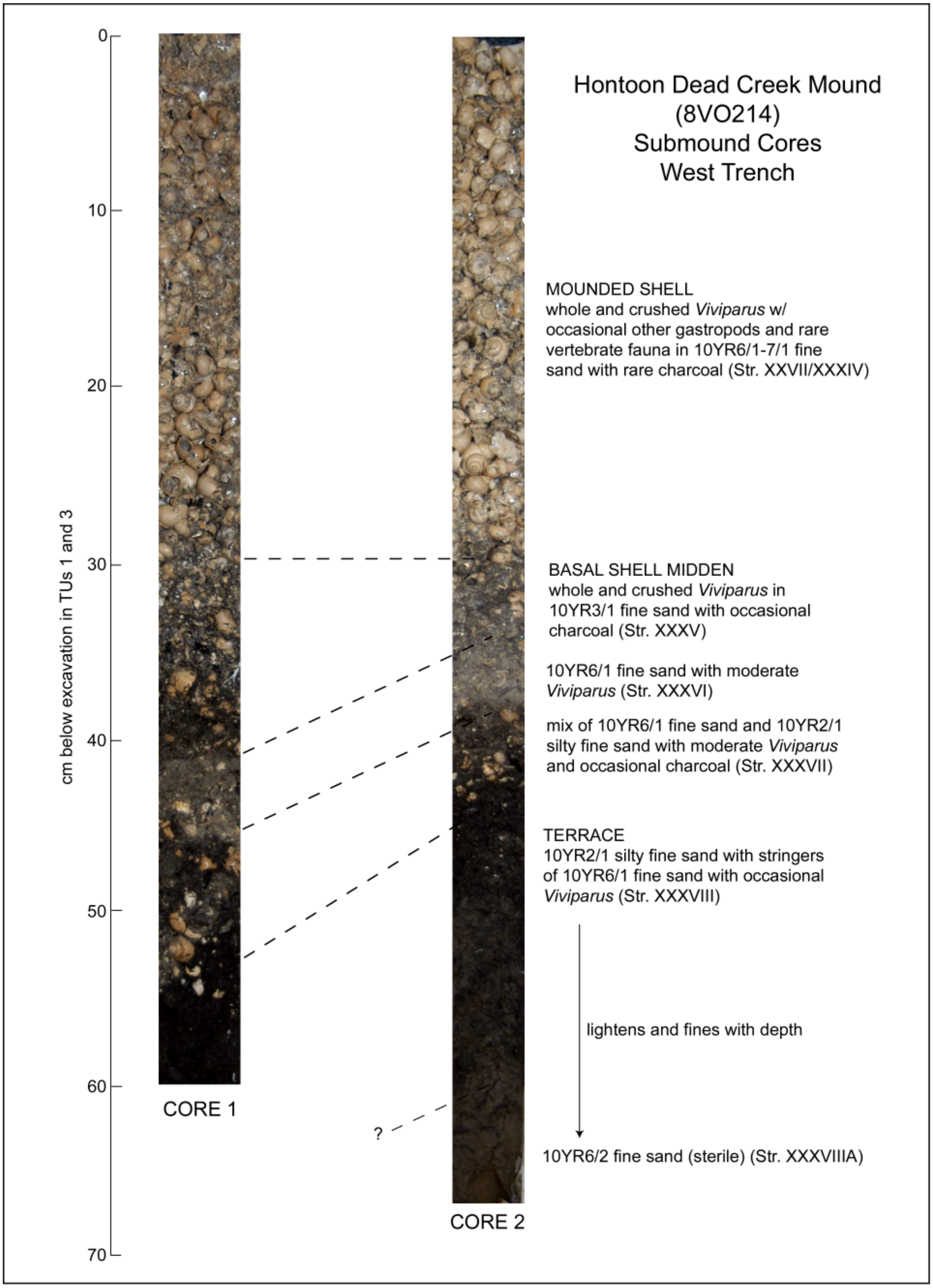

Figure 4-6. Photographs and description of stratigraphy observed in piston cores 1 and 2 driven into the floor of the West Trench in Test Units 1 and 3, respectively.

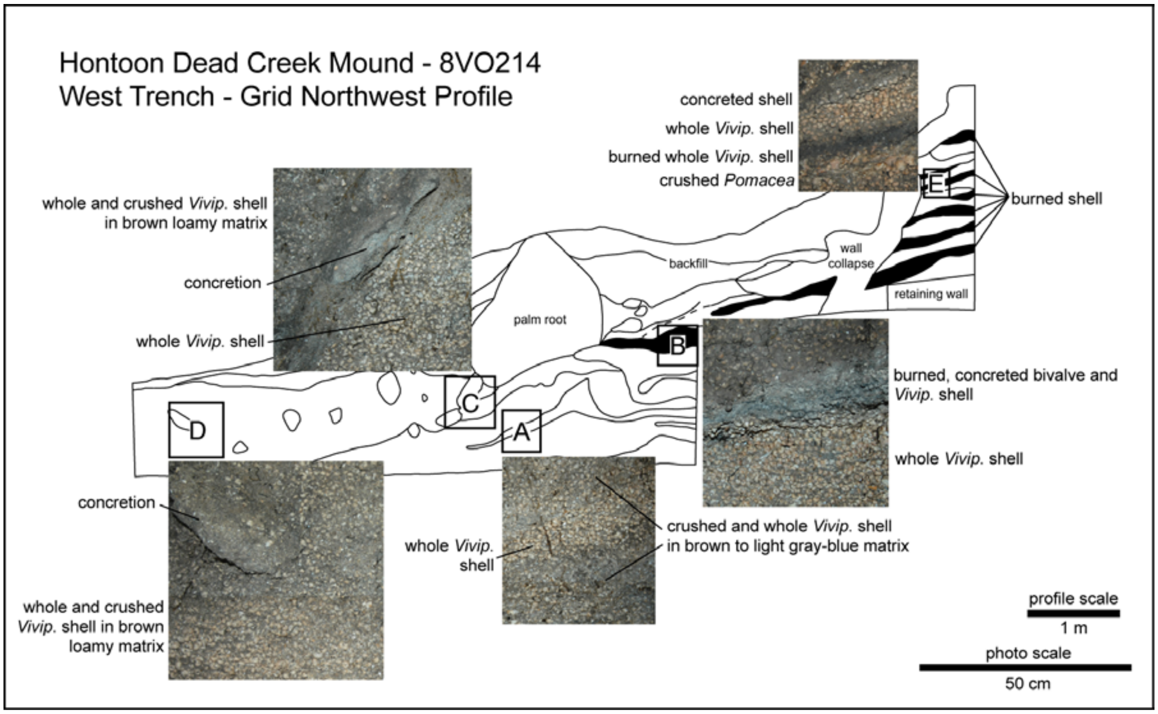

Figure 4-7. Photographic detail of key stratigraphic features noted in text.

mounded shell. The surface from which this possible pit originates is capped with a stratum of burned and concreted bivalve and *Viviparus* shell (Str. XXVI), the deepest of many such burned layers (Figure 4-7B). As this surface dips downslope (to the left in Figure 4-5) it meets and is lapped over by a thick stratum of crushed, unburned shell with numerous concretion clasts (Str. XXVII). This latter unit appears to have been added as a bulkhead to enable expansion of the mound up and out (see below).

Although the West Trench did not penetrate into the very center of the mound, the stratigraphic profile in the deepest and innermost portions of the trench attests to an inner mound stage at least 1.5 m tall. The burned shell layer at the top of this stage (Str.XXVI) may continue on a steep incline upward, joining another burned shell stratum (Str. XXI) at the base of a stacked sequence of burned layers. However, this initial burned layer has a distinct consistency and more flattened orientation that its counterparts upslope. Combined with the thin, horizontal stringers of crushed shell in the underlying mantle of mounded shell, this initial burned shell appears to mark the top of a platform mound that was later shored up along the downslope sides and then capped with whole, unburned shell to create an even larger platform.

Bulkhead and platform cap. As noted, a thick body of largely crushed Viviparus shell (Str. XXVII) lies at the toe of the mound and overlaps the initial platform. This is a relatively homogenous body with large to small clasts of concreted midden throughout (Figure 4-7C, D), minor vertebrate fauna and small, contorted lenses of whole Viviparus shell. Most of the concretions appear to be randomly oriented, with occasional platey clasts oriented vertically. However, clasts positioned at the facies between the crushed shell and the sideslope of the initial platform mound (Figure 4-7C) were not likely random. Opposite profiles of the trench show the same orientation for individual, platey clasts, suggesting they were positioned to shore up the unconsolidated shell of the side slope. The field crew used the same method for shoring the loose shell of their backdirt piles to prevent shell from falling back into the excavation units. In this respect, the clasts and crushed shell fill served as a bulkhead for expanding the mound up and out. The source of the clasts and the crushed shell may have been the buried midden observed under the mound. This midden extended out from the mound at least 25 m (see below) and it likely would have been encountered by mound builders collecting shell from the swamp as building material, even if it were completely submerged at the time of mound construction. The purpose of expanding the mound upward and outward is evident in the superior stratigraphic layers of the mound, which reflect a repetitive, cyclical program of activity resulting in additional mound stages. Before this cycle began, however, the initial platform appears to have been capped by a thick stratum of whole, unburned shell. The palm tree root and looter activity in the upper center of the profile has obscured much of the evidence for this event, but the large quantity of shell that slumped out of the lower portions of Test Units 4 and 5 may be testimony to capping with whole, clean shell. The downslope remnant of a possible capping event is seen in Stratum XXV in TU2. The loamy matrix that is a part of this stratum may reflect its proximity to the final mound surface, as well as the gradual accumulation of organic matter at the base of the slope. This original surface of the mound near the base of the slope is seen in Stratum XXIV.

Stacked burned shell surfaces. After capping the platform with clean shell, a repetitive series of events occurred that resulted in additional accumulations of whole and crushed shell, generally 15 cm think, capped by burned and sometimes concreted shell lenses 5-10 cm thick (Figure 4-7E). These latter deposits are seemingly discontinuous and sometimes basin-shaped, most likely the “old fire places” Wyman described. They are not, however, all that discrete, as some extend more than two meters across portions of the profile. Whatever the actual function and structure of these stratigraphic features, they are clearly repeated through the entire upper half of the mound profile. At least six burned shell layers are observed in the upper 1.25 m of profile in TU1. Vertebrate fauna was as sparse in the burned and intervening shell layers as in the mound fill below and downslope, nor was charcoal ever abundant despite the pervasiveness of burned shell.

Bulk samples were collected from these stacked burned shell layers, as well as other strata throughout the profiles. Keyed numerically in Figure 4-5, these samples await analysis and radiometric dating pending acquisition of additional research funds.

METHODS AND RESULTS OF BUCKET AUGERING

After initial coring in the floor of TU1 revealed the presence of a submound shell midden, a program of systematic coring was initiated to determine the horizontal and vertical extent of this deposit in the adjacent cypress swamp. The strategy was to sink a 4-inch bucket auger at intervals of 10 m along transects spaced 30 m apart and oriented perpendicular to the length of the mound (Figure 4-1). The initial auger was placed just to the southwest of the trench. Under ca. 1.0 m of swamp muck the crew encountered the same midden matrix observed beneath the mound but in this location, 10 m into the swamp, the midden was about 50 cm thick. Resting on clean basal sands, the midden was rich in wood charcoal, charred and uncharred hickory nutshell, vertebrate bone, wood chips, and Viviparus and other aquatic snail shell, especially Planorbella spp. A similar sequence was observed in an auger 10 m father into the swamp, but in the subsequent test, ca. 30 m southwest of the trench, shell midden was deeper and thinner. Two additional augers farther out along this same transect revealed neither midden nor basal sand, only increasingly thicker muck to a maximum observable depth of ca. 2.0 m. The increasing depth of muck apparently signals an ancient terrace escarpment some 30 m west of the modern swamp-terrace margin.

Five additional transects of auger tests established the horizontal extent of the buried shell midden as depicted in Figure 4-1. Its size and shape is isomorphic with the mound itself, suggesting strongly that the midden extends beneath the mound along its entire length. The remarkable preservation of uncharred organic matter in the buried midden raises the possibility that it was deposited under water. If so, this was initiated before the mound was started because mounded shell clearly overlies the midden. It is likewise highly probable that some of the crushed shell in the bulkhead of the mound was derived from this existing midden. Given that the buried midden extends some 25 m into the swamp and seems to front a buried terrace escarpment, it seems reasonable to hypothesize that the buried midden formed as a subaerial deposit before mound stages in the West Trench profile were erected, but was quickly flooded by rising water levels and an aggrading floodplain that buried it by a meter of muck. Of course, earlier mound constructions in portions of the mound we did not observe could be coeval with the formation of this buried midden, a possibility brought to the forefront when Hontoon Dead Creek Mound is compared to other Archaic mounds in the region.

HONTOON DEAD CREEK MOUND IN COMPARATIVE PERSPECTIVE

The overall shape and orientation of Hontoon Dead Creek Mound is duplicated at several other sites in the area, including Live Oak Mound (8VO41; Sassaman 2003a), Blue Spring Midden B (8VO43; Sassaman 2003a), Jones Island Mound (8VO219; Miller and Griffin 1978:89-93), and possibly Harris Creek (8VO24; Aten 1999) and 8VO202. The latter two are much larger constructions, Harris Creek with definitive Mount Taylor mortuary features at its core. Hontoon Dead Creek, Live Oak, and Blue Spring Midden B are roughly the same size, each between 120 and 150 m long, between 30 and 50 m wide, and from 4 to 5 m in maximum height. Each also has (or had) a summit at one end of an elongated, somewhat crescent-shaped plan, and each has a basal component dating to the Mount Taylor period. Height of the 240-m long, 90 m wide Jones Island Mound is not specified, but it likely contains a major Mount Taylor component (Miller and Griffin 1978:92). Like Harris Creek, 8VO202, at the north end of Hontoon Island, also has a substantial Mount Taylor component and possibly a Mount Taylor mortuary feature. Some of the variation among these mounds can be attributed to later occupations which added additional shell and, in some cases, human interments. Beyond that, variation in the size and shape of these mound is owed in part to the variable form and function of the original Mount Taylor constructions, which included shell ridges, low, dome-shaped mounds, and possibly small house mounds arrayed in arcuate or linear fashion. Hontoon Dead Creek Mound exemplifies the crescent-shaped ridge constructions whose overall configuration is owed to Mount Taylor efforts, but whose conical-shaped apexes at one end of the ridge appears to be a later, St. Johns-period addition.

Although the buried shell midden beneath Hontoon Dead Creek Mound contains sufficiently dense food remains to suggest it was deposited by frequent residents at the site, the mound does not. The limited amount of bony food remains and nutshell in the mounded shell at this site and at Live Oak Mound stands in sharp contrast to the shell-bearing strata in Test Units 1 and 3 at 8VO202, or the shell strata at Blue Spring Midden B. This contrast is especially remarkable considering that stacked layers of burned shell are found at all four sites. At 8VO202 and Blue Spring Midden B they are associated with architectural features and other evidence for domestic living, and are thus best understand as house floors and/or associated food processing areas. Other portions of Hontoon Dead Creek and Live Oak mounds may encase evidence for domestic structures, and it is all but certain that other portions 8VO202 and Blue Spring Midden B, now destroyed from mining, were locations of shell deposits lacking vertebrate bone and other refuse. What all these sites suggest is a partitioning of space in Mount Taylor times, not only in the sense of site specialization or intersite functional diversity, but also in the sense of ritual and mundane "precincts" within sites, juxtaposed in close proximity. What is more, the large capping episodes and post-capping stages with burned surfaces appear to have occasionally restructured spaces, obscuring beneath shell former surfaces or facilities by changing its relative position within a growing, multimodal mound.

The stratigraphy of Hontoon Dead Creek Mound offers evidence for at least three transformations in structure and possibly function. Apparently only the first episode of shell accumulation involved routine domestic activities, and thus subsequent building episodes and activities on mounded surfaces were likely ritual. Without better exposures of the internal configuration of this mound, it is impossible to infer much about the initial mound stages and functions. One possible model for the internal configuration is Harris Creek and its Mount Taylor mortuary detailed by Aten (1999). The dimensions of mound stages for Harris Creek are modeled as cross-sections in Figure 4-8 and fitted to the known stratigraphic sequence at Hontoon Dead Creek Mound. The small mortuary at Harris Creek would fit comfortably in the core of Hontoon Dead Creek Mound, well beyond the reach of the trench. An initial capping event like that observed at Harris Creek would likewise fit easily within the portion of the mound unexcavated. A second capping event would extend into the profile exposed in the West Trench, conforming to the structure described earlier as an "interior platform." Aten (1999) argues convincingly that mound stages at Harris Creek were designed to expand a platform on top of the mound. He also demonstrates that the two mortuary episodes attributed to the Mount Taylor period were not central to this platform, but instead off to the north and southeast sides. Moreover, as the Harris Creek platforms were raised and expanded, its position shifted eastward, away from Harris Creek. Some of the asymmetry Aten describes may be sample bias, as much of Harris Creek was mined for shell before Ripley Bullen could

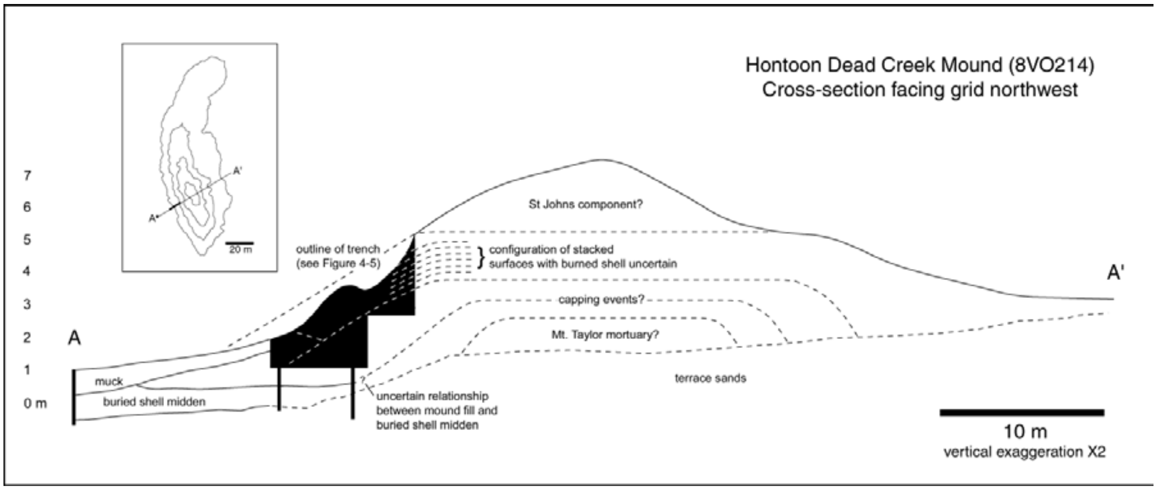

Figure 4-8. Hypothetical projection of internal configuration of Hontoon Dead Creek Mound based on configuration of Harris Creek Mound D Area and the Mount Taylor mortuary at its core (Aten 1999).

muster a salvage operation. Nonetheless, the staged construction and mortuary function of this mound are certain, and thus provide a model for testing at the few crescent-shaped Archaic mounds left standing, such as Hontoon Dead Creek and Live Oak mounds. Judicious coring in these mounds may resolve questions of internal configuration and content without extensive digging.

The relationship of interior component(s) of Hontoon Dead Creek Mound to the shell midden buried in the swamp is uncertain (Figure 4-8). Although this midden extends under the mound along the swamp edge, it thins quickly and presumably does not continue under the core of the mound. The terrace surface beneath the mound rises gently in the two submound cores sunk into the floor of the trench (see Figure 4-2). The terrace surface on the east side of the mound is a full meter higher than its elevation at the edge of the swamp. Thus, over the roughly 40-m distance between the swamp/mound edge and the terrace surface on the backside of the mound, the premound surface rises a full meter. Like elsewhere along the eastern margin of Hontoon Island, this rise is relatively abrupt, spanning only 10-15 m in most places. In Figure 4-8 this escarpment is positioned just to the immediate northeast of the trench, implying that the interior components were placed atop the terrace. If so, the core mound components would have been vertically and horizontally removed from the buried shell midden. The temporal relationship of these two distinct features can be resolved only by dating the core of the mound.

Capping events over the core mound component(s) eventually overlapped the buried shell midden along its northeast edge. As suggested earlier, the bulkhead formed to enable expansion of the mound up and out appears to have been constructed from existing midden. Although vertebrate fauna were sparse throughout the excavated mound fill, the highest density of bone was found in the bulkhead material and the mounded shell that would have constituted the second capping event in Figure 4-8. It is noteworthy that the Mount Taylor mortuary at Harris Creek was capped by shell midden. In the case of Hontoon Dead Creek Mound, the overall sparse vertebrate bone in presumably mined midden is a bit disconcerting, but the presence of concretion clasts and crushed shell attests to the displaced nature of this fill material. It follows that the source of this fill was a substantial shell midden, perhaps an earlier mound, whose location in the swamp became flooded over the time Hontoon Dead Creek Mound formed. The aggrading floodplain enabled muck to form over the remaining shell midden, and perhaps even lap onto the toe of the mound. The possibility remains that muck observed in the profile of the West Trench was actually used as construction fill. Muck was used to cap a Mount Taylor mortuary at Bluffton (Wheeler et al. 2000:140) and possibly Harris Creek. The sand mantles observed at both of these mounds were not observed at Hontoon Dead Creek Mound.

The stacked sequence of burned shell strata observed at Hontoon Dead Creek and Live Oak mounds was not directly observed by Bullen and his crew at Harris Creek, although the mound continued to receive shell after capping the mortuaries. In Figure 4-8, the stacked burned layers observed in the upper portion of the West Trench profile are not extrapolated much beyond the excavation, for indeed we do not know the full extent and configuration of these strata. What can be concluded about these is that they are redundant in terms of thickness, condition, and content. Pottery was not found in any of the matrix we excavated, and vertebrate fauna and charcoal were sparse. Instead of forming in situ, the burned shell layers appear to have been spread over surfaces of clean shell. In that our exposure of these surfaces is along the side of the mound, burned shell was apparently spread along the slopes. That burned shell was likewise spread along upper, presumably flatter portion of the mound cannot be determined at present, but if Live Oak Mound is any indication, shell burning may have taken place atop the mound and then spread along the side slopes. Although this may constitute nothing more than an effort to stabilize the slopes as the mound grew larger, a ritual aspect to the burning of shell should not be dismissed out of hand.

The final episode(s) of mound construction apparently involved the conical feature labeled in Figure 4-8 as St. Johns. Wyman implies that burials and limited pottery were observed in his digging near the apex of the mound, the same observation he made at Live Oak Mound. At this latter site the extent of looting at the conical apex and occasional sherds and fragments of human remains confirm Wyman’s observation. For now we can only assume that the lack of human remains and pottery on the surface of the apex of Hontoon Dead Creek Mound is simply sample bias. In any event, a pattern for reuse of Archaic mounds by people of St. Johns cultural affiliation is beginning to be recognized. The emerging pattern is the construction of a conical mound at one end of these elongated, crescentic shell mounds for the interment of the dead. If these St. Johns mortuaries prove to map directly onto the underlying Mount Taylor mortuaries, we will have to explain how populations several millennia removed from the initial uses of these mounds were able to infer the spatiality of something they presumably could not observe directly.

POSTSCRIPT

Three hurricanes passed through peninsula Florida in the fall of 2004, after our field season. Hontoon Island and the greater middle St. Johns valley was hit hard by two of the three storms, causing water levels to rise to flood levels and downing many large trees. On a visit to the island on February 5, 2005, Asa Randall and I surveyed the damage caused by the storms and talked with Hontoon Island staff about the effects that had passed. Water levels on the island rose nearly two meters to flood all land below the 10-ft amsl contour interval on the USGS Orange City topo quad (1964). None of the flooding appears to have eroded or otherwise affected the extant mounds on the island, nor did we observe any sedimentation in and around recorded sites. Floodwaters apparently rose and fell gently and did not involve significant current flow or scouring outside the existing channels. On the day of our visit, water levels in the St. Johns were very close to the average level for early February, but impounded water was still observed in the large shell-mining pit at 8VO202 and to the western edge of 8VO214.

Damage due to uprooted trees was spotty but in some places severe. A massive oak was toppled just southeast of the apex of Hontoon Dead Creek Mound, leaving a pock hole over 2 m in diameter. Exposed in the root ball were dense masses of shell but no artifacts, vertebrate bone, or human remains. Additional large tree tip-ups in the string of sites north and south of the mound exposed shell midden in several places, but again, no artifacts or vertebrate fauna were observed in most of the root balls, although one in the vicinity of 8VO215 revealed a small fiber-tempered rim sherd. Perhaps the largest tree to fall was in the northwest area of 8VO202, near the location of TU4 dug in 2003. Evident in the shell of the root ball were zones of burned and crushed shell, as well as concreted midden, that suggest possible features. Two small St. Johns sherds were observed in another tree throw in this area of 8VO202.

CHAPTER 5
EAST HONTOON (8VO7494)

Asa R. Randall

On the northeastern margin of Hontoon Island lies a small shell-bearing site, known as the East Hontoon site, and recorded as site 8VO7494 in the Florida Master Site Files. While diminutive and subtle in comparison to the larger sites on the island, East Hontoon provides a contrasting and often over-looked picture of life away from more intensively studied middens and mounds. This site was tested by the University of Florida St. Johns Archaeological Field School during the 2003 and 2004 seasons. Investigations in 2003 season included detailed topographic mapping, a bucket auger survey, and the stratigraphic excavation of two 1 x 2-m test units. Based on these results, a 3 x 3-m test unit and another 1 x 2-m test unit were excavated in 2004. These efforts have revealed discrete, stratified, and intact archaeological deposits. Three components dating to the St. Johns I, Orange, and preceramic Archaic periods have been defined on the basis of diagnostic artifacts. Abundant faunal and ceramic assemblages were also recovered. In addition, several anthropogenic features were documented. This chapter summarizes the results of these field seasons, with particular emphasis on stratigraphy and site structure. The artifact and faunal assemblages are discussed where preliminary data are available.

LOCATION

East Hontoon (8VO7494) is located on the northeastern aspect of Hontoon Island, approximately 800 m south of the northern tip of the island and 400 m west of the main channel of the St. Johns river (Figure 5-1). The site lies in a 75-m wide strip of cabbage palm and oak, flanked to the west by saw palmetto and pine flatwoods (at higher elevations), and seasonal wetlands at lower elevation to the east. This transitional zone approximates the 10 ft. to 5 ft. amsl topographic contour, based on the Orange City USGS topographic quadrangle. The site is shaped like a crescent, as it follows the natural slope and curvature of the topography. As determined by shovel tests and bucket auguring, the site is approximately 125-m long, and 60-m wide.

PREVIOUS RESEARCH

East Hontoon was initially encountered as part of a site-discovery transect during the University of Florida's St. Johns Archaeological Field School 2000 field season, and defined through further reconnaissance survey in 2001 (Endonino 2003b). A total of 30 shovel tests, 17 of which yielded cultural materials, bounded the site. At the time, St. Johns I and Orange period components were identified based on the presence of diagnostic ceramics (St. Johns and Orange Plain sherds, respectively). A hafted biface, two lithic flakes, one marine shell fragment, and vertebrate faunal remains were also recovered. Based on the low artifact density and generally thin nature of the deposits, Endonino concluded that East Hontoon functioned primarily as a short-term resource extraction camp. Additionally, Endonino suggested that this site had been previously identified by Barbara Purdy and colleagues, and illustrated on Purdy's (1991:106)

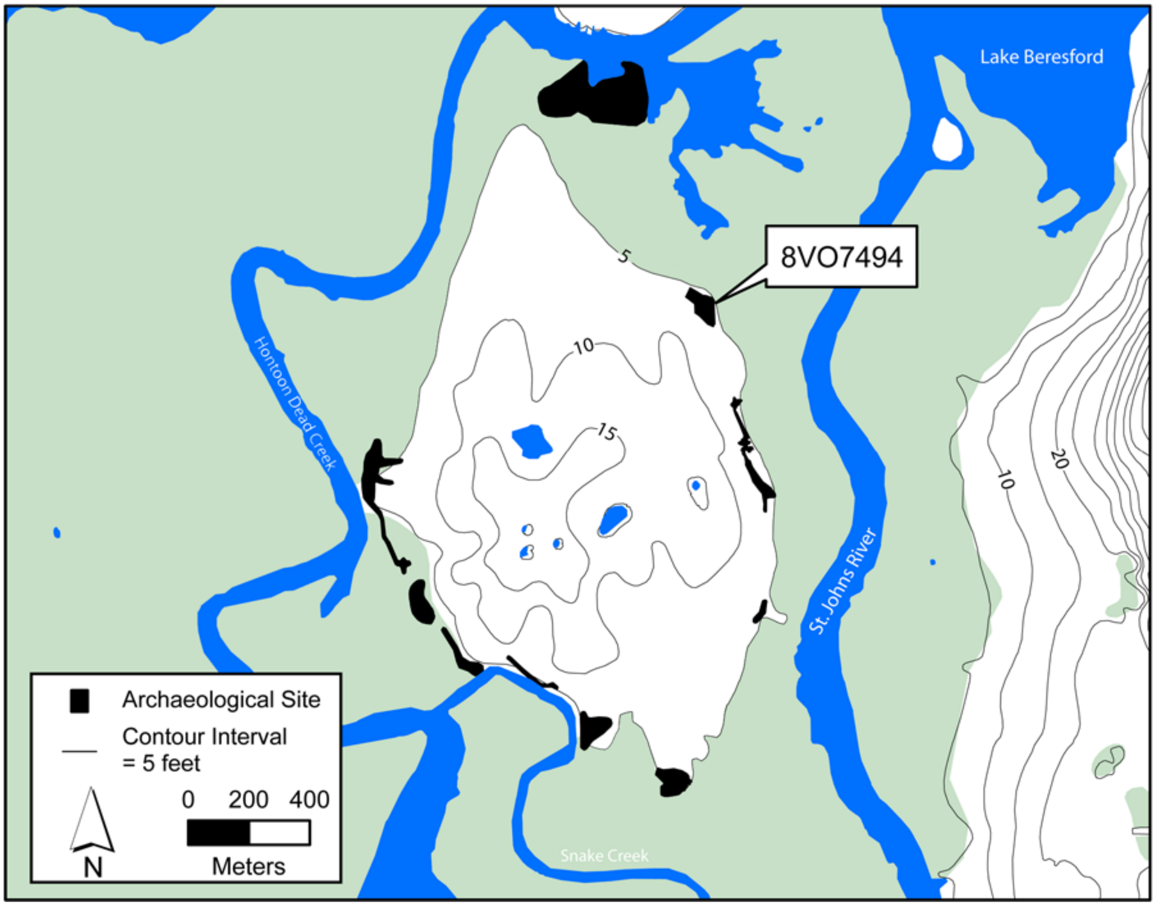

Figure 5-1. Location of the East Hontoon site (8VO7494) on Hontoon Island.

Hontoon Island map as a "Shell Midden" along the eastern margin. Review of the location of East Hontoon in conjunction with the 2003-2004 reconnaissance results (Chapter 6) indicates that East Hontoon was in fact an unknown archaeological resource prior to its discovery in 2000.

Repeated foot surveys of the site failed to find any systematic disturbances in the way of looter pits, push piles, or drainage channels. Surface evidence was limited to a handful of animal burrows and exposed roots that yielded freshwater gastropod fragments. Conversely, there is no evidence for the deposition of material from dredging operations on this locality. Dredge spoil piles are present in the vicinity, but are situated alongside the river channel. An inspection of a 1941 aerial reconnaissance photograph (Figure 5-2) shows that the margins of the island, including East Hontoon, were forested then as they are today. These observations indicate that East Hontoon was not impacted by shell mining or land clearing, unlike the northern and central aspects of Hontoon Island.

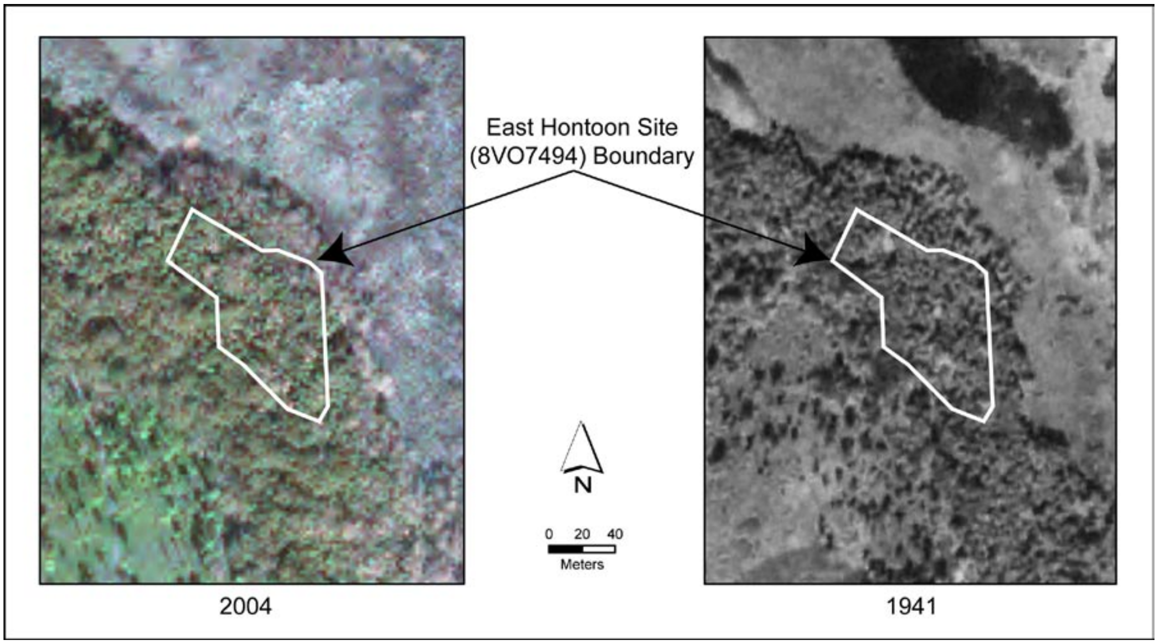

Figure 5-2. Comparison of modern (2004) and historic (1941) aerial photographs of the East Hontoon site (8VO7494). Note that there are no significant changes in land cover.

SITE MAPPING AND AUGERING

Alongside stratigraphic testing, research methods included topographic mapping and subsurface testing with a bucket auger. Considered together, these data were used to reconstruct site-wide variations in the distribution and density of subsurface deposits.

A site wide reference grid was established in 2003 to aid topographic mapping and testing of subsurface deposits. A permanent north-south baseline aligned with magnetic north was established on the southwestern edge of the site (as defined by the initial shovel tests). Three-foot-long sections of galvanized steel tubing were driven into the ground for the northern (Datum A) and southern (Datum B) points. The coordinates of Datum A were set to N1000.00 E1000.00, with an arbitrary elevation of 5.00 meters. Grid coordinates for all other reference points are listed in Table 5-1. Surface mapping of East Hontoon was accomplished with the use of a Nikon DTM-310 Total Station. Over a period of three days, a crew of three students mapped the entirety of the site (Figure 5-3). The horizontal positions of bucket augers missed during survey were interpolated based on field notes, while the surface elevations were derived from the interpolated topographic map. Mapping during the 2004 season was limited to recording the corners of Test Unit 3 (TU3). Excavated late in the season, Test Unit 4 (TU4) was not surveyed with the total station. Its position on this map should be considered provisional.

Subsurface testing was performed with a 4-inch bucket auger. The southwest corner of TU1 was set as the origin point for survey transects. A 30-m measuring tape and sighting compass were used to orient each bucket auger. Transects were oriented

Table 5-1. Selected Grid Coordinates and Elevations for Survey Markers and Test Units, 8VO7494.

Location	Northing	Easting	Elevation (m)*
Datum A	1000.00	1000.00	5.00
Datum B	959.01	1000.00	5.06
TU1 - SW Corner	1029.52	1003.27	4.70
TU2 - SW Corner	970.59	1026.62	4.83
TU3 - SW Corner	1029.53	1000.25	4.67

* Datum A set to arbitrary elevation.

either east-west or north-south. Along these transects bucket augers were placed at 10-m intervals. On occasion they were displaced a meter off the transect due to obstructions such as trees or roots. Each auger test was ended when no cultural material, fauna, or shell was recovered by 100 cm below the surface (hereafter cm BS). In most cases, sterile basal clays were encountered above this depth. Transects were terminated when no anthropogenic deposits were encountered. Testing of the northern and eastern-most portions of the site was precluded by saturated soils. The rotation and pressure of the auger produced a slurry that could not be drawn out of the hole. The piston coring procedure used at site 8VO214 (Chapter 4) is an ideal alternative for future studies.

For each auger a log was kept identifying at what depth stratigraphic changes were encountered, and where fauna, shell, or cultural materials were located. Excavation of each auger concluded when clay or the sterile soils underlying cultural deposits were encountered. All materials were 1/4-inch dry-screened using a standard field shaker screen. Except for shell, all cultural materials were kept for analysis and curation. A total of 60 augers were completed, 46 of which encountered anthropogenic deposits (Figure 5-3). The results broadly recapitulate the boundaries set by prior shovel test pits. It is presently unknown how far cultural deposits extend to the east of the site.

Subsurface topography

Considering the topography in isolation from the auger results, one is confronted with a generally featureless, slightly sloping terrain (Figure 5-3). The slope of the site ranges from one to two percent, as the elevation drops from 5.06 to 4.15 m in elevation over a distance of 63 m. This slope approximates the slope indicated on the Orange City USGS topographic quadrangle. The site's topography does not deviate from the pattern of the landform, but instead appears to accentuate it. There are no significant pits or depressions evident.

There are micro-topographic patterns at closer inspection (Figure 5-4). Subtle surface variations were evident in the field, but it was not until a topographic map was plotted that their regularity could be comprehended. In particular, micro-ridges near TU1 and TU2 grade to the east. These two areas are anomalous because they appear as deviations from the trend of the slope at the site. These ridges are differential high points that accentuate and extend out as projections from the higher surfaces to the west,

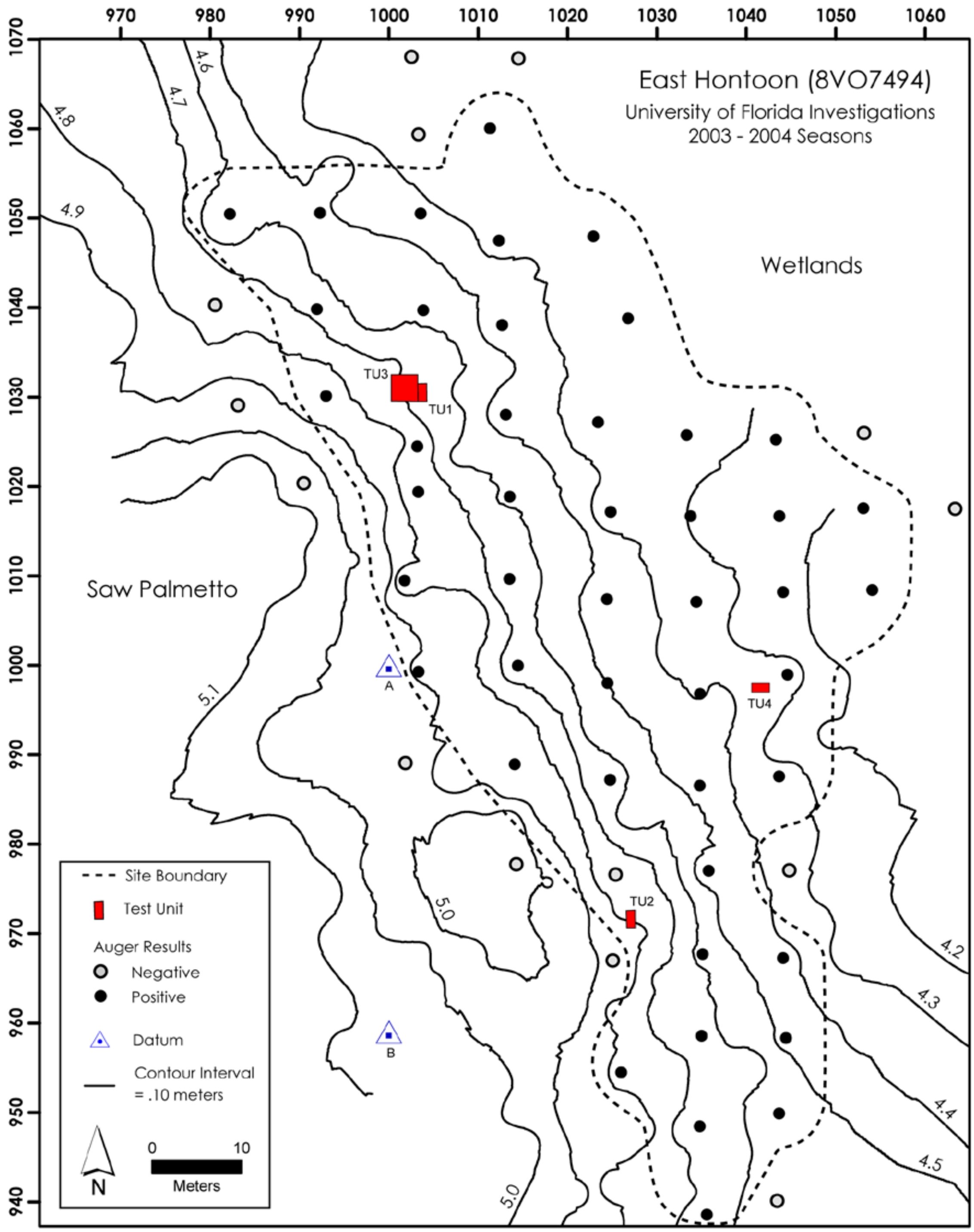

Figure 5-3. Topographic base map of the East Hontoon site, 8VO7494.

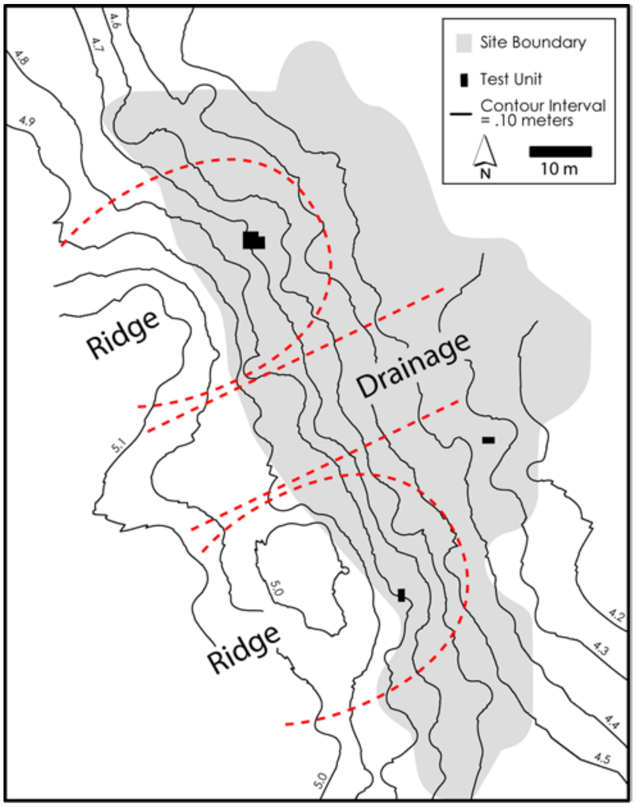

Figure 5-4. Simplified topographic map illustrating the microtopographic variations including the location of two remnant ridges and a micro-drainage at the East Hontoon site, 8VO7494.

typically by 10 to 20 cm in elevation. There is a slight depression that appears to be a drainage between the two ridges.

Auger results and elevation data were combined to produce coarse stratigraphic cross sections of the archaeological deposits in order to better understand the relationship between surface and subsurface variations. Although it was not always possible to determine specific stratigraphic units, the top and bottom of midden deposits could be identified in the field. This resulted in three macro-stratigraphic units. At the surface is a sterile A horizon which grades from a root mat and organically enriched fine sand in the west to an organic muck at lower elevations. Beneath the A horizon are archaeological deposits identified by the presence of shell, fauna, or artifacts. The basal component of most augers was a dry sandy clay, which in some cases contained fragments of shell. These gastropods are endemic to the basal clay, and are likely of marine origin dating to the Pleistocene or earlier.

Using surface elevations from the augers, elevation models were interpolated for the ground surface (Figure 5-5a), the top of the midden (Figure 5-5b), and the bottom of the midden (Figure 5-5c). In comparing the ground surface with the top of the midden, there

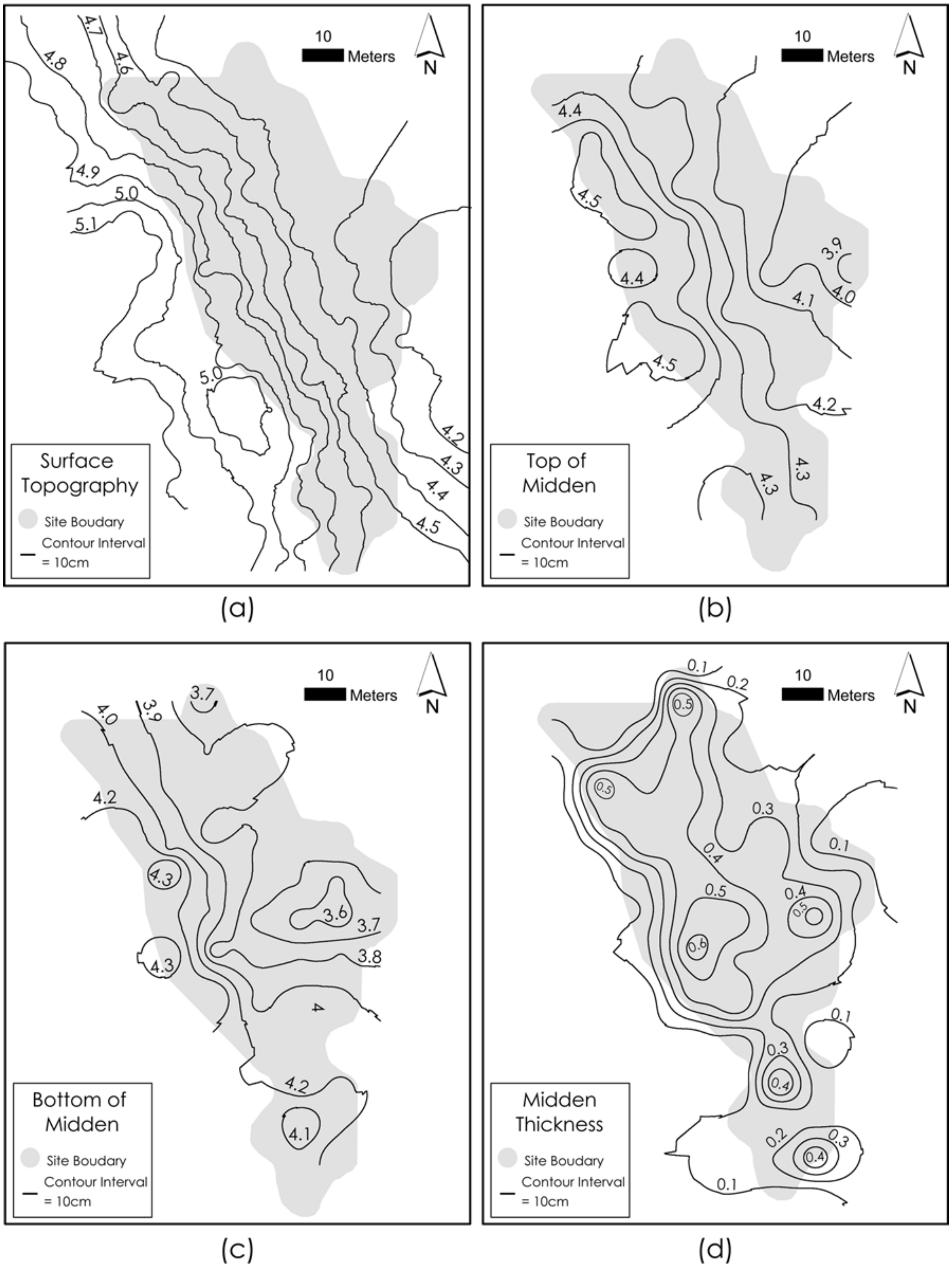

Figure 5-5. Interpolated elevations of (a) modern surface, (b) top of midden, (c) bottom of midden, and (d) overall midden thickness.

is no noticeable difference in the slope or range in elevation. The midden ranges between 4.5 and 3.9 m in elevation, which is comparable to that of the surface. The bottom of the midden has a similar range, between 4.3 and 3.6 m in elevation. While the total slope of the original surface is equivalent, it is clearly more abrupt to the west, where the contours are more closely spaced. The ridge features are still present at the top of the midden. At the base of the midden only the southernmost extension is present. To the north the slope is essentially flat past the 3.9 m contour interval. At a minimum, these data suggest that the ground surface reflects a mixture of geomorphic features (i.e. the pre-occupation surface) and archaeological deposits.

This pattern can be further explored by considering the thickness of the midden deposits (Figure 5-5d), calculated as the difference between the top and bottom of the midden. The thickest deposits, ranging between 40 and 60 cm, occur in a band abutting the westernmost boundary of the site. These align and correspond with the sharp contour break at the bottom of the midden discussed above. Thinner deposits are found to the east and south. The primary locus of net deposition of midden was to the west, away from the water.

These generalizations can be detailed by examining cross sections of the site. Depicted in Figure 5-6 is the rotated contour map of the site, with two transects demarcated by dashed lines. Derived stratigraphic profiles denoting the A horizon, archaeological deposits, and culturally sterile sub-midden deposits to the depth of the auger for each of these transects are plotted below the base map.

Transect 1 runs in an east-west line perpendicular to the slope and length of the site. The present-day surface, as well as the contacts of the top and bottom of the archaeological deposits, follow the trend of the ground surface. The steeper slope between augers 7 and 8 gives way to a flat surface west of auger 8. With the exception of auger 36, the A horizon ranges in thickness between 20 and 25 cm. In contrast, the archaeological deposits are more varied, but tend to increase in thickness between augers 6 and 8. East of auger 8 the deposits decrease in thickness as the A horizon increases in thickness. There is an increase in the elevation of the sterile sandy-clay deposits that underlie the anthropogenic midden as well. Although this schematic is vertically exaggerated, the thicker deposits to the west suggest that the net deposition was greater here than to the east, at the interface with present-day wetlands. Whether the decrease in thickness is the result of behavioral or natural processes cannot be answered directly with these data. Discrete strata were identifiable only through to auger 8. These recapitulate the sequence documented in TU1 (discussed below). To the west, the deposits were organically rich and saturated, making discrimination of separate stratigraphic units difficult. Stratigraphic data from TU4 to the east suggests that pedogenic processes may be in part responsible for the lack of discrete strata. The net input or erosion of sediment through alluvial processes is unknown.

Transect 2 (Figure 5-5) provides a north-south cross section of the site. In contrast to Transect 1, the stratigraphy is more variable along this line. In large part this is due to the transect cross-cutting different elevations. However, these data underscore

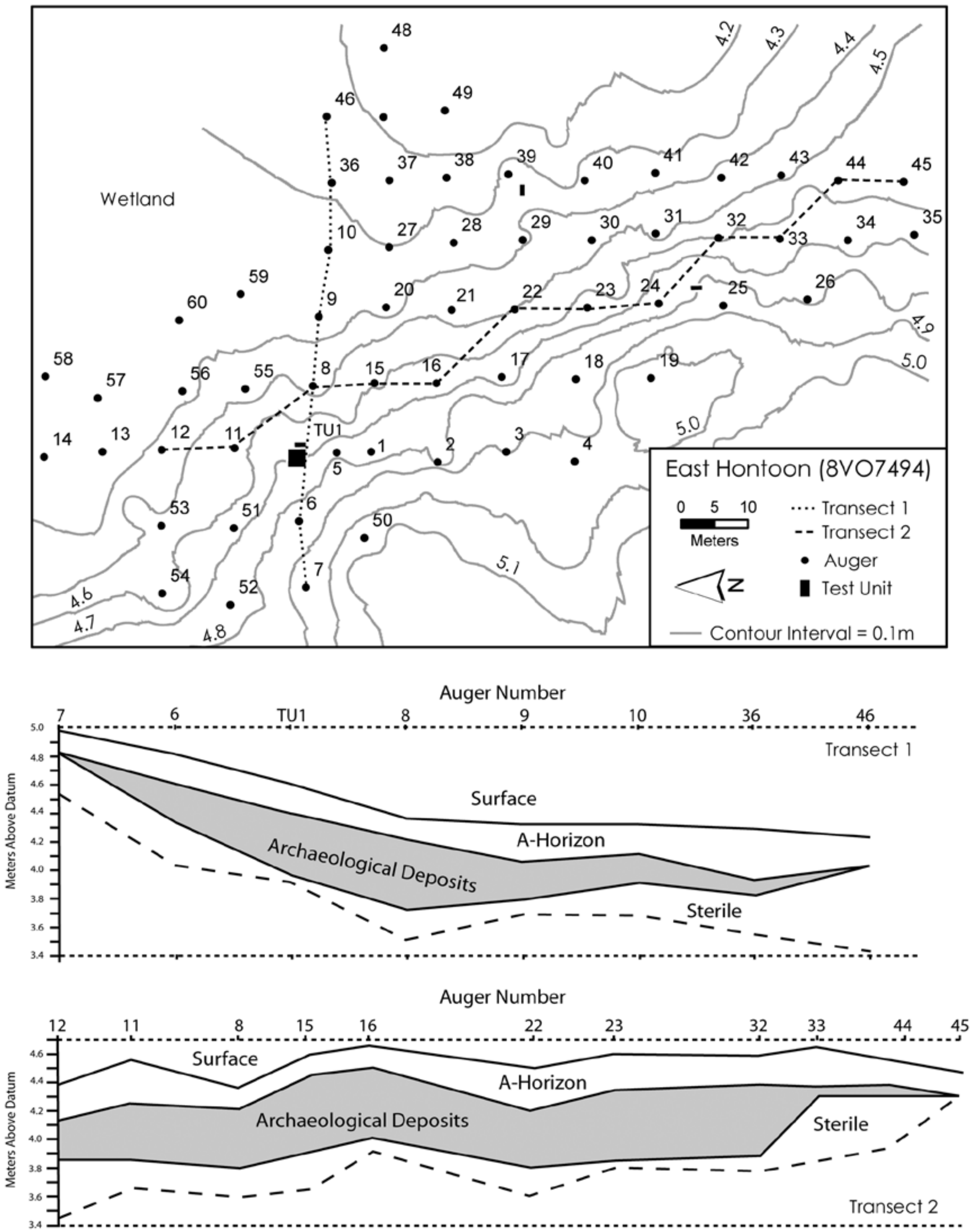

Figure 5-6. Cross-sectional profile of archaeological deposits based on bucket auger results, 8VO7494.

the fact that more midden is present to the north of the site. In the south, the deposits are present as a thin band, between augers 33, 44, and 45. This is also an area with a higher base elevation. The implication is that surface variations present today are a direct result of the structure of the midden below the surface. These data also suggest that different patterns of discard are present. For the history of the site, the majority of cultural deposition appears to have been away from the water (present day), and in a narrow strip abutting a micro-escarpment.

Spatial variation in material culture

Based on the co-occurrence of recovered materials, four different assemblages were present. These include shell only, vertebrate only, shell and fauna, and augers that yielded shell, fauna, and either pottery or lithics. Of the categories, shell and fauna dominate the sample of positive augers (n=26, 56.5%). Shell-only (n=6) and fauna-only (n=13) comprise 13.1 and 23.9 per cent respectively. Only three augers (6.5%) yielded artifacts in addition to shell and fauna.

The spatial distribution of recovered materials reveals several broad patterns (Figure 5-7a). The northern and southern site boundaries are defined by the occurrence of only vertebrate faunal remains, without the presence of shell. In contrast, the easternmost boundaries that have been established are characterized by shell lacking fauna or artifacts. Shell-only augers are restricted to the low-lying eastern margin. The center of the site is characterized by midden bearing both fauna and shell, as well as pottery and the occasional chert flake. The western boundary does not show a clear pattern, with all categories (except for shell-only) recovered.

Due to the small sample size of recovered diagnostic artifacts, their distribution provides little insight. Pottery (including St. Johns Plain and Deptford Simple Stamped) was recovered infrequently from across the site. Three of these sherds are of the Deptford Check Stamped type, which was not recovered elsewhere at the site. No fiber-tempered sherds were recovered. Only two lithics, both small waste flakes, were recovered from one auger.

While the density of diagnostics is not helpful, the density of faunal remains reveals further within-site variation. The weight in grams of vertebrate faunal remains from each auger was used to interpolate a density map, shown as filled contours in Figure 5-7b. This interpolation was calculated with ESRI's ArcMap 9.0 Geostatistical package using a radial basis function. This is an exact interpolator that requires no assumptions about the data, but error and autocorrelation within the dataset cannot be assessed. Larger sample sizes, particularly with closer-interval tests, could be used in the future for more rigorous statistical measures. The contour intervals depicted in Figure 5-7b should be viewed as descriptive.

The densest faunal materials occur towards the center of the site, and away from lower elevations. The values range from 0.1 to 21.2 grams per auger. The margins of the

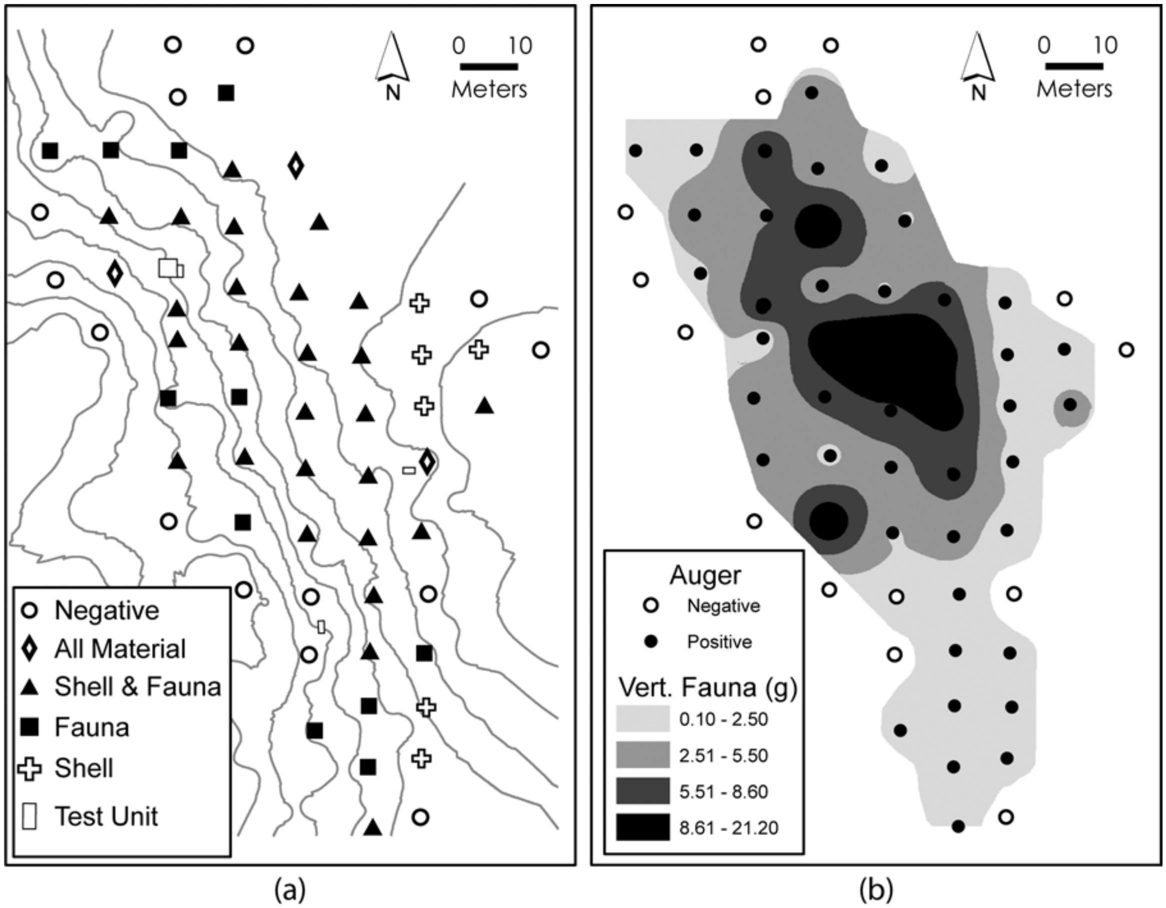

Figure 5-7. Distribution of bucket auger results, 8VO7494: (a) material recovered from bucket augers; (b) interpolated density of vertebrate fauna.

site are characterized by low densities, with the majority of augers on the boundaries yielding less than 2.5 grams of fauna each. Three augers produced values above 8.6 grams. Considered in total there are only a handful of augers that yielded more than 5.5 grams. These high-density augers occur in the center of the site, which also corresponds roughly to the shell bearing deposits.

The area of greatest density also significantly overlaps the area of thickest deposits, depicted in Figure 5-5d. There is a moderately strong and statistically significant positive correlation between the thickness of deposits and the weight of faunal materials recovered from each auger (Pearson's-R = .334, $p < .05$). While this tends to support the argument that more material was, by default, deposited in central section of the site, a caveat is in order. On average, the weight of individual bone recovered from non-shell bearing deposits is greater. Although this is not statistically significant, it suggests that different taphonomic processes were at work. There is an association between the density of recovered bone and the occurrence of shell. This is consistent with the documented tendency for bone to be better preserved in association with shell, which tends to neutralize the natural acidity of southeastern soils. It may be the case that the larger average weight (a proxy for overall size of the bone) indicates that only larger bones are surviving without the presence of shell. This also has implications for the identification of shallow deposits on the margins of the site. Given the relatively infrequent occurrence of bone, the recognition of archaeological deposits in these zones may have been hampered, particularly in augers where there was not a clear stratigraphic break evident in the profile. However, if one considers that shell-only augers to the east and south of the site also yielded the thinnest deposits, and individuals are more likely to recognize white shells in a screen than small bits of bone, it is likely that the thicknesses calculated here are real.

2003 TEST UNITS

Prior to the 2003 field season, knowledge of East Hontoon was limited to shovel test survey results. Consequently, an initial goal of investigations at East Hontoon was to characterize the stratigraphy and cultural associations of the site. Two 1 x 2-m test units were excavated in 2003. Excavation typically proceeded in arbitrary 10-cm levels, except when natural stratigraphic changes could be recognized. All levels were processed in the field with standard 1/4-inch hardware cloth. On occasion, artifacts or concentrations of artifacts or bone were piece plotted, whereby the precise horizontal and vertical position of the artifact or cluster were recorded. When recognized in the field, features were sectioned, the profiles were drawn, and samples for 1/8-inch water screening and flotation were recovered. A 50 x 50-cm column sample was taken from the north profile of TU1. A sample from each stratigraphic unit was taken for flotation, while the rest of the stratum was 1/8-inch water-screened. The column samples have been sorted, but await analysis.

Test Unit 1

TU1, a 1 x 2-m unit, was placed approximately 10-m southeast of shovel test pit T5-3 (from the 2001 season). The unit was oriented with the long axis north-south. Descriptions for each stratigraphic unit are provided in Table 5-2, and summations of counts of artifacts and weight of vertebrate faunal remains from each level are presented in Table 5-3.

Stratigraphic excavation of TU1 revealed seven stratigraphic units, as shown in Figure 5-8 and described in Table 5-2. Four are representative of at least three ethnostratigraphic units, interspersed with well developed soil horizons. In addition, a feature-like depression (Feature 1/2) was recorded in the southeast portion of the unit, and is present in the east profile in Figure 5-8. This was eventually deemed a non-anthropogenic post-depositional disturbance.

Stratum I is a 20-cm-thick A horizon, characterized by very dark, organically enriched fine sands. Dense cabbage palm roots are present throughout, but these tend to dissipate in density with depth. There were no artifacts recovered, historic or otherwise, nor were any fragments of shell or bone encountered. This stratum corresponds to excavation Levels A and B. Recognized as a break in color and content below Stratum I,

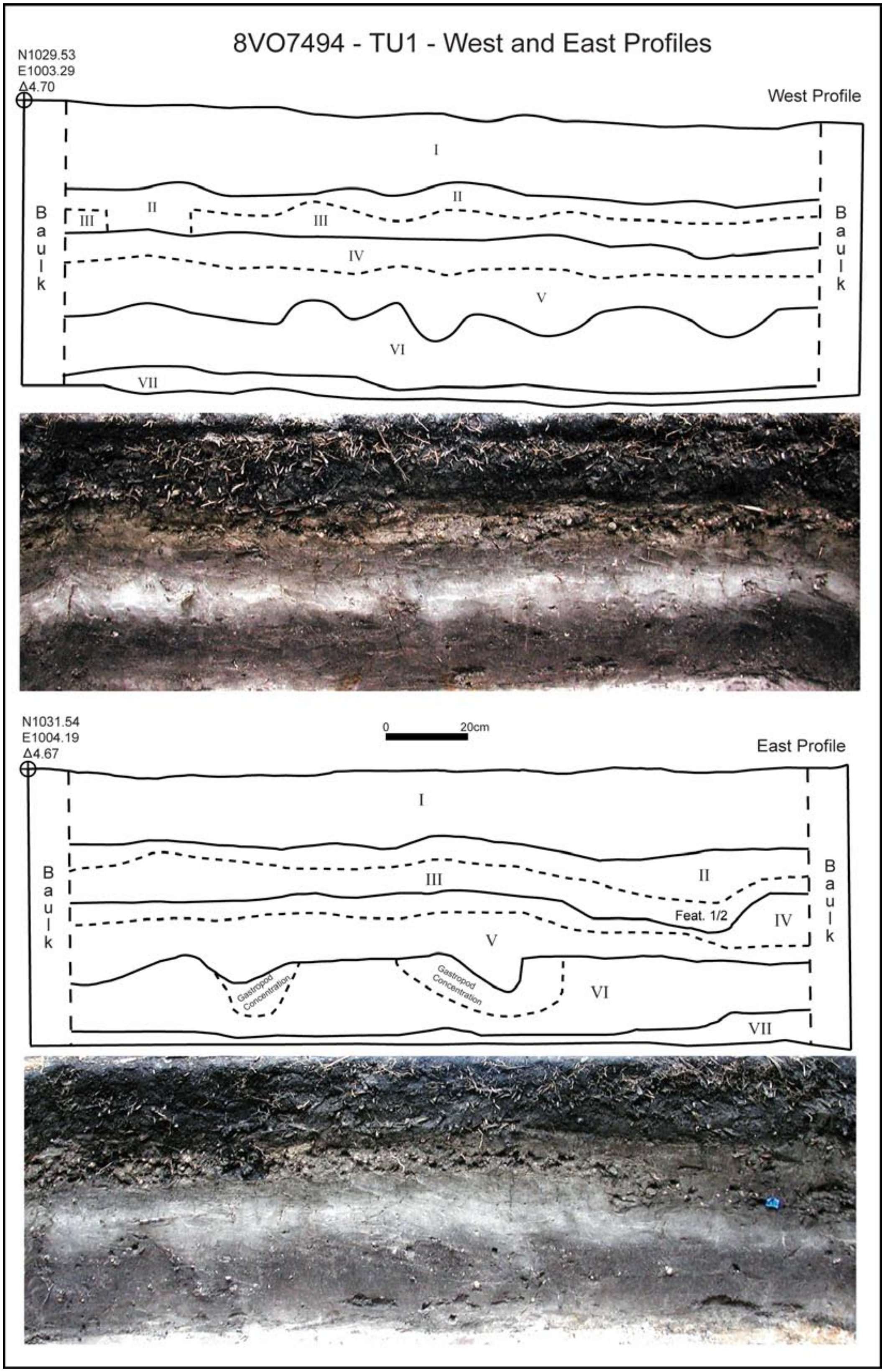

Figure 5-8. Stratigraphic drawing of west and east walls of TU1, 8VO7494.

Table 5-2. Stratigraphic Units of Test Unit 1, 8VO7494.

Stratum	Max. Depth m BD[1]	Max. Depth cm BS[2]	Munsell Color	Description
I	4.50	20	10YR2/1	A horizon; abundant roots; sterile
II	4.45	25	10YR6/1	fine sand; charcoal throughout; bone and shell fragments rare
III	4.38	32	10YR6/2	abundant whole and crushed *Viviparus* and bivalve shell in medium-fine sandy matrix; abundant fauna; abundant plain St. Johns sherds; infrequent lithics
IV	4.32	38	10YR4/2	occasional gastropod fragments in silty fine sandy matrix; abundant fauna; occasional plain and incised St. Johns sherds; rare Orange fiber-tempered sherds; rare lithics.
V	4.19	51	10YR7/1	mostly shell-free fine sandy matrix; some fauna; occasional fiber-tempered sherds
VI	4.04	66	10YR3/3 w/10YR5/3	occasional whole and fragmentary gastropod shell (typically *Pomacea*) concentrations in organically enriched clayey fine sand; moderate fauna; no pottery
VII	4.00	70	10YR6/2 w/10YR7/2	sterile dry sandy clay with occasional mineral concretions and gastropod fragments

[1]Depth below datum, measured as meters below the site datum.
[2] Depth below surface, measured as centimeters below the southwest corner of unit

Table 5-3. Cultural Material Recovered from Test Unit 1, 8VO7494.

Level	Related Stratum	Max. Depth cm BS[1]	Ceramic Sherds				Lithic Tool	Lithic Flake	Vertebrate Fauna (g)
			St. Johns Plain	Orange	Other	Crumb			
D	III	32	68			31			350.7
E	III	36	13			5		1	140.4
F	IV	46	4	2	1[2]	2	1		234.3
G	V	56							53.4
H	VI	66							18.2
I	VII	76							1.7

[1]Depth below surface, measured from southwest corner of unit
[2]St. Johns Incised

Stratum II is a continuous horizon characterized by highly mottled light brown, tan, and orange fine sands. This mottling is indicative of frequent wet-dry cycles, and is present throughout much of the upper strata at East Hontoon. The Stratum II deposit is thin, ranging in thickness between 2 and 5 cm. Palm and oak roots are present, but are significantly less dense than in Stratum I. In addition, abundant charcoal flecks are present throughout. Minute traces of bone and shell were noted at the base of the deposit, but are likely derived from Stratum III below. The majority of Stratum II was excavated as Level C, which was terminated at 26 cm BS due to the impending stratigraphic change.

Stratum III was initially recognized as a circular patch of shell-bearing midden in an organic matrix near the center of the unit. Although at first thought to be a feature, continued digging around this patch rapidly revealed a dense layer of whole and fragmentary gastropods, with sherds and fauna lying above and within the shell. The highly organic lens first recognized in Level C was discontinuous, and most likely represents a post-depositional disturbance.

The criteria for separating Stratum II from III was the presence of gastropods, St. Johns Plain sherds, and abundant vertebrate fauna; otherwise the matrix, a mottled brown and tan fine sand, is consistent with Stratum II. Shell forms the majority of the matrix by volume, with the sandy matrix occurring within the shells themselves. Stratum III was excavated in Levels D and E, approximately 10-cm thick. This total depth also includes the sterile base of Stratum II.

The gastropods are densely packed whole and broken *Viviparus* (banded mystery snail). A small amount of fragmentary bivalve was also recovered. No *Pomacea* (*Pomacea paludosa*) was observed in the field, and a cursory inspection of the column sample from this level identified none. Although no thermal features or charcoal concentrations were identified, trace amounts of calcined bone were recovered. Pottery and vertebrate faunal remains were scattered throughout. In general, the sherds were recovered lying flat and tended to occur in clusters. There were also accumulations of vertebrate fauna, typically composed of turtle shell, in clusters 5 to 10 cm in diameter. One such cluster occurred in the eastern profile, and was piece plotted. Although the shell was not refitted, it appears to represent a single soft shelled turtle (*Apalone ferox*). The configuration of the fragments suggested that they were deposited as an intact carapace.

As the dense midden of Stratum III rapidly dissipated across the unit, we concluded excavation of Level E to coincide with this stratigraphic break. Stratum IV (the top of Level F) is a thin deposit, only 6 cm thick, that is characterized by mottled gray silty fine sands. This matrix appears to have a higher particulate organic component than Stratum III. It is possible that this represents a buried A horizon. In this scenario, the Stratum III midden accumulated upon a stable surface with well developed soils. Evidence for this is that the sherds associated with Stratum III were recovered directly above, within, or below the shell. An alternative scenario is that Stratum IV was organically enriched by the preferential downward movement of particulate organics.

Given the general lack of noticeable organic matter (aside from the fauna remains) this possibility requires further investigation.

In Stratum IV there is also a noticeable decrease in the abundance of all artifact classes. Trace amounts of *Viviparus* shell were dispersed throughout. Vertebrate fauna was present, but in lower frequency. At the contact between III and IV an amorphous chert biface and a large incised spiculate-tempered sherd was recovered. A handful of spiculate-tempered sherds and fiber-tempered crumb sherds (any sherd that will pass through 1/2-inch hardware cloth) were also recovered from this level. These were dispersed across the top of the level and in a highly fragmentary state.

The dark gray matrix of Stratum IV gave way to a lighter matrix within Level F. During excavation we were not able to discriminate between the light and dark strata. This was mostly due to increased moisture with depth. Stratum V is a mottled light and dark gray silty fine sand with calcareous root casts throughout. Shell was almost non-existent. Faunal remains, while present, were not abundant. Given the lack of visible particulate organics, and the light color of the matrix, this likely represents an E horizon. E horizons are zones of eluviation, where particles are leached downward.

The contact between the light colored Stratum V and significantly darker Stratum VI is not nearly as sharp as the contacts toward the top of the sequence. Stratum VI was initially recognized at the base of Level F as randomly spaced pockets of dark matrix with gastropods. Stratum VI is characterized by a mottled dark brown and gray fine sandy matrix, with gastropod shell distributed throughout. This zone is potentially another buried A horizon upon which shell was deposited. Alternatively, it has been enriched from organics from higher up.

The gastropod assemblage is dominated by *Viviparus* shell, but a number of whole and fragmentary *Pomacea* shells were also recovered. The shell occurred in pockets, with areas of little or no shell occurring in between. The configuration of these concentrations suggested they may have been features, but attempts to excavate or outline them failed. These concentrations also appear to have a basin shape to them, as illustrated in the eastern profile of TU1. Whether or not these reflect features that have undergone numerous transformational processes is unclear. Commensal gastropods such as *Euglandia*, *Elimia*, and the Mesa Rams-horn (*Planorbella scalaris)* are also present, based on a cursory inspection of the column samples. Aside from gastropods and vertebrate faunal remains, no other artifacts were recovered. The lack of ceramics suggests that this stratum dates to the preceramic Archaic, possibly the Mount Taylor period.

Towards the base of Level H, the dark organic-stained matrix of Stratum VI became increasingly clayey. In Level I the midden rapidly gave way to an orange and gray mottled dry sandy clay. This mottling is indicative of gleying, typical of soils that are subjected to alternating wet and dry conditions. No fauna was recovered within this stratum. Given the lack of artifacts, and the influx of water at this level the unit was terminated. The bucket auger was used to probe into the clay, which was sterile.

Endonino (2003b) reports encountering such deposits directly above a basal limestone, suggesting that these are residual clays and are derived from dissolution of the limestone substrate.

Test Unit 2

Test Unit 2 was placed in the southwestern aspect of the site, in the vicinity of STP T1/4-1. While TU1 had been placed near a region of densest deposits, the location of TU2 was chosen to characterize the southern extent of deposits. Nearby shovel tests yielded relatively low fauna assemblages, although a fragment of marine shell was recovered. Two feature-like depressions were recorded, but have since been deemed to be post-depositional disturbances. Descriptions for each stratigraphic unit are provided in Table 5-4, and summations of counts of artifacts and weight of vertebrate faunal remains are presented in Table 5-5.

While the north and south profiles (Figure 5-9) yielded horizontal units reminiscent of TU1, the east and west profiles (Figure 5-10) provide a contrast to TU1. The upper strata are flat, while the lower strata slope down to the north. The intersected stratigraphy initially gave the impression of localized zones within stratigraphic units when taken out as horizontal layers. A partial explanation for the sloped deposits is the unit's location and orientation. Not only is it at a higher elevation than TU1, but it is also on one of the dome-like projections discussed above in the auger results section. When compared with the nearby auger data, which we did not have before excavating TU2, it is on one of the dome-like projections discussed above in the auger results section. When compared with the nearby auger data, which we did not have before excavating TU2, it is

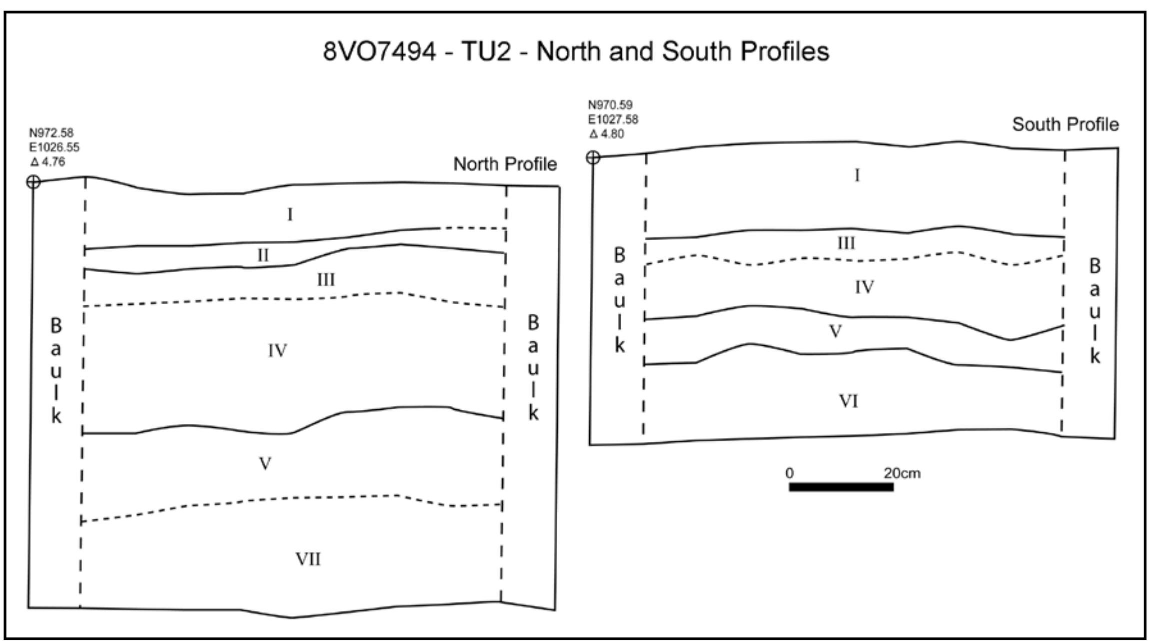

Figure 5-9. Stratigraphic drawing of north and south walls of TU2, 8VO7494

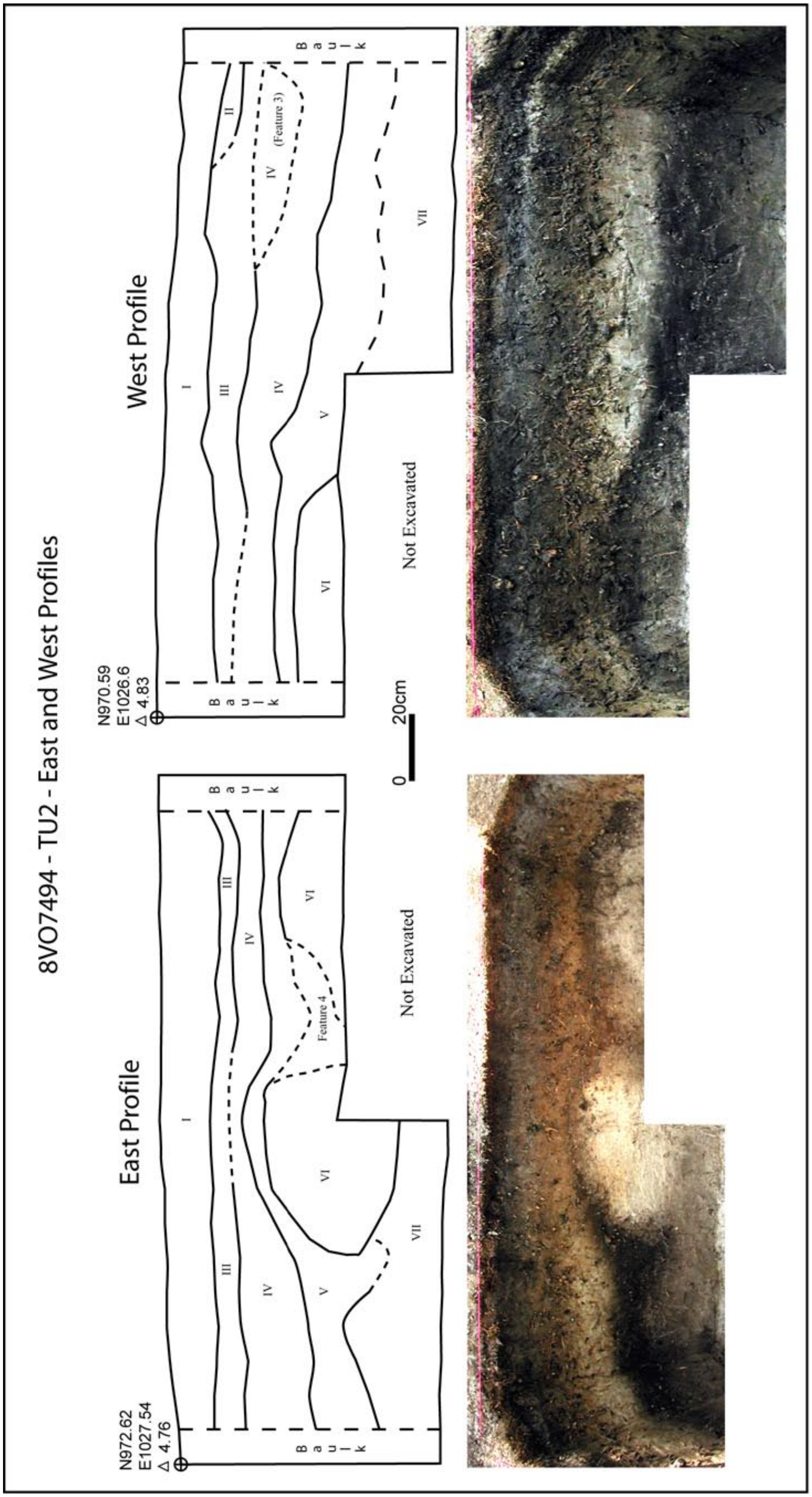

Figure 5-10. Stratigraphic drawings and photographs of east and west profiles of TU2, 8VO7494.

Table 5-4. Stratigraphic Units of Test Unit 2, 8VO7494.

Stratum	Max. Depth m BD[1]	Max. Depth cm BS[2]	Munsell Color	Description
I	4.62	21	7.5YR2/0	A horizon; dense root mat in silty fine sandy matrix; sterile
II	4.59	24	5YR7/1	fine sandy matrix, localized lens, occurring only in north and east profiles; dense roots; sterile
III	4.59	30	10YR3/2	fine sandy matrix; dense roots; sterile
IV	4.28	55	10YR5/3 – 10YR5/6	medium fine sandy matrix; abundant fauna and spiculate-tempered sherds, infrequent fiber-tempered sherds, steatite vessel fragment, rare shell
V	4.13	70	10YR5/2	organically enriched clayey fine sand with *Viviparus* and *Pomacea* shell; some fauna;
VI	4.00	73	10YR6/1	gritty clay; occasional gastropod shell fragments; sterile
VII	3.96	87	10YR6/1	wet gritty clay; occasional gastropod shell fragments; sterile

[1]Depth below datum, measured as meters below the site datum.
[2] Depth below surface, measured as centimeters below the southwest corner of unit

on one of the dome-like projections discussed above in the auger results section. When compared with the nearby auger data, which we did not have before excavating TU2, it is clear that this unit was fortunate to encounter archaeological deposits. Augers 24 and 25 failed to intercept any midden deposits, approximately a meter to the west and 10-cm higher.

As excavation proceeded in 10-cm levels, we also attempted to recognize stratigraphic changes within levels. Level D (29-37 cm BS) corresponds entirely to Stratum IV, and was terminated shallow of a 10-cm cut because of a perceived stratigraphic change in the southern half of the unit. Within the succeeding Level E (37-47 cm BS) we recognized two zones. Zone A corresponds with Stratum IV, while Zone B corresponds to Stratum V. In Level F (47-57 cm BS), we retained these zone correspondences. Zone A (Stratum IV) disappeared by 53 cm BS, with Zone B (Stratum V) continuing throughout. Another modification to the methodology was that we only excavated the northern half of the unit to its maximum depth. As the base of the unit is a sterile clay, we did not excavate through it completely in the southern half, restricting our excavation to the northern half of the unit to follow the anthropogenic deposits.

Stratum I is an approximately 20-cm-thick A horizon. It is characterized by a dark organically rich silty fine sandy matrix, with dense palmetto roots, derived from the half-dozen palmetto plants that were cleared from the surface here. Stratum II was recognized as a localized lens in the northern, down slope aspect, between 21 and 24 cm

Table 5-5. Cultural Material Recovered from Test Unit 2, 8VO7494.

Level	Related Stratum	Max. Depth cm BS[1]	Ceramic Sherds St. Johns Plain	Ceramic Sherds Orange	Ceramic Sherds Crumb	Other	Vertebrate Fauna (g)
C	IV	29			10		29.9
D	IV	37	12		85		135.7
E - Zone A	IV	47	7	2		4[2]	75.7
E - Zone B	V	40		2	6		36.5
F - Zone A	IV	53		1			48.2
F - Zone B	V	57					16.3
G	V	67					17.2
H	V	77					3.2
I	V	87					5.6

[1]Depth below surface, measured from southwest corner of unit
[2]Other: soapstone vessel fragments

BS. It is only present in the west and south profiles. Although a much lighter color than Stratum I, Stratum II is characterized by a fine sandy matrix with dense cabbage palm roots. Given the restricted horizontal and vertical distribution, Stratum I likely represents a localized pedogenic process, potentially the preferential movement of fine sands. Stratum III was recognized as a continuous layer across the entire unit. It is characterized by dense roots in a fine sandy matrix. Taken together, these three layers were excavated as Levels A, B, and C. Although differing in terms of color, organic content, and relative density of roots, Strata I, II, and III are all sterile and non-anthropogenic. These three strata correspond well with Strata I and II from TU1.

Near the base of Level C (29 cm BS) the soil graded from a grey to a mottled tan/brown fine sandy matrix, and we began to recover trace amounts of vertebrate fauna and the occasional crumb sherd. Given the perceived change, we terminated the level. Recognized at the base of Level C, Stratum IV is a variously mottled tan/brown fine sandy matrix that is continuous across the unit. Although the contact with overlying Stratum III is flat, the base of the unit slopes down to the north. It is thinnest in the north, where it is approximately 10 to 15-cm thick, but it thickens to a maximum of 25 cm in the south. Excluding the contact between Stratum IV and the underlying Stratum V, no shell was present in the matrix.

During excavation, we noted significant vertical and horizontal variations in the color of the stratum. Stratum IV is darkest in the southern half of the unit. To the south, it grades from a brown to a light tan color with depth. This is most clearly seen in the east and west profile photographs. Similarly, there is horizontal zonation as well. In the field, on the basis of color alone, we discriminated between Stratum IV and Feature 3, a darker brown sandy matrix within the lighter matrix. Although it appeared circular in plan view, we were unable to find any clear boundaries with depth. Ultimately, on the similarity of assemblage composition between this “feature” and the surrounding matrix, Feature 3 should be considered a localized variant of Stratum IV.

In addition to abundant fauna, Stratum IV yielded plain St. Johns and Orange sherds. While fauna was not as abundant by weight as in TU1, there is more in Stratum IV than other strata in TU2. Pottery was recovered in smaller amounts, but like TU1 the sherds were lying flat, and in some cases were quite large. The sherds tended to be more highly eroded and fragmentary than in TU1. One large sherd had to be removed with the matrix surrounding it because of its friable nature. Back in the lab it has been impossible to separate from the matrix without further destroying the sherd. It is unclear if the sherd's condition resulted from local taphonomic processes, or if this sherd represents a low-fired mass of clay.

Although both St. Johns and Orange sherds were recovered from Stratum IV, the few Orange sherds were restricted to the lower Levels (E and F). Two of the Orange sherds came out of Level F/Zone B, which is attributable to Stratum V, an otherwise aceramic deposit. The presence of sherds in this stratum more than likely resulted from the field crew mixing recovered materials from Zone A and Zone B during screening, which they admitted to. While an Orange attribution to Stratum V cannot be ruled out, the presence of other Orange sherds within the lower levels of Stratum IV suggests that all Orange sherds are restricted to this stratum.

Stratum V was recognized first in the northern half of the unit. Like Stratum IV it is thin to the east, and increases in thickness and depth abruptly to the north. It is characterized by dark brown and gray organically enriched fine sands, with an increasing clay content with depth. Whole and crushed *Viviparus*, *Pomacea*, and bivalve shells were recovered throughout, without any depth or spatial patterning noted. Relatively small amounts of fauna were also recovered. With the exception of the two previously discussed Orange sherds, no other diagnostic artifacts were recovered. This stratum corresponds well with the position and description of Stratum VI in TU1. This suggests that the preceramic component extends from north to south, and forms the base of deposits, at least in the western aspect of the site. The attribution of a preceramic component is strengthened by the occurrence of both *Viviparus* and *Pomacea* shell.

Stratum VI was first recognized in the southern half of the unit, where it forms the base of Level E. It is not present in the north profile. Stratum VI is a dry, gritty clay with the occasional small fragment of gastropod shell within the matrix. No fauna or other artifacts were recovered from this stratum. This clay substrate has characteristics similar to the base of Stratum VII in TU1. In the west profile it appears as a steeply sloping dome-like deposit. In the east profile, this slope is matched, but more of the stratum is present. This indicates that the test unit intersected this clay dome at an angle. In the eastern profile the stratum has a basin-like depression that is composed of a mixture of clay and Stratum V midden. This depression was initially recorded as Feature 4. In profile it is clearly a localized disturbance that is most likely not anthropogenic in origin. The margins, both in plan and cross section were diffuse, suggesting it is an animal burrow or ancient tree root. Given that the clay was culturally sterile and difficult to excavate, we did not continue digging this below Level E, in the south half of the unit.

Continued excavation in the northern half of the unit revealed a wet gritty clay below Strata V and VI. Although less consolidated than Stratum VI, this clay contained similar amounts of shell fragments, mineral concretions, and no fauna or artifacts. Stratum V, the anthropogenic midden overlying this horizon, tended to grade into this clay with depth, making their separation in the field difficult. Although the specific processes which generated this portion of the substrate are unknown, it does correspond with the upper portion of Stratum VII in TU1.

2004 TEST UNITS

Field methods in 2004 were oriented towards resolving several issues from the 2003 season. Vertical distributions of diagnostic artifacts suggested that the site was composed of discrete strata that corresponded to ethnostratigraphic units. However, observation of the profiles and soil characteristics suggest that the stratigraphy represents complex anthropogenic and pedogenic processes, and may be of little use in characterizing the association of artifacts. In addition, the test units provided suggestive evidence of features as well as discrete depositional episodes. Finally, TU1 and TU2 only captured snapshots of stratigraphy at higher elevations, leaving the downslope and easternmost deposits poorly understood.

Test Unit 3

Given the presence of artifact concentrations and potential features, the plan for 2004 was to excavate an area large enough to document spatial patterns and identify features. The size of the unit was constrained by the spacing of palm and oak trees, and we eventually settled on placing Test Unit 3, a 3 x 3-m unit, adjacent to and west of TU1 (Figure 5-3).

Based on our knowledge of the stratigraphy in TU1, we excavated the deposits in natural levels. After shovel skimming off the sterile upper 25 cm, we continued excavation with trowels. During excavation concentrations of bone and all artifacts larger than a quarter were piece plotted. Material from the general levels were passed through 1/4-inch screen. Features were sectioned, with half the material 1/8-inch water screened and the other kept for flotation. To date only materials recovered from the general levels have been analyzed.

With the exception of several localized disturbances, the stratigraphic sequence documented in TU1 was replicated in TU3 (Figures 5-11, Figure 5-12). The larger profiles demonstrate that the deposits are relatively flat, but they do slope slightly down to the northeast. Abundant pottery sherds and faunal remains were recovered, as were the occasional marine shell fragment and lithic (Table 5-6).

Level A corresponds with Stratum I, the A horizon. Below this we recognized Stratum II, excavated as Levels B and C. Although a small amount of vertebrate fauna and pottery was recovered from these levels it is likely derived from the top of Stratum III, which corresponds with excavation Level D. In addition, there was a small oak

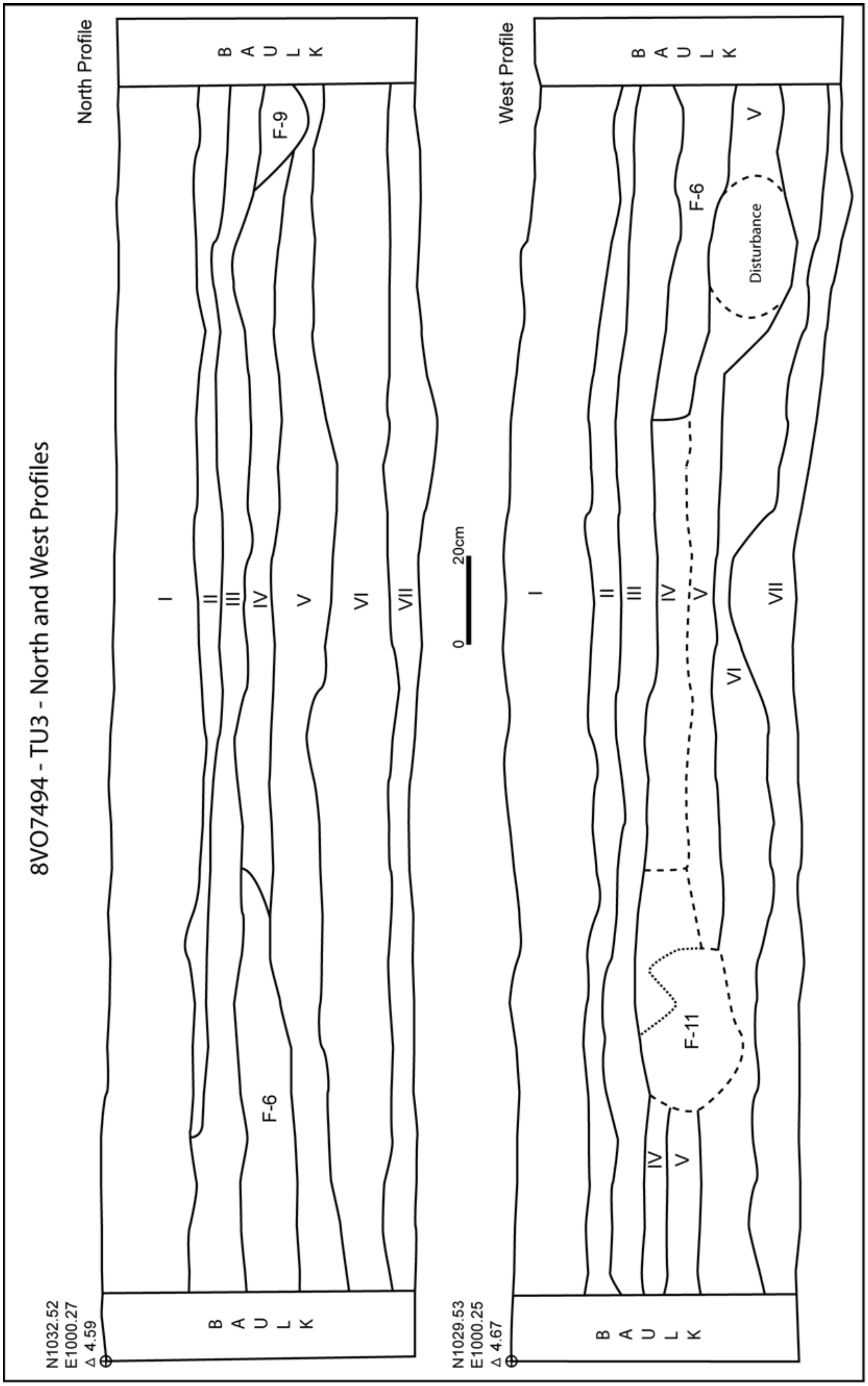

Figure 5-11. Stratigraphic drawings of the north and west profiles of TU3, 8VO7494.

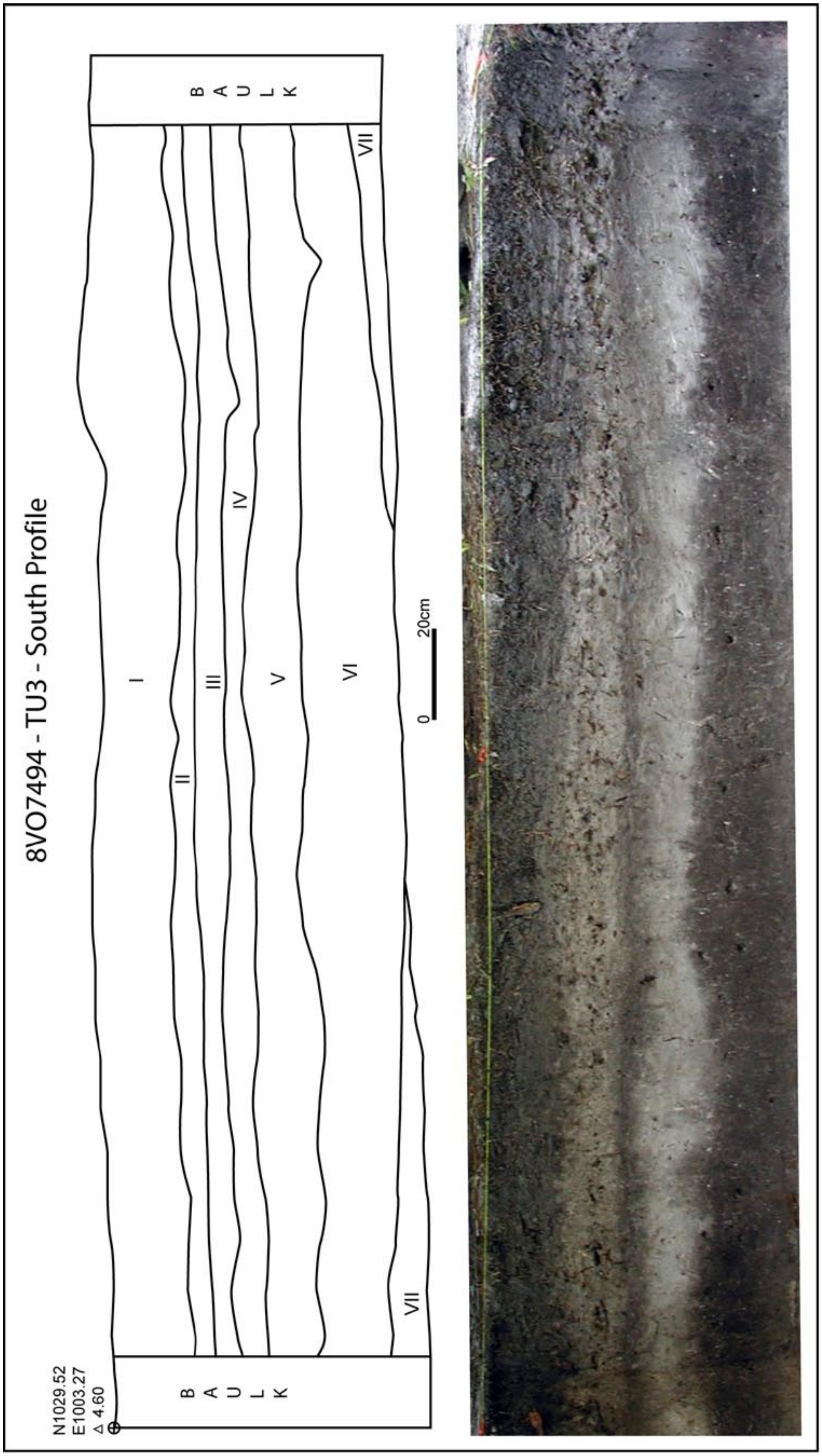

Figure 5-12. Stratigraphic drawing and photograph of the south profile of TU3, 8VO7494.

Table 5-6. Cultural Material Recovered from Test Unit 3, 8VO7494.

Level	Related Stratum	Max. Depth cm BS[1]	Ceramic Sherds: St. Johns Plain	Ceramic Sherds: Orange	Ceramic Sherds: Crumb	Lithic Tool	Lithic Flake	Shell Tool	Marine Shell (g)	Vertebrate Fauna (g)
B	III	20	1							0.2
C	III	24	4		1					169.2
D	III	30	210	1	114	2	4		5.7	1858.6
E	IV	40	22	9	23		1			490.4
F	IV	43		1	6					213.5
G	V	46	12	4	13				5.1	607.0
H	VI	56	1	1				1		364.1

[1]Depth below surface, measured from southwest corner of unit

sapling in the center of the unit. As excavation proceeded it was clear that this sapling did not significantly disturb the integrity of the deposits; the root mass was mostly contained within the sterile overburden.

With the exception of a large shell-free organic stain, Stratum III was consistently composed of densely packed *Viviparus* and bivalve. Faunal remains were abundant, and appear to be dominated by turtle. One large feature (Feature 5, see below) was uncovered at the base of the stratum. Dispersed throughout were large St. Johns Plain sherds, over 150 of which were piece plotted, as well as the occasional chert flake and biface fragment. Typically, these were recovered lying flat and above, within, or just below the shell. Six concentration of turtle bones were also recovered.

The large aerial exposure of TU3 allows us to investigate the spatial distribution of artifacts and features (Figure 5-13). At first glance, it would appear that these are randomly distributed across the unit. However, there are several interesting trends. Noticeably absent were sherds above the level of Feature 5, although as noted in the figure St. Johns sherds were recovered in the Feature 5 matrix. Concentrations of turtle shell were restricted to the southeastern corner of the unit, which is a mirror image of where they were recovered in TU1.

In addition, during excavation it was apparent that a number of the sherds could be refit. At least two intact bases were identified in the field. These bases are consistently highly oxidized, and appear to have broken along coils. While no one volunteered to refit the turtle shell, back in the lab undergraduate student Jason O'Donoghue began an aggressive sherd refitting program, which resulted in refitting the bottom half of a vessel from 26 sherds in TU1 and TU3. Using the piece plot data, these sherds were plotted within Figure 5-14. They occur in a spatially restricted area in the southeast, with some refitted sherds coming from TU1. The large size of the sherds, as well as their spatial restriction indicates that this vessel most likely broke in situ and was probably not moved or trampled. That these vessels may have been concentrated in an area next to Feature 5 is suggested by the presence of the base of another vessel

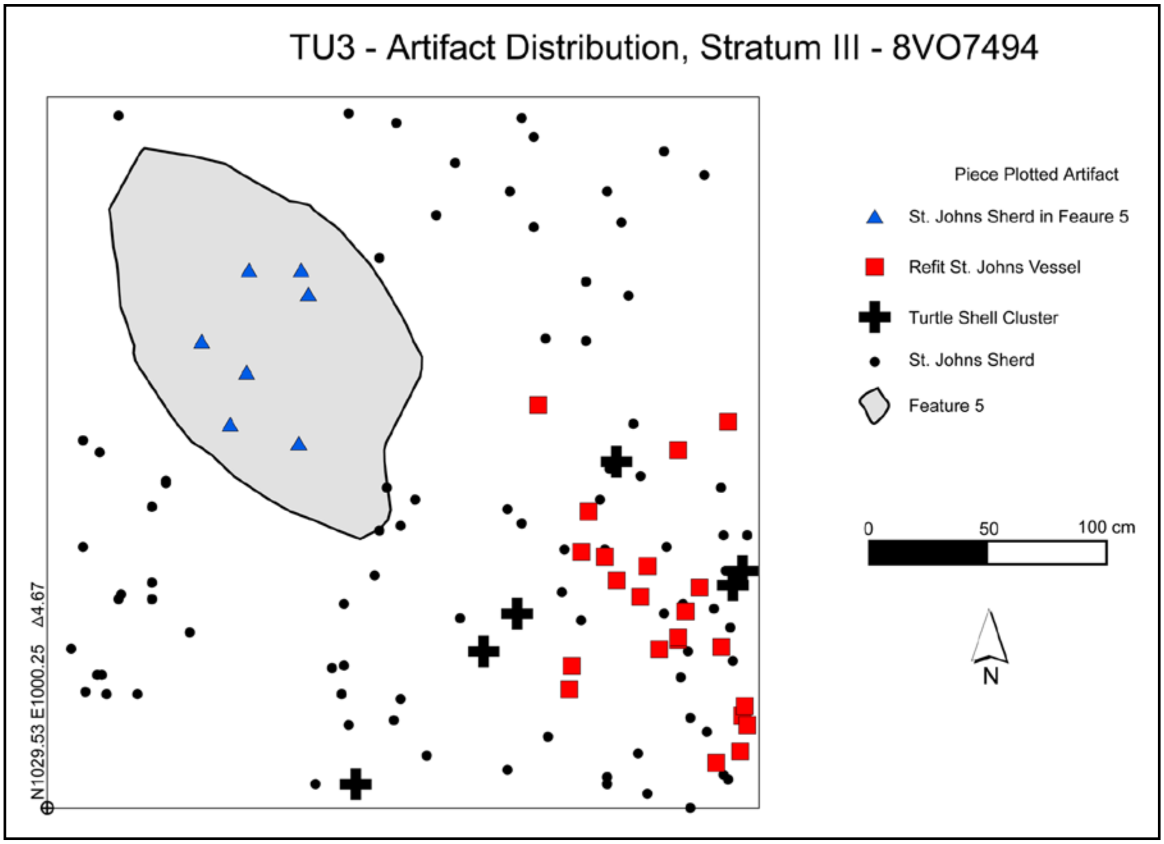

Figure 5-13. Distribution of artifacts in Stratum III of TU3, 8VO7494.

recovered amongst the refit vessel sherds. As more sherds are refit, more robust patterning like this will be evident.

The large size of sherds, in tandem with the circumscription of refit sherds and turtle shell clusters indicates that the surface upon which these were deposited was stable, and not significantly altered after deposition. The refit vessel indicates that the pots broke in place, possibly in actual fireplaces. This means that the surface was not continually trampled, and was clearly not kept clear of debris. These assemblages likely represent primary defacto refuse. The implication is that activities that produced Stratum III were short in duration. However, the amount of vertebrate fauna, and the abundance of gastropod shell indicates that the activities certainly produced abundant byproducts of food preparation.

As the shell of Stratum III was removed, several feature-like deposits were recognized intruding into the lower Stratum IV. Feature 5 is a large shell pit associated with Stratum III, and will be described below. Feature 6 is a highly organic and odiferous deposit adjacent to Feature 5 and present in the north and west walls. Fauna, shell, and artifacts are rare. A casual examination of the 1/8-inch water-screened sample revealed the presence of numerous modern leaf fragments. This suggests that this feature is an animal burrow. A large irregular stain was recognized adjacent and within the west profile, designated Feature 11. In the field this was apparent as a crescent-shaped dark stain. We sectioned it, and excavated approximately 15 cm down, at which point it became apparent that the margins were highly variable, and likely the result of a post-depositional disturbance. As can be seen in the west profile, the feature intrudes Strata IV, V, and VI, but the margins indicate that it slopes under the deposits, suggesting a natural disturbance. Excavation was stopped midden characteristic of Stratum VI was encountered. This feature yielded two St. Johns Plain sherds near the base, which were consistent with those from Stratum III.

Strata IV and V are almost devoid of shell. Faunal remains, while present, occur in lower frequency. Stratum IV, excavated as Levels E and F, graded from a dark gray to a light gray towards the base. As with the lower Stratum V, excavated as Level G, we recovered St. Johns and Orange sherds. As in TU1 the lower spiculate-tempered sherds were noticeably different from Stratum III sherds in that they were thick and had abundant sponge spicules. No more incised St. Johns sherds were recovered, but two Orange incised sherds were recovered. In addition, a series of small, dark stains were present in the north profile, at approximately 43 cm BS. These were designated Features 7, 8, 9, 10, 11. Only Features 9 and 10 are likely anthropogenic. The others had diffuse, irregular margins, typically lacked artifactual contents, and were not discernable in profile.

Stratum VI was excavated as Level H, and is a darker midden deposit in which there is a notable increase in shell, with *Pomacea* predominating. Vertebrate faunal remains are moderately abundant. This component has been tentatively assigned to the preceramic Archaic, based on the lack of ceramics and the presence of a worked marine shell fragment. It was hoped that when a large enough area was opened up that the feature-like concentrations of shell witnessed in TU1 would be replicated here. No clear evidence for such features could be discerned. There were concentrations, but upon investigation they could never be clearly defined. Perhaps more importantly, a number of *Euglandia* shells were recovered. Their presence suggests the shell deposits were not covered for extended periods of time. Taken together with the organic content, this stratum was likely a stable surface for some time, and represents a buried A horizon.

Stratum VII is the basal stratum, and is variously gleyed throughout. The stratum is significantly higher to the west, suggesting that a small clay dome is present as it is in TU2. As this stratum had been identified as sterile in TU1, we did not excavate it in 2004.

In addition to documenting patterns of spatial variation, one of the goals of the excavation of TU3 was to document the vertical distribution of artifacts. With sufficient diagnostic artifacts, it is potentially possible to reconstruct the original depositional surfaces. Discussions of stratigraphic units have so far demonstrated the presence of at least three primary depositional units. Stratum III, characterized by gastropods and abundant fauna, is considered to be restricted to the St. Johns I period, based on the sole presence of distinctive plain, thin, spiculate pottery. Similarly, Stratum VI is considered to date to the preceramic Archaic. It is easily segregated by the lack of pottery.

Sandwiched between these two macro-units are two mostly shell-free strata that contain infrequent spicule- and fiber-tempered pottery. There is a minimum of two pottery components at the site, an upper shell midden component (Stratum III), and a lower shell free midden (Strata IV and V). Although the recovered wares are typically associated with different time periods (St. Johns I and Orange respectively), recent studies have shown that fiber-tempered and spiculate-tempered sherds date to the origins of pottery production in the St. Johns River (Cordell 2004, Sassaman 2003d). As will be discussed in more detail below, the spiculate sherds from the midden and sub-midden zones are quite distinct. Stratum III sherds are consistent with the St. Johns I period. In contrast spiculate sherds from the Strata IV/V assemblage have abundant spicules, are thick, and in one case they are incised. On this basis, and by the lack of shell, these pottery assemblages should be considered separately. The question remains whether or not the lower spiculate sherds and the fiber-tempered sherds were deposited at the same time, or if they represent distinct events. As noted, the stratigraphic units of the Strata IV and V exhibit soil horizonation, suggesting that color and texture cannot be used to discriminate these units as depositional events.

Piece plot data for each pottery horizon was used to interpolate the St. Johns shell midden and the sub-shell midden surfaces (Figure 5-14). For the classic St. Johns sherds several patterns are evident. With the exception of the northwest corner of the unit, the surface slopes down slightly to the northeast. In the northwestern corner there are two large depressions in the interpolated surface. The largest is in the same location as Feature 5, and demonstrates that sherds were deposited within the feature. Additionally, there is a large dip in the western profile. This was caused by two sherds that were recovered within Level H, the supposedly preceramic level. Although potentially problematic, this area is just beneath the Feature 11 disturbance noted above. Because we stopped excavation of the feature before we encountered the base, it is likely that we missed these sherds during feature excavation.

The interpolated surface for the Strata IV-V assemblage is less informative. Only four fiber-tempered sherds and three spiculate sherds were piece plotted from these levels. The sample is too small to interpolate surfaces. A consideration of the depths below surface for each ware suggests that there may be some differentiation. Spiculate sherds average 4.31 cm BD (36 cm BS), whereas fiber-tempered sherds average 4.24 cm BD (43 cm BS). The sample is clearly too small to be statistically significant, however. Taking these wares as a total assemblage, the surface slopes to the northwest. This may be an artifact of one of the fiber-tempered sherds being recovered near the base of Feature 5. In sum, there is not enough information to determine whether or not the spiculate and fiber-tempered sherds were deposited at different times, nor is it possible at this time to tell if Strata IV and V represent distinct depositional events.

Test Unit 4

One of the lingering issues from the 2003 season was the nature of deposits near the eastern wetland margins. The bucket auger results suggested that the deposits were shallow, and typically limited to shell and some bone. In order to characterize these

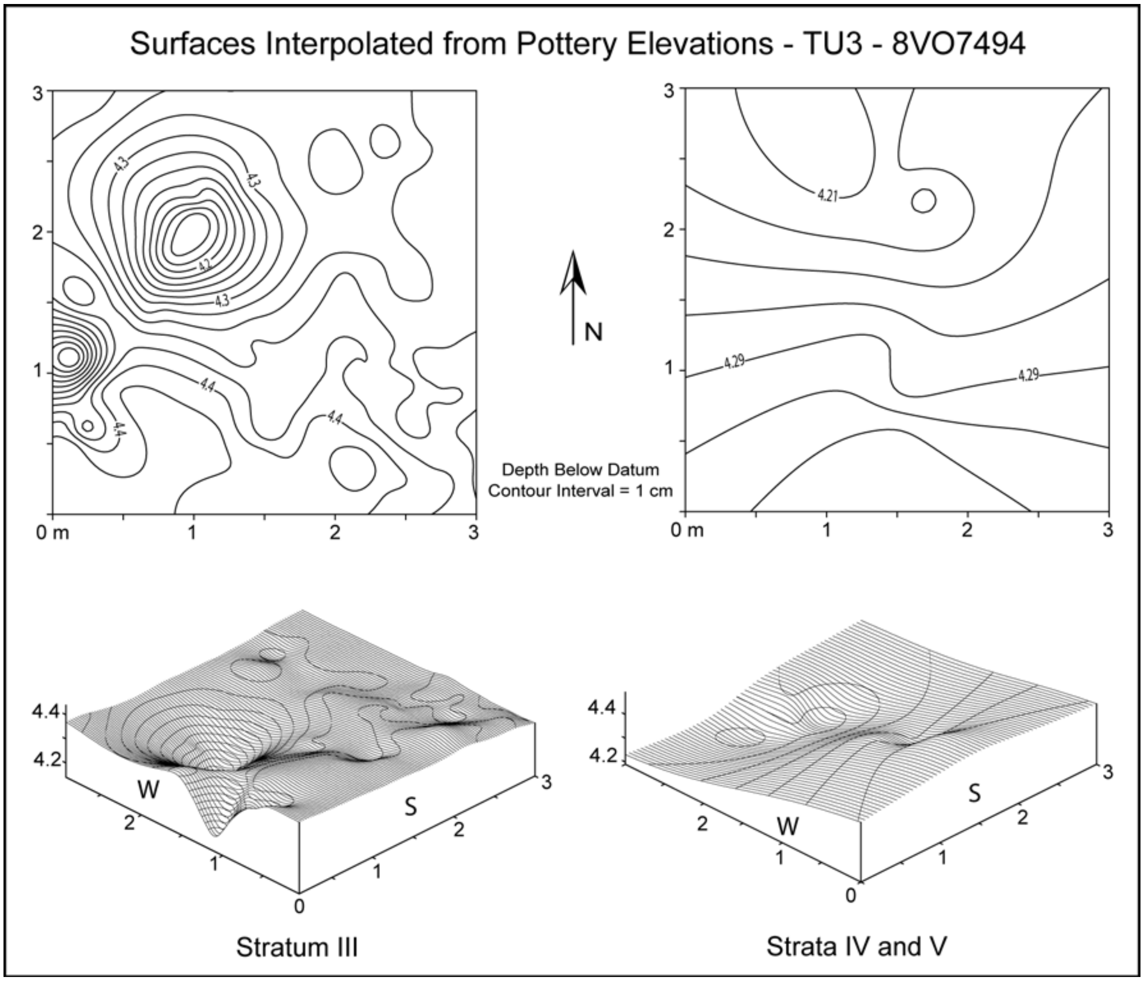

Figure 5-14. Interpolated elevation surfaces of the Stratum III midden and the Strata IV and V midden, TU3, 8VO7494.

deposits, we excavated TU4, a 1 x 2-m unit, located in the low-lying eastern aspect of the site (Figure 5-3). The unit was not mapped with the total station. The southwest corner was located approximately 4 m to the east, and 2 m to the south of Auger 37, which yielded fauna, shell, and St. Johns pottery. Unlike the previous test units, TU4 was excavated by shovel skimming 10-cm levels, excluding the upper 20 cm which were taken out as Level A, and recognizing zones within those levels. All material was passed through 1/4-inch screen.

While the deposits (Figure 5-15, Table 5-7) and material culture (Table 5-8) generally recapitulate the upslope units, there are some significant differences that register alternative anthropogenic and pedogenic processes. A number of localized variations in deposition or post-depositional disturbance resulted in the mixing and cross-cutting of several stratigraphic units. During excavation, this caused some confusion, resulting in the numerous sub-zones recognized within each excavation level. Notable in the southern profile is Feature 12. This will be discussed in more detail below.

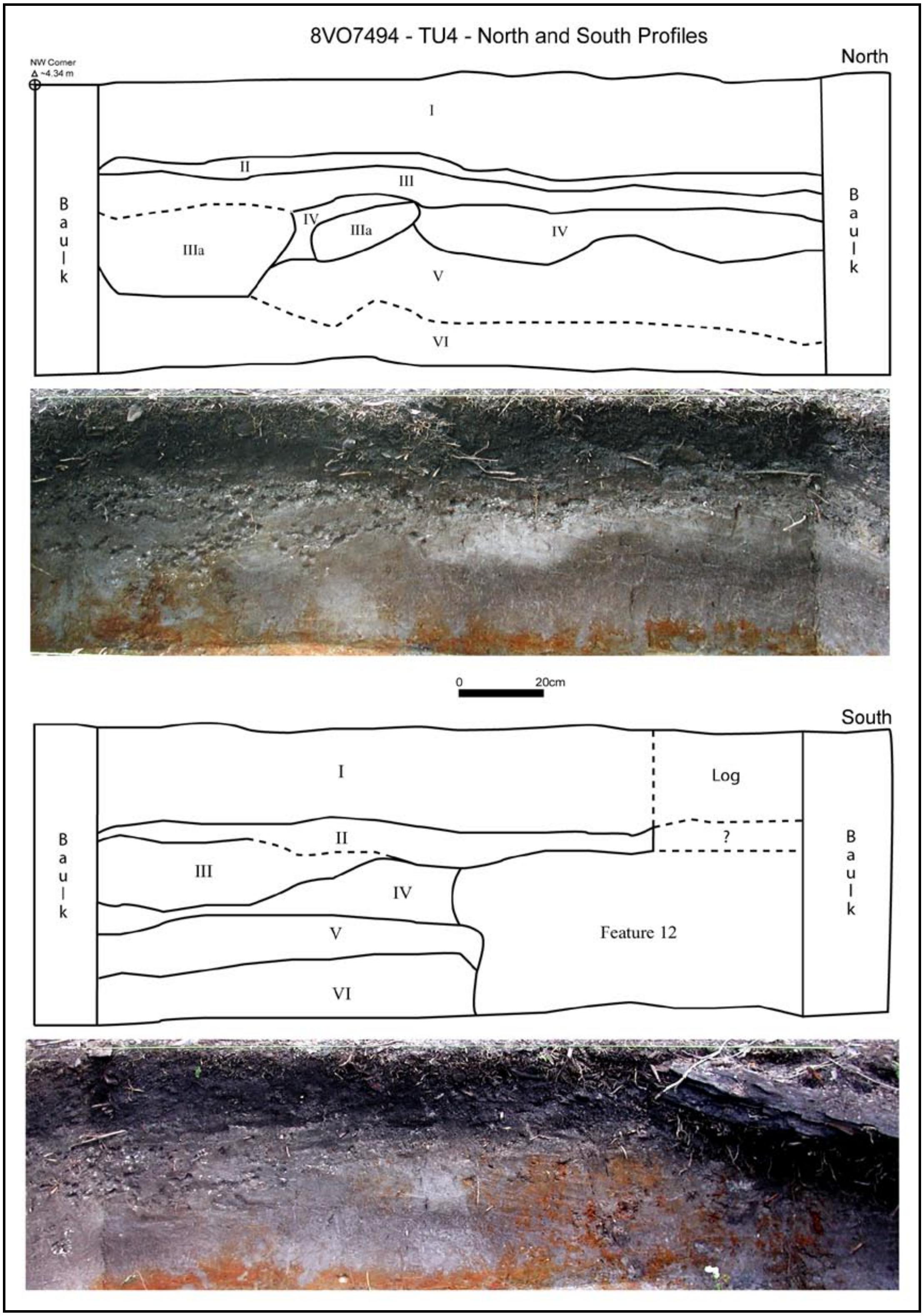

Figure 5-15. Stratigraphic drawing and photographs of north and south walls of TU4, 8VO7494.

Table 5-7: Stratigraphic Units of Test Unit 4.

Stratum	Max. Depth cm BS[1]	Munsell Color	Description
I	26	10YR2/1	A Horizon; dense root mat in silty fine sandy matrix; sterile
II	29	10YR3/1	Silty Medium/Fine Sand; abundant fauna and pottery
III	35	10YR3/2	Medium/Fine Sand; abundant *Viviparus* shell with some *Pomacea* and bivalve, abundant vertebrate fauna, some pottery
IIIa	54	10YR4/2	Medium/Fine Sand; sporadic *Viviparus* shell with some *Pomacea* and bivalve, some vertebrate fauna
IV	46	10YR5/2	Fine Sand, some vertebrate fauna
V	70	10YR5/3 - 10YR5/8	Clayey sand; abundant mineral concretions; gleying extensive; sterile

[1]Depth below surface, measured from southwest corner of unit, TU4 not mapped with total station, depth below site datum unavailable

Table 5-8. Cultural Material Recovered from Test Unit 4, 8VO7494.

Level / Zone	Max. Depth cm BS[1]	Stratum	Ceramic Sherds			Vertebrate Fauna (g)
			St. Johns Plain	Orange	Crumb	
B	20	II	16	1	33	780
B / B	20	III	1			47.7
C / A	30	F-12			2	80.8
C / B	30	III	9	9	11	229.7
C / C	30	IV				21.8
D / C	40	IV				60.2
D / C1	40	F-12	2	5	7	89
D / D	40	IIIa				36.2
E / C	50	IV			1	8.9
E / C1	50	F-12				27.5
F / C1	60	F-12				5.2

[1]Depth below surface, measured from southwest corner of unit, TU4 not mapped with total station, depth below site datum unavailable

Stratum I was a thick, organic A horizon, with numerous roots. No artifacts were recovered. This stratum was noticeably moister and muckier than the upslope units, no doubt due to its low elevation. Approximately half way through the excavation of Level B (20-30 cm BS) we encountered Stratum II, a gray silty medium/fine sand. Within the matrix were abundant fauna, and large and fragmentary St. Johns sherds. One Orange sherd was also recovered. With the exception of the lack of shell, the size of sherds and frequency of fauna was consistent with Stratum III in TU1 and TU3.

Near the base of Level B we began to encounter gastropod shells, which we recorded as Zone B. This is Stratum III, a variously thick zone composed of abundant *Viviparus* shell with some *Pomacea* and bivalve shell as well. This zone was excavated as Level B/Zone B, and Level C/Zone B. The upper portion of this zone contained both plain St. Johns and Orange sherds adjacent to and on top of each other, suggesting that these deposits are compressed or deflated.

Stratum IIIa shares many similarities with Stratum III, and is likely derived from it. Stratum IIIa is visible only in the northern profile, and was excavated as Level D/Zone D. It is composed of pockets of gastropod shell, consistent with Stratum III. However, these pockets are within a matrix that is more consistent with the underlying Stratum IV. The shell occurred more as low density pockets of shell within a mixed matrix. The horizontal position of these pockets adjacent to the large Feature 12 disturbance suggests that Stratum III was partially excavated in the past, and mixed with underlying matrix. This may be related to the digging of Feature 12 in the past.

Stratum IV is a fine, light gray to dark gray sand. It was excavated as Level C/Zone C, Level D/Zone C, and Level E/Zone C. The stratum is characterized by low densities of fauna and no shell. Based on its similarities with Stratum V in TU1, it is likely that this is a zone of eluviation. A lack of shell, and notably low faunal and sherd counts suggests that this is likely anthropogenically sterile. Stratum V underlies the entire unit, and is a wet clayey sand characterized by abundant mineral concretions and extensive gleying. No cultural materials were excavated from this level.

In general, the soil horizons recognized in the upslope units are visible in the eastern half of the profiles. However, these units appear truncated in the western half of the unit, particularly in the southern wall. In the northern profile, Stratum IIIa is intersected by Stratum IV. Had it not been for this cross-cutting of deposits, the overall morphology of Stratum IIIa is suggestive of a large feature, comparable to Feature 5 in TU3. The most notable feature in the profile is Feature 12 (see below), which truncated deposits in the south and west profiles.

FEATURES

During the course of excavations, 11 potential features were recognized throughout the test units. Only three of these features have been determined to be anthropogenic in origin. In addition, Feature 12 was designated once the profiles and artifacts were studied subsequent to the conclusion of the 2004 field season.

Feature 5

Feature 5 is a large basin located in TU3. The feature measures 2 by 1.2 m, and the excavated portion is 15 to 20-cm deep (Figure 5-16). The matrix is a highly organic fine sand (10YR2/1), which was somewhat greasy in texture. The feature is characterized by large *Viviparus* shells, in addition to bivalve and sparse St. Johns Plain pottery and vertebrate fauna. One half of the feature was passed through 1/8-inch screen, and the other half kept for flotation. As of this publication, the feature contents have not been sorted or quantified, and several float samples remain to be processed.

Feature 5 was initially noted as a shell free and highly organic dark stain in the northwest quadrant of TU3 in Level B. It was this relatively high elevation, the lack of shell, and its location adjacent to the small sapling in the middle of the unit which initially suggested the feature was nothing more than an animal burrow or tree throw. As the crew dug past the dense shell of Stratum III, gastropods, bivalves, and dark midden remained, providing convincing evidence that this was in fact an anthropogenic feature. More substantive comparisons between the column sample from TU1 and the feature will be required to verify the patterns recognized in the field. Field observations are provided here as a baseline for further inquiry.

After recording the plan view, we sectioned the feature along the north-south axis and excavated the eastern half (Figure 5-17). This was water screened through 1/8-inch screen. No clear evidence for stratification was present, although the lower 5 cm were characterized by lower shell density. Aside from one large piece of charcoal recovered from the top of the feature, no carbonized wood was noted during excavation. Although we have not analyzed the flotation samples, a visual inspection indicates that there are few botanical remains. Finally, there is no evidence in the way of calcined bones or soil discoloration to indicate that significant burning occurred within the feature. Vertebrate faunal remains were relatively sparse, but included fish remains as well several large soft shelled turtle fragments and an occasional alligator dermal scute. A handful of sherds were also recovered, all of them from within, and not on top of, the feature matrix. It is not yet known if these refit with any sherds from outside of feature context.

The feature is dominated by *Viviparus* and bivalve shell. The bivalve occurs in higher frequency within the feature than within the general Stratum III midden. In addition, during excavation, numerous paired and closed bivalves were noted. These have the appearance of having never been opened, as the margins of the shells were aligned as they would have been in life.

Perhaps more notable were the *Viviparus* shells, which appeared to be significantly larger than those from either Strata III or VI. Moreover, they also looked larger than those recovered by the field school from Orange and Mount Taylor strata at Blue Spring Midden B (8VO43). This possibility has implications for both the interpretation of the Feature 5 assemblage, as well as variations in shellfish collection strategies through time and space in the Hontoon Island region. In particular, studies

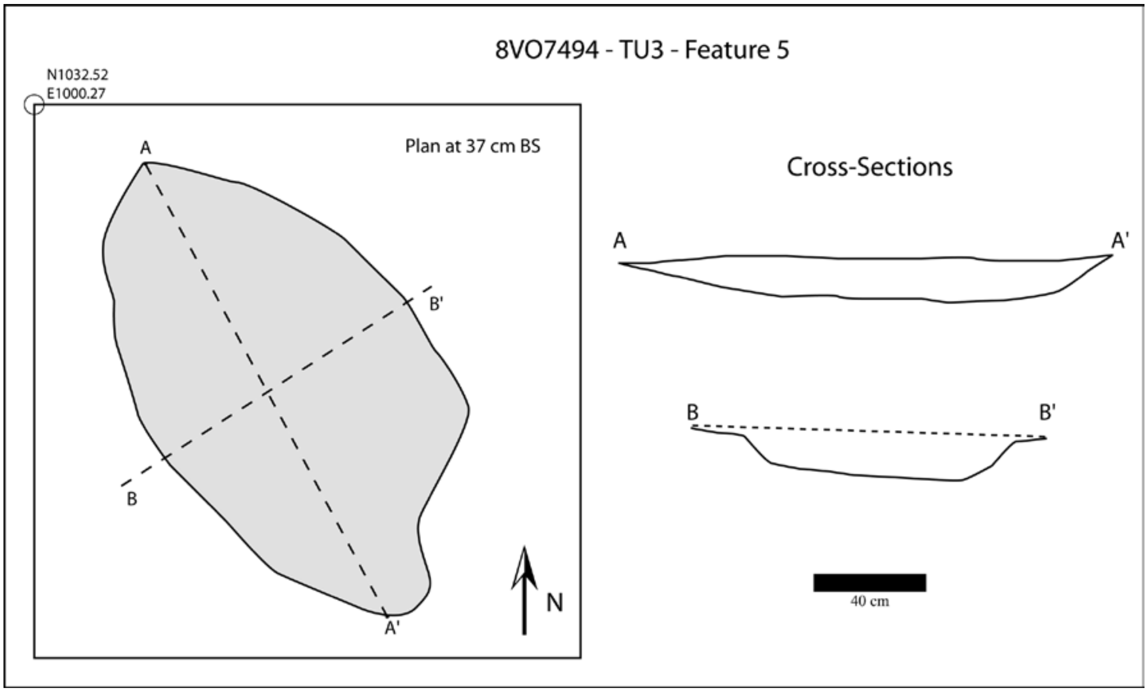

Figure 5-16. Plan and cross-sectional illustration of Feature 5, 8VO7494.

Figure 5-17. Photograph of excavated cross-section of Feature 5, TU3, 8VO7494.

have suggested that there is an overall decrease in the size of *Viviparus* shells through time (Cumbaa 1976, Connaughton 2001). The Feature 5 assemblage would appear to contradict this trend.

In order to test this scenario, a sample of *Viviparus* shells greater than 1/4" from Feature 5 and Strata III and VI were measured for comparison. The original intent was to record five variables on whole shells to duplicate the methodology used to analyze samples from Blue Spring Midden B (Connaughton 2001). Due to the relatively small sample of entirely whole shell from East Hontoon, only the apex length was measured for comparative purposes. This is being treated as a proxy for the overall size of the shell. The descriptive statistics are presented in Table 5-9.

Viviparus shells from Feature 5 were larger than any other sampled context at East Hontoon, with a mean apex length of 16.11 mm. Means of each of the contexts at East Hontoon were compared with t-tests. In each case, the means were statistically different at the 95% confidence level or higher. In addition, the maximum values were greatest from Feature 5. This suggests that not only are the shells from Feature 5 larger than those in the contemporary surrounding matrix, but that the St. Johns period Stratum III assemblage is also larger on average than those from the preceramic Archaic.

When compared between sites, the Feature 5 assemblage appears even more distinct. Although t-tests were not computed to compare with the Blue Spring Midden B data, it is evident that these shells are smaller than any of the contexts at East Hontoon. Not only are the Feature 5 shells larger, but the St. Johns period assemblage taken as a whole is larger than either of the preceramic Archaic contexts at either site, as well as the Orange component at 8VO43.

While the primary function of the feature is unknown, the presence of sherds within the feature, but not on top, suggests that the pit was open during occupation and filled accretionally. The lack of abundant charcoal and ash, as well as limited evidence for calcined bones also indicates that little to no burning occurred within the feature. The large gastropods, as well as the abundance of bivalve shell, suggests that these were selected from a larger catch, and preferentially cooked. Moreover, the presence of large vessels adjacent to the feature indicates that the contents of these cooking vessels (see below) were preferentially dumped into the feature.

Table 5-9: Comparison of apex lengths of *Viviparus* shells from select contexts at 8VO7494 and 8VO43.

Context	Period	Count	Mean (mm)	Standard Dev.	Minimum (mm)	Maximum (mm)
8VO7494						
TU1 – Stratum III	St. Johns I	61	13.27	3.29	7.07	20.01
TU1 – Stratum VI	Preceramic Archaic	51	12.11	1.54	7.04	15.39
Feature 5	St. Johns I	90	16.11	2.78	9.05	22.83
8VO43[1]						
TU2 – Stratum III	Orange	100	11.34	1.49	8.58	16.16
TU2 – Stratum XIb	Preceramic Archaic	102	11.94	1.73	8.69	18.05

[1] Source: Sassaman (2003a: Table 7-10).

Feature 9

Feature 9 is a small circular pit in the northern profile of TU3 (Figure 5-12, Figure 5-18). The feature was recognized as a shell-free circular stain at the base of Stratum IV, at approximately 43 cm BS (4.24 cm BD). This is the interface between the darker Stratum IV, and the light colored Stratum V. The contrasting soil colors allowed the recognition of the feature. In profile, it appears to have originated near the top of Stratum IV. The interior was a dark 7.5YR2.5/1 while the exterior margins were a somewhat lighter 10YR3/2. Prior to excavation it was thought this was a post hole, due to the darker interior soil color. Excavation revealed that it was actually a small basin, 11-cm deep and approximately 35 cm in diameter. The fill was characterized by fine sands with trace amounts of *Viviparus* shell, fauna, and some charcoal.

Feature 10

Feature 10 was recognized at the same time as Feature 9, and is located approximately 50 cm south in the eastern profile (Figure 5-18). Like Feature 9 it is characterized by a dark core surrounded by a slightly lighter matrix. In cross-section, the feature is a deep basin, although the southern margin is somewhat diffuse. The feature is

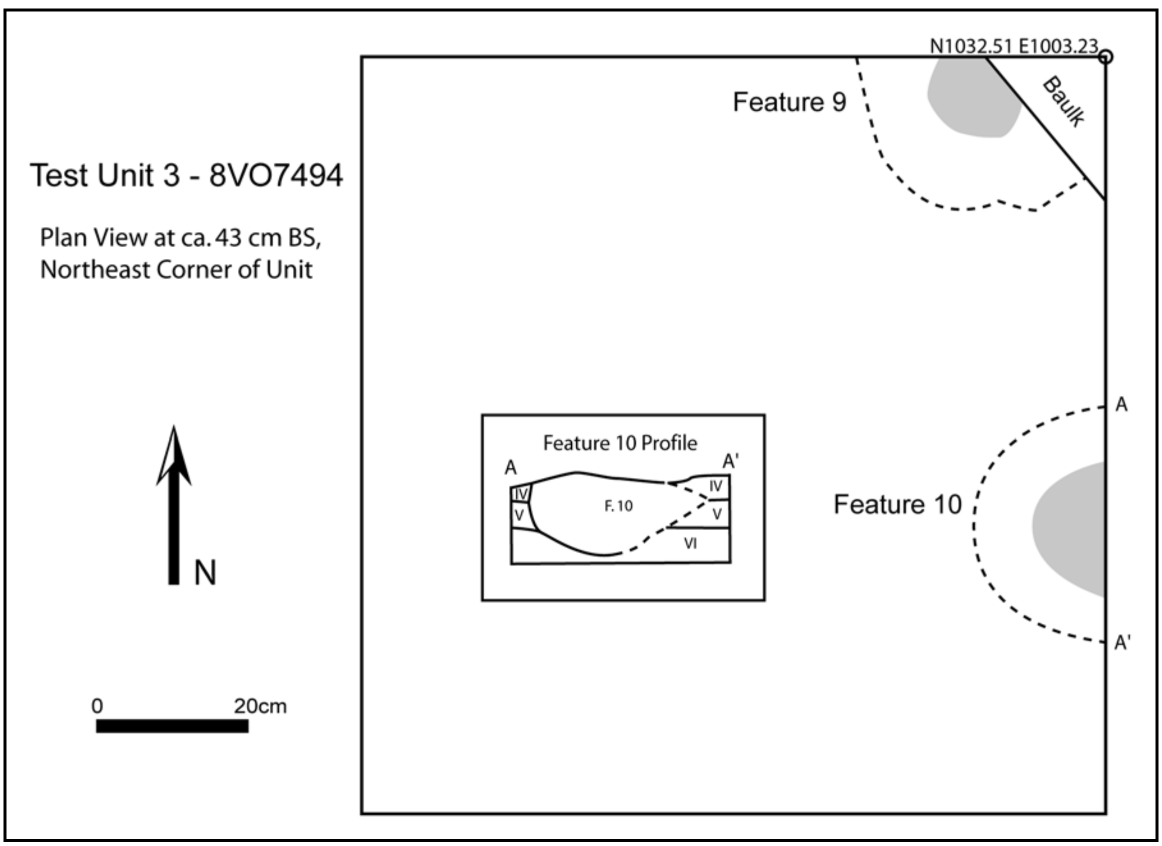

Figure 5-18. Planview and profiles of features identified at the base of Level E, TU3, 8VO7494.

30-cm wide, and 19-cm deep. Much like Feature 9, the contents included some charcoal, in addition to trace amounts of vertebrate fauna, and shell. The shell was restricted to the bottom half of the feature. During excavation, the base was somewhat difficult to discern, and these shells may actually be from the underlying preceramic Stratum VI. However, this feature may have been intercepted in the column sample taken from Stratum V in the northern profile of TU1. If this is the case, then this feature is related to the Orange component.

Feature 12

Feature 12 is a large circular pit located in the western half of TU4. It was not designated a feature until after the excavation season concluded. During excavation of TU4, a large, circular area mostly devoid of artifacts, shell, or vertebrate fauna was observed near the base of Level B, at the contact between Strata II and III (Figure 5-15). The matrix was characterized by fine sands with abundant mineral concretions, and exhibited gleying throughout in profile. With the exception of Level B, where it was recognized at the base of the level, this area of the unit was always excavated separately from the other zones: Level C/Zone A, Level D/Zone C1, Level E/Zone C1, and Level F/Zone C1. Upon excavation, it became clear that these concretions were likely derived from the basal Stratum V. Its minimum reconstructed dimensions are 115-cm wide and 50-cm deep.

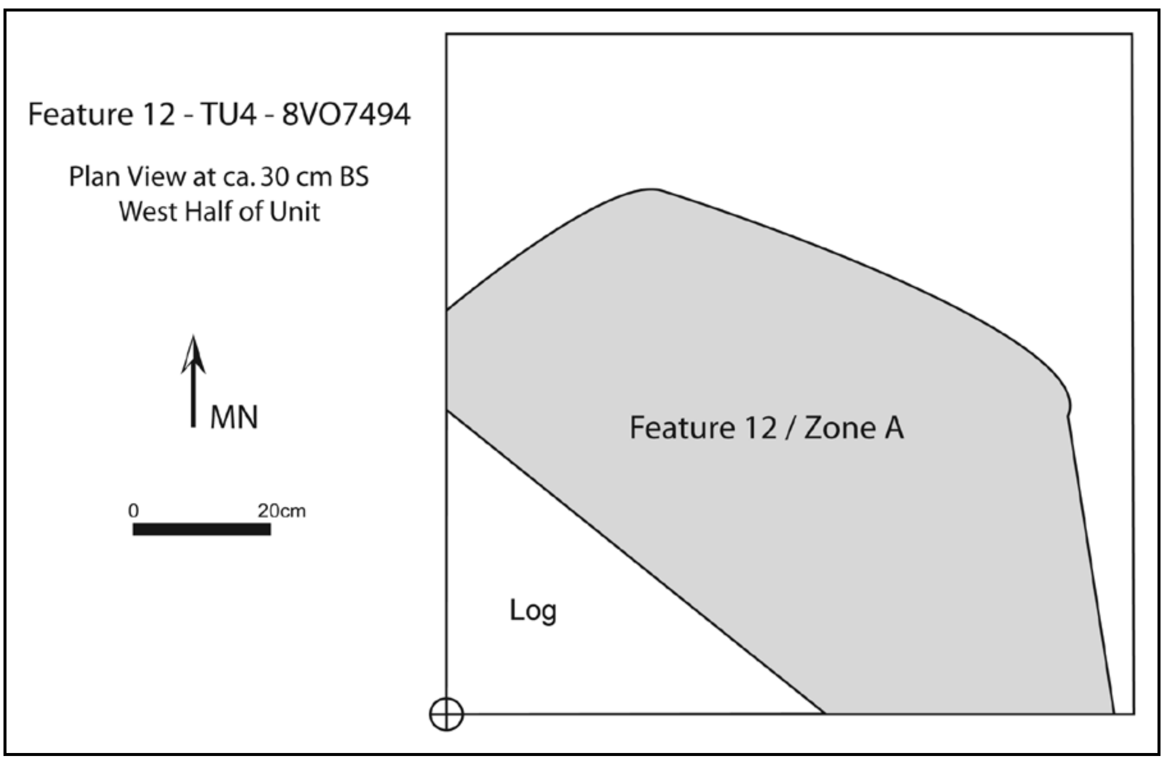

Figure 5-19. Planview of Feature 12 at base of level B, TU4, 8VO7494

Although the origins of this feature are unclear, several lines of evidence indicate that this is likely anthropogenic in origin, and may have been a burial pit. The extensive intrusion, as well as the presence of artifacts over the feature suggest that it predates the last deposition of material in the area. More importantly, scattered human remains, including a human molar and cranial fragment, were recovered from near or within the intrusion. The molar, with a highly attrited occlusal surface was recovered from near the pit, if not within it. The cranial fragment unfortunately was recovered while cleaning the walls of the unit in preparation for a photograph. Given that we were cleaning the feature profile when the fragment turned up in the screen, it is likely that it came from there.

ARTIFACT ANALYSIS

A total of 768 artifacts and 6054.8 grams of vertebrate fauna were recovered from test unit level proveniences during the two seasons of excavation at East Hontoon (Table 5-10). This total excludes feature contexts which have not been fully processed as of the date of this report. The faunal remains have been catalogued and weighed, but no analysis has been completed yet. In addition, only selected samples of the material culture have been analyzed. Descriptions of artifact classes recovered, as well as the preliminary analysis of the pottery assemblage are provided below.

Marine Shell

Three fragments of marine shell were recovered from TU3. A portion of the spire of a *Busycon carica* shell was recovered from Stratum III. Another fragment, possibly worked, was recovered from Stratum V. It is too fragmentary to identify the species of origin. Finally, a clearly modified (Figure 5-20h) body whorl fragment of an unknown species was recovered from Stratum III, Level H. Although one end appears to have been polished to a point, the function is unclear.

Table 5-10: Summary of Material Culture Recovered from Test Unit general proveniences, 8VO7494.

	TU1	TU2	TU3	TU4	TOTAL
Pottery Sherds					
spiculate-tempered	86	19	250	26	381
fiber-tempered	2	5	16	10	33
crumb	38	101	157	45	341
Chipped Stone	2		7		9
Soapstone		1			1
Shell Tool			1		1
Marine Shell (g)			10.8		10.8
Vertebrate Fauna (g)	798.7	368.6	3703.0	1184.5	6054.8

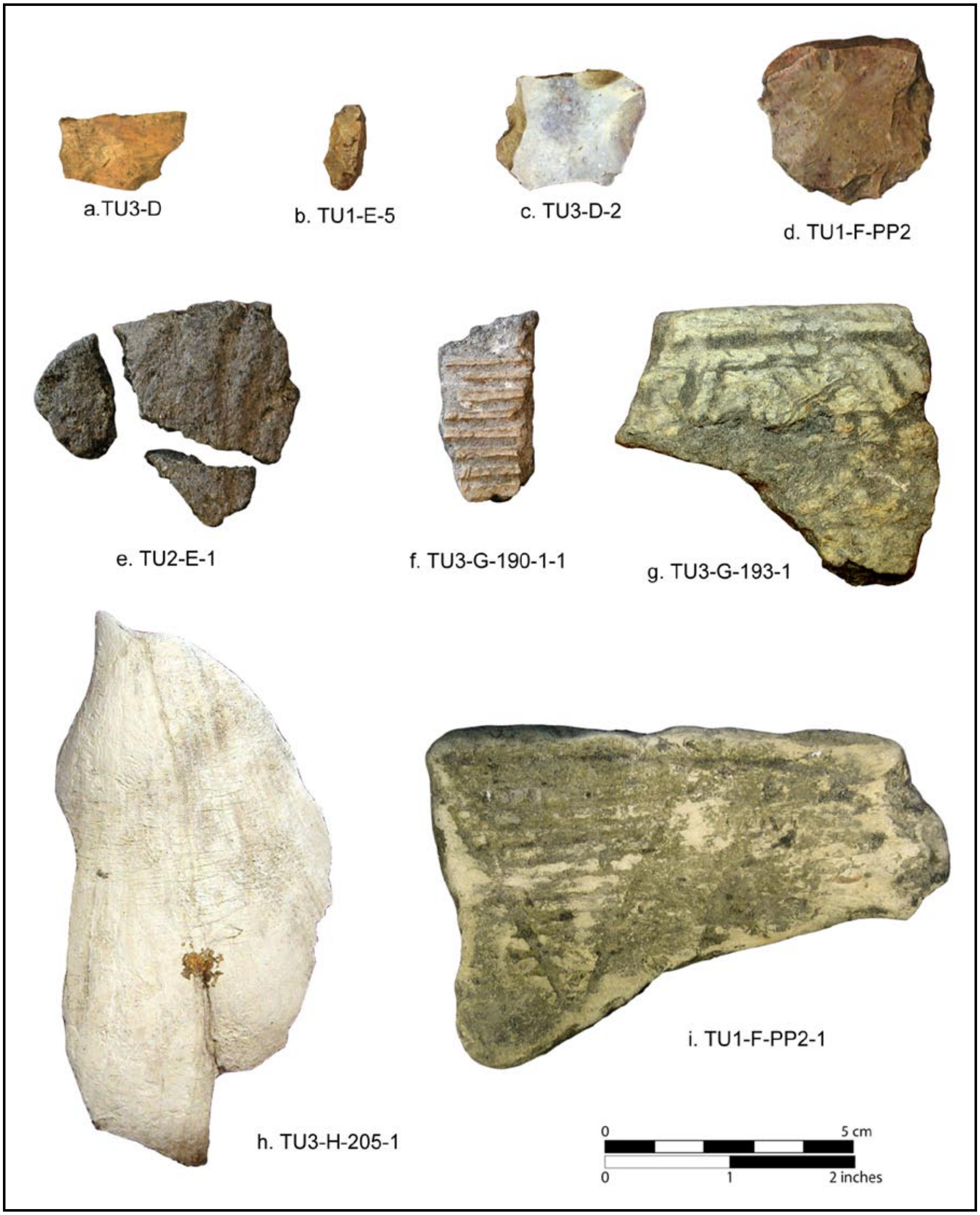

Figure 5-20: Selected artifacts from test unit excavations, 8VO7494. a-d. bifacially modified lithic tools; e. soapstone vessel sherd fragments; f, g. Orange Incised sherds; h. modified marine shell; i. St. Johns Incised sherd.

Chipped Stone

As is typical for sites along the St. Johns river, the chipped stone assemblage from the site is quite small. The assemblage is restricted to TUs 1 and 3, although 2 flakes were recovered during the bucket auger survey. The chipped stone assemblage is restricted to the ceramic strata. This is surprising, given the abundance of chipped stone in preceramic Archaic contexts at site 8VO202. The East Hontoon assemblage is composed of two amorphous biface fragments (Figure 5-20a,d), two bifacially modified flakes (Figure 5-20b,d), as well as 6 waste flakes. All of the material is a light colored chert, no specimens were manufactured out of silicified coral. The assemblage is not chronologically diagnostic. In addition, all of the tools are very general in form, and could have lent themselves to a variety of functions.

Soapstone

Four fragments of one soapstone vessel sherd were recovered from TU2, Stratum IV (Figure 5-20e). These all could be refit back together as a single sherd. The interior of the original sherd is very smooth, having been ground down. The exterior of the sherd is rough, and has gouge impressions on it. Soapstone does not occur locally in Florida, and this sherd is likely part of a larger vessel that was manufactured in the Piedmont region of the Southeast. The characteristics of the sherd are consistent with known soapstone vessel technology. The association of the soapstone sherds with Orange and St. Johns Plain sherds suggests the soapstone sherd post-dates 3800 rcybp, based on dates from throughout the southeast.

Pottery

The pottery assemblage from test unit excavations at East Hontoon consists of a total of 414 sherds, excluding crumb sherds (any sherd that will pass through a 1/2-inch hardware cloth). On the basis of temper, the sherds were divided into two types: Orange (fiber-tempered) and St. Johns (sponge spicule-tempered) (Table 5-10). With the exclusion of two Orange Incised sherds (Figure 5-20f,g) and one St. Johns Incised sherd (Figure 5-20i), the assemblage is characterized by plain pottery. In most cases, Orange Plain and Incised and St. Johns Incised sherds are stratigraphically separated from St. Johns Plain sherds. The lower assemblage is dominated by Orange sherds, with a few examples of thick St. Johns sherds. The upper assemblage is composed exclusively of St. Johns Plain sherds.

Chronology. This stratigraphic separation generally recapitulates the established culture historical divisions of the middle St. Johns River basin. As discussed above, there is not enough material to discern vertical differences between the fiber-tempered and spicule-tempered sherds from the lower assemblages. The lower assemblage at least dates to the Orange period, and may actually date to the end of the period. The upper assemblage has a St. Johns I chronological association.

Vessel Lots. A preliminary analysis of the material was initiated to characterize the variation in pottery vessels, which can provide information on site function. As discussed by Rice (1987: 292-293), there are several potential ways in which to construct analytical vessels. One alternative considered was the use of rim equivalences, by calculating the percentages of rims from a particular vessel size. While this method is useful in assemblages where there is one standard form of different sizes, the variation in St. Johns wares, including square and irregular orifices, precludes the use of this method. Instead, vessel lots were constructed in order to establish the minimum number of vessels (MNV) per site. Prior to vessel lot construction, significant effort was made to refit sherds. This resulted in several dozen sherds being refit, including 26 that formed the majority of a St. Johns vessel base (Vessel Lot 1, Figure 20). Sherds were separated into rim sherds, body sherds, and basal sherds. Vessel lots were then constructed by separating rim sherds on the basis of surface treatment, paste, and curvature. Body or base sherds were then added to lots if they fell within a similar range of variation seen in the rimsherd.

Once vessel lots were constructed, the paste of each lot was characterized. A two-tiered method based on texture and modeled after Cordell's (1985) and Sassaman's (2003d) analysis was used here. Four paste categories were recognized: abundant fiber with visible sand (FAS), abundant spicules (ASP), moderate spicules (SPS), and spiculate with sand visible (SDS). These were classified by means of texture and observations of the paste on fresh breaks with the aid of a 10x magnifying lens. Recording the characteristics of each vessel's firing environment was also performed. Firing environment is an important variable, and speaks of the degree of firing and the kind of firing environment employed on site (Gosselain 1992; Rye 1981). The interior, exterior, and core of each sherd was coded as either oxidized or reduced. Reduced sherds are typically black to gray in color, while oxidized material ranges from gray to orange to white.

Rim sherds were further analyzed in an attempt to identify and quantify variation in vessel forms. Prior to recording variables, the profiles of each rimsherd was drawn. Selected examples are shown in Figure 5-21. Rimsherds were then coded for a variety of morphological attributes. Each rim sherd was coded for surface treatment. Only plain (PL) and incised (IN) surface treatments were recognized. The lip of each rimsherd was coded as either flat (F), thinned (T), recurvate (RE) or irregular (I), based on the previous work of Ferguson (1951), Espenshade (1981), and Sassaman (2003a). Rim form was coded as either straight, incurvate, or excurvate. Vessel wall thickness was taken 3 cm below the orifice on rim sherds, and recorded as the "Rim Thickness." The orifice diameter was recorded for vessel lots where at least 10 percent of a rimsherd was present, following Blitz's (1993) method.

Vessel-level analysis of the pottery resulted in a total of 14 vessel lots (Table 5-11). This total includes three vessels from the Orange component, and 11 vessels from the St. Johns I component.

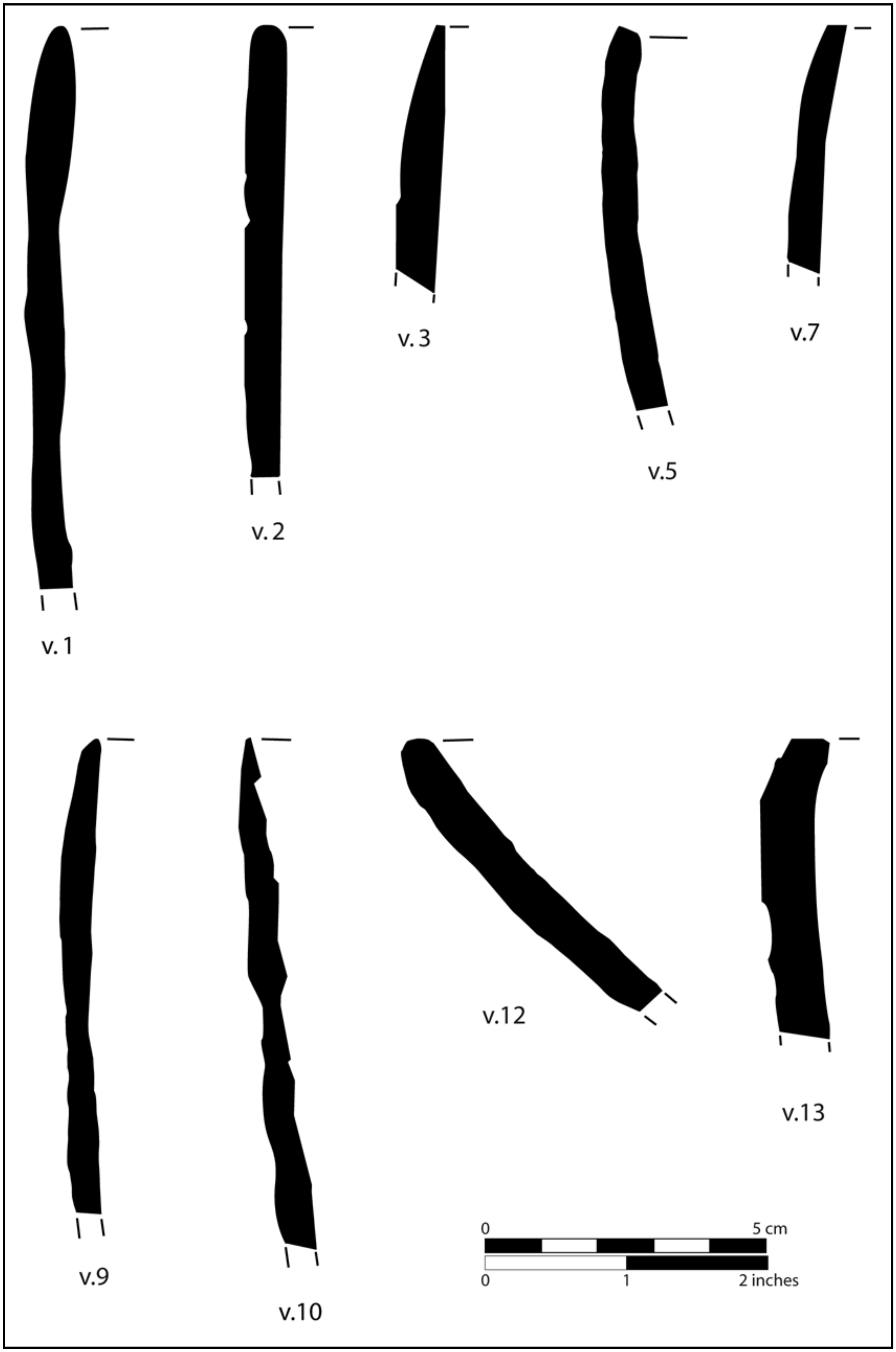

Figure 5-21. Rim profiles of selected vessel lots, 8VO7494.

Table 5-11: Pottery Vessel Lots, 8VO7494.

Vessel Lot	Sherds Count	Firing Condition	Temper	Surface Treatment	Lip Form	Rim Form	Rim Thickness (mm)	Orifice Diameter (cm)
St. Johns I Assemblage								
1	6	O-R-O	SPS	PL	T	S	6.2	34
2	7	O-R-O	SPS	PL	F	S	6.5	30
3	6	O-R-O	SPS	PL	T	S	7.6	
4	4	O-R-O	SPS	PL	I	S	7.3	
5	1	O-R-R	SPS	PL	F	S	6.4	32
6	1	O-R-O	SPS	PL	T	S	6.1	
7	1	R-R-R	SDS	PL	F	S	6.4	
8	6	O-R-R	SPS	PL	T	S	4.6	
9	3	O-R-O	SPS	PL	F	S	5.8	
10	3	O-R-O	SPS	PL	T	S	5.6	34
11	1	O-R-O	SPS	PL	F	S	6.5	48
Orange Assemblage								
12	1	O-R-O	ASP	IN	T	S	9.4	
13	1	O-R-O	FAS	IN	RE	IN	9.9	
14	1	O-R-R	FAS	IN				

Firing Condition: Exterior-Core-Interior; O, Oxidized; R, Reduced
Temper: SPS, primarily spicules; SDS, spicules, sand visible; ASP, abundant spicules; FAS, fiber abundant, sand visible
Surface Treatment: PL, plain; IN, incised
Lip Form: T, thinned; F, flat; RE, rounded exterior; I, irregular

The Orange assemblage is composed of two Orange Incised lots (Vessel 13, 14) and one St. Johns Incised lot (Vessel 12). Both Orange vessel lots are represented by individual sherds. Vessel 13 (Figure 5-20g) is characterized by abundant fiber, and has a reduced core. It fits the range of variation established by Sassaman (2003a) for Orange vessel thickness. Although too small to estimate the orifice diameter, in form is a slightly restricted orifice, likely from a shall bowl (Figure 5-22). The other vessel is an incised body sherd (Figure 5-20f). The sherd is distinct based on the surface treatment. In addition to the incisions on the surface, it may also have a slip, as the surface is very smooth and not burned out. These two lots represent the only examples of incised Orange sherds from East Hontoon. These two vessel lots likely do not encompass the full range of variation in Orange vessels at the site. Those Orange sherds recovered from test unit excavations were highly eroded, with both interior and exterior surfaces destroyed. The Orange assemblage likely contains several other plain vessel lots which were not identified in this preliminary analysis.

In addition to the Orange vessels, a single St. Johns Incised lot (Vessel 12) was identified. Although consisting of only the rim sherd (Figure 5-20i), a number of other sherds are likely mates which are too fragmentary. The vessel construction and paste are quite distinct. The paste is characterized by very abundant sponge spicules, and the

Figure 5-22. Three views of refit lower portion of a St. Johns Plain vessel (Vessel Lot 1), 8VO7494.

contortion of the clays are evident in cross section. The motif is zone-incised, reminiscent of Orange designs. However, the design is actually on the interior of the vessel. In terms of rim thickness, the vessel actually falls within the range of variation for Orange vessels. Other body sherds recovered from Stratum IV in TU1 and 3 ranged in thickness from 7 to 11 mm, indicating that these sherds are likely derived from a thick vessel, if not this incised vessel. Although the rim was too small to estimate the orifice diameter, in form it is an open, shallow bowl (Figure 5-22).

The St. Johns I assemblage contains a minimum of 11 vessels (Table 5-11). With some variations, these vessels show a striking degree of uniformity. Lip form is equally split between thinned and flat varieties, with only one irregular example recovered. All vessels (with the exception of Vessel 7) were characterized by moderate amounts of sponge spicules as temper. Vessel 7 had a noticeably higher frequency of sand, but still contained sponge spicules. Additionally, there are slight variations in the firing condition. The majority of vessels had oxidized surfaces with reduced cores. Two vessels had reduced interiors, and Vessel 7 was entirely reduced. Although this may represent different firing treatments, it is entirely possible that the surfaces of all vessels were initially oxidized. On those sherds where oxidization is present, the zone of oxidation is typically less than a millimeter or two in thickness. In many examples, this zone has partially exfoliated, resulting in what looks like a reduced surface.

Rim thicknesses for all vessels are quite thin, particularly in comparison with the Orange assemblage vessels. The vessels average 6.3 mm, and have a range between 4.6 and 7.6 mm, and have a standard deviation of 0.8. These implicate similar construction techniques as well as similar functions. Where data on orifice diameters are available the range is limited. Of five vessels with adequate rim portions present, four range between 30 and 34 cm. Only one vessel is outside of this range, at 48 cm. All vessels are likely straight walled, relatively flat bottomed vessels. Of the two bases recovered or reconstructed, both are flat.

Vessel 1 (Figure 5-21, Figure 5-22) provides an example of the modal class of vessels at the site. So far, only the bottom half of the vessel has been reconstructed, the top of the reconstructed vessel is actually a coil break. A number of rim sherds appear to be candidates but none fits the vessel. Vessel 1 has a minimal interior orifice diameter of 30 cm, which is consistent with rim sherd estimations. Taking the rimsherd and the base together, they suggest the vessel was a minimum of 15 cm high. The walls of the vessel are relatively straight, and the orifice was likely unrestricted. The base is flat, and has a thicker zone of oxidation than the rim or body sherds.

The vessel assemblage of St. Johns plain sherds is composed of open vessels with shallow bases, all of approximately the same orifice opening and possibly similar heights. The restricted range of variation suggests that these vessels all served a common purpose. The thoroughly oxidized vessel bases suggest that they were placed on a fire or on coals and used for direct-heat cooking. No residue was recovered from any sherds, but this is not surprising giving their highly eroded surfaces. The lack of variation likely relates to the restricted range of activities occurring on site. There is an apparent association between the amount of pottery present and the presence of abundant fauna and gastropods. These vessels were likely used for processing foodstuffs acquired from the nearby marshes.

DISCUSSION AND CONCLUSIONS

Although little was known of the East Hontoon site (8VO7494) after its discovery and initial survey by the Field School in 2000 and 2001, two seasons of stratigraphic testing have provided significant results regarding the structure and culture-historical associations of deposits at the site. Stratigraphic excavations have revealed that the site is well stratified, and is characterized by extensive anthropogenic deposits. Three successive cultural components have been identified. In addition to St. Johns I and Orange components, a preceramic Archaic shell midden has been identified at the base of the site.

The identification of a preceramic Archaic component is based primarily on the stratigraphic position and nature of the lower shell midden components in TU 1, 2, and 3. Deposits lacking pottery were not encountered in TU4. This may be due to the deflation and compression of near-water deposits. The lack of preceramic Archaic deposits near the water is somewhat surprising given their presence beneath saturated muck deposits at other sites on Hontoon Island. Because we did not test into the wetlands with the bucket auger it is unknown how far deposits may extend to the east. Regardless, in each excavation unit where the preceramic deposits were encountered, the basal anthropogenic deposits are characterized by shell midden composed of *Pomacea*, *Viviparus*, and bivalve shell. This midden matrix is a dark organic soil that may be a buried A horizon. If this is the case, then the initial habitation occurred on an established, stable surface. Commensal gastropod species such as *Euglandia*, *Elimia*, and Mesa Rams-horn are restricted to the basal strata in these test units as well. Similar assemblages have been identified in the preceramic Archaic deposits at the base of Hontoon Island North and Hontoon Dead Creek Mound. Although the presence of particular gastropod species is likely directly related to the local ecology, a temporal association is suggested by their presence in the preceramic Archaic deposits at sites across the island. Because no diagnostic artifacts were recovered, the exact cultural association is not known. Radiocarbon determinations will be necessary to establish the temporal span of these basal deposits.

An Orange component was recognized in all test unit excavations on the basis of diagnostic ceramics. The Orange deposits are characterized by small amounts of Orange Plain and Incised pottery, St. Johns Incised pottery, vertebrate fauna, and lithics. TU4 was the only area where Orange pottery was found in association with abundant fauna and gastropod shell. Two small features are attributable this component, although their function remains unclear. Excavations in TUs 1 and 3 demonstrated that away from the water, Orange sherds were present within two soil horizons (Strata IV and V). This situation suggests that the surface was aggrading during the deposition of these deposits, but was stable for some time prior to the later St. Johns I occupation.

The St. Johns I component is the best preserved and most understood component at the site. St. Johns Plain sherds were recovered in a stratigraphically superior position in all test units excavated. Excluding TU2, deposits of this age are characterized by a discrete shell midden composed of large *Viviparus* shells in addition to abundant fauna, large St. Johns Plain sherds, and trace amounts of lithics. The deposits in TU2 contained all but trace amounts of gastropod shell. The high frequency of pottery sherd refits also indicates that the midden is composed of primary refuse that was not significantly trampled or disturbed after its deposition. Evidence for food processing and consumption are present throughout the site, but have been most clearly detailed in TUs 1 and 3. Feature 5, a large gastropod shell filled basin, was recorded in TU3. Preliminary analysis of the contents suggests that the *Viviparus* shells are significantly larger than other contexts on Hontoon Island or at the nearby Blue Spring Midden B. Spatial reconstructions in TU3 suggest that St. Johns Plain vessels and turtle shell were situated around the feature. The presence of dark organic soils in Feature 5, adjacent to abundant pottery and turtle remains may indicate that gastropods, turtle, fish and alligator were preferentially selected. The generally mundane and invariant material culture suggests that the site was the locus of limited activities, centered on processing and possibly consuming food acquired from nearby wetlands.

Macrostratigraphic observations from bucket augers combined with detailed stratigraphic data from test unit excavations have demonstrated that the site's structure is a combination of cultural and geomorphic processes. Today, the site is characterized by a slightly sloping surface, composed of two micro-ridges. The pre-occupational surface appears to have been a relatively flat surface that abutted a micro-escarpment. Bucket auger data indicates that anthropogenic inputs were highest away from the water, and adjacent to the micro-escarpment. Shell is restricted to the central and eastern portions, while deposits characterized by vertebrate fauna are present to the north and south. Lack of shell to the south may indicate different activity areas within the site, particularly given the presence of all cultural components in TU2.

Investigations at the site have also left open a number of questions. One of the most pressing issues is understanding what seasons the site was occupied for, and for how long. Analysis of the faunal remains from all contexts will likely help with determining seasonality. Moreover, temporal changes in gastropod species need to be contextualized in terms of the kinds of environments they would be recovered from. That is, is the larger size of Stratum III and Feature 5 *Viviparus* due to predation patterns through time or different habitats for the populations exploited? Research will have to be directed towards detailing how the site relates to changes in local fluvial deposits. In addition, the apparent lack of preceramic deposits adjacent to the wetlands is anomalous, given the presence of saturated midden deposits at both Hontoon Dead Creek Mound and Hontoon Island North. Future research is needed to rule out the presence of submerged deposits.

The East Hontoon site is an important datum point for several reasons. First, it demonstrates the research potential of small sites along margins of Island. In particular, it paints a very different picture of daily life that is not captured at larger mound localities. Moreover, extensive stratigraphic excavation indicates that shovel test data do not adequately address the complexity of shell middens (particularly the presence of artifact concentrations and features). Finally, the site presents a model for site structure that can be tested against other non-mounded localities on Hontoon Island and other low-lying riverine localities.

CHAPTER 6
RECONNAISSANCE SURVEY

Asa R. Randall and Peter R. Hallman

Shovel test reconnaissance survey was conducted during the 2003 and 2004 field seasons of the St. Johns Archaeological Field School. Survey methods were designed to locate new archaeological sites, relocate and refine the boundaries of previously known sites, and provide training for students in reconnaissance survey techniques. In particular, efforts were focused on testing two contiguous, circumferential transects on Hontoon Island. This survey resulted in discovering two new sites, refining the boundaries of two others, and relocating and provisionally bounding three more sites. The field school also briefly investigated Blue Spring Oxbow Mound, south of Blue Spring State Park. This chapter provides a review of previous reconnaissance work on Hontoon Island, and summarizes the survey methodologies and results.

PREVIOUS RESEARCH

Prior to the 2003 and 2004 field seasons, five sites (8VO202, 8VO214, 8VO215, 8VO7493, 8VO7494) had been archaeologically documented on Hontoon Island. Another three sites (8VO182, 8VO183, 8VO216) are listed in the Florida Master Site Files (FMSF) but have never been investigated archaeologically, and two sites without designations have been mentioned and briefly described in the literature.

Knowledge of sites on Hontoon Island is derived from three sources. Jeffries Wyman (1875:26) described two “shell fields” in addition to the northern and southern shell mounds. Located on the southern and southwestern aspect of the island, approximately a quarter mile apart, the shell fields were later designated sites 8VO215 and 8VO216 in the FMSF. Although their general location was known based on Wyman’s description, their specific location, characteristics and culture-historical associations were unknown. In addition, two sand and shell mounds (8VO182, 8VO183) are recorded in the FMSF. According to the survey logs, C.B. Moore visited the sites and made collections, which are now housed at the Wagner Free Institute of Science (Endonino 2003b). The actual location of these two mounds is unknown. The FMSF site GIS layer has at least one of these mounds placed in the low-lying cypress swamp to the west of site 8VO202. Wyman, in his description of site 8VO202, notes that two conical mounds were present directly to the south of the apex of the main ridge at site 8VO202. These are likely the mounds to which to which the FMSF refer.

During the early 1980s, Bruce Nodine and Ray McGee performed a surface survey of the island alongside excavations at site 8VO202 directed by Barbara Purdy. They located at least two shell-bearing sites, one on the eastern margin and one to the south. These were denoted on a map of Hontoon Island published by Purdy (1991:Figure 35). Although no FMSF survey log was filed, and no details of these investigations published, Purdy (1987) does note that a small test unit was placed in shell bearing deposits in the southern site. She suggests preceramic Archaic deposits may have been encountered in excavations there.

During the 2000 and 2001 St. Johns Archaeological Field School seasons, reconnaissance focused on locating sites on the interior of the island, relocating sites documented in the FMSF, and refining the boundaries of two known sites (Endonino 2003b). A total of 20 transects were tested, including 4 site-discovery transects and 16 site-definitional transects. Four "site-discovery" transects were tested across the interior of the island, with one (T15) intersecting an interior wetland. No sites were located in the interior of the island. Two sites were located on the west and east margins (sites 8VO7493 and 8VO7494, respectively). Site 8VO7493 was located late in the 2001 season with three positive shovel test pits (STPs). Site 8VO7494 was fully bounded with a total of 30 STPs.

In addition to discovering new sites, the Field School attempted to locate previously documented archaeological sites. The Hontoon Dead Creek Village site (8VO215), south of Hontoon Dead Creek Mound, was relocated and provisionally bounded with 20 STPs, 10 of which yielded cultural material. Although bounded to the east and west, the northern and southern boundaries were not defined by negative STPs. The field crew spent a day searching unsuccessfully for site 8VO216 to the east of site 8VO215. Two transects were also tested along the southern margin of site 8VO202, resulting in an expansion of known deposits. During this survey the crew also looked for sites 8VO182 and 8VO183, the two sand and shell mounds visited by Moore. No trace of the these mounds was located.

Based on this prior work, several patterns are evident. Four transects excavated across the island indicate that the probability of locating sites in the interior is low. A full-coverage survey would be required to entirely verify this pattern, particularly around the several interior wetlands. In contrast, all sites documented by the Field School, as well as those identified by Purdy and colleagues, were found adjacent to wetlands around the perimeter of the island, typically at elevations between 5 and 10 feet. Collectively, these surveys indicate that there is great potential for discovering extensive archaeological deposits along the margins of the island.

SURVEY SCOPE AND METHODS

For both managerial and research purposes, the identification of new sites and rectification and characterization of previously recorded sites along the margins of the island was given priority during the 2003 and 2004 field seasons. The goals of this strategy were three-fold: identify unknown archaeological resources; relocate sites previously documented in the FMSF and in the literature (8VO216 and two "shell middens" noted by Purdy); and refine the boundaries of known sites (8VO215, 8VO7493).

As all known sites were located at least partially between 5 and 10 feet in elevation (based on the Orange City USGS topographic quadrangle), we targeted this interval for testing. In the field, the elevation interval is characterized by a mixed hardwood hammock. It is bounded on the landward side by pine, saw palmetto, and low lying shrub and grasses. Towards the St. Johns River to the east and Snake Creek to the south it is bounded by low-lying wetland grasses. To the west, abutting Hontoon Dead Creek, this interval is adjacent to cypress swamp. Along the eastern and western margins this strategy worked well, as the targeted region is only 50 to 100-m wide. In these areas, STPs were located approximately half way between the upland and lowland vegetation. To the south, this was more difficult, as the target area is upwards of 700-m wide. In this case, STPs were placed approximately 50 m from the edge of the wetlands.

Two contiguous transects were executed: TIE and T1W (Figure 6-1). Transect T1E was tested along the eastern margin of the island, from approximately 300 m north of site 8VO7494 to the southernmost tip of the island. Transect T1W was tested from the southernmost tip of the island to the northernmost portion of site 8VO7493. Following the research strategy from the 2000-2001 Field School, 30 x 30-cm STPs were excavated along these transects at 30-m intervals. When time and conditions permitted, positive STPs were cruciformed at 10-m intervals. That is, when a positive STP was encountered, at least four site definitional STPs were dug at 10-m intervals in all four cardinal directions until at least one negative STP was recorded.

Each STP has a unique identifier, based on the transect and kind of STP it is. This was the first information recorded during survey by the crews, who worked under the supervision of graduate teaching assistant Peter Hallman. All STPs excavated within a primary transect (T1E or T1W) were given a number starting with 1. Site-definitional STPs (SD) were given numbers in a sequence regardless of the transect, but still retain the primary transect designation. For example, T1ESTP41 indicates the 41st STP excavated on the T1E transect. However, T1ESD41 designates the 41st site definitional STP excavated during the 2003 and 2004 survey seasons, which is associated with a T1E STP. SD numbers are independent of the original transect, such that there could only be a T1ESD41 *or* a T1WSD41. In contrast, STPs could be designated as either T1ESTP41 or T1WSTP41, since the numbering sequence restarted at the beginning for primary survey STPs. Initially during the 2003 season, site-definitional STPs were given designations that were multiples of 100 (200, 300, etc.), and in some cases the numbers started at 5000. These high numbers do not imply that 5000 STPs were excavated, but was a way of maintaining unique designations in the field. A few STPs were given duplicate designations in the field. These were later amended by appending an “A” to the newer STPs.

Each four-person team was split into two-person teams for digging and screening. Before an STP was started, the STP designation was recorded as was the azimuth and distance to the previous STP. In addition, a Garmin ETREX handheld GPS receiver was used to record the UTM location of each positive STP. On average, the ETREX yielded a horizontal accuracy between 5 and 10 m. Taken together, field maps based on the distance and direction data from the field were combined with the GPS data to georeference the transects and STPs.

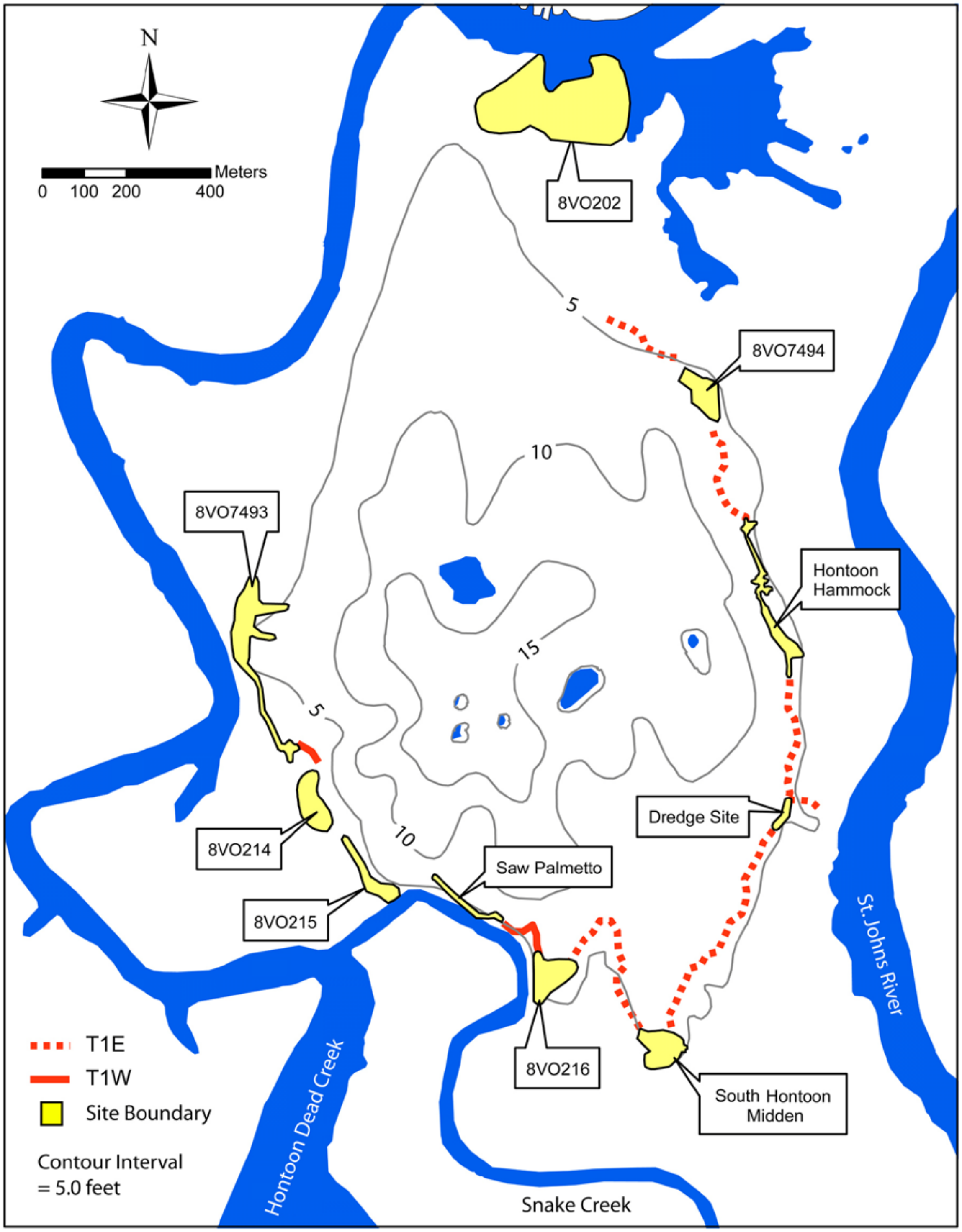

Figure 6-1. Location of all known sites on Hontoon Island as of this report, in addition to the survey transects from the 2003 and 2004 field school seasons. Only the portions of the transects that did not yield positive shovel tests are depicted here. Geographic data are from the Florida Geographic Data Library.

During excavation, all material was passed through 1/4-inch hardware cloth shaker screens. All material culture and vertebrate fauna was kept from each STP. In some cases, shell, or concreted midden were kept as well. In most cases, STPs were terminated at the depth of a meter. In some cases, holes were terminated early due to obstructions such as concreted shell midden, clay, or roots. In the case of the latter, attempts were made to offset the hole to the side, and attempt a new STP. After excavation, the stratigraphic profile was recorded. When possible, notes were made as to the depth and stratigraphic association of recovered materials.

SURVEY RESULTS

During the course of these past seasons, 236 STPs were completed, 131 of which were positive. The boundaries of two sites were extended (8VO215, 8VO7493), three sites were relocated (8VO216, Hontoon Hammock, South Hontoon Midden), and two new sites were discovered (the Dredge and Saw Palmetto sites) (Figure 6-1). Time did not permit the completion of the transect around the island, nor were we able to bound all positive STPs. The new boundaries depicted here should be considered provisional. FMSF forms will be submitted for all sites after the boundaries are finalized during the 2005 Field School season.

We have established that archaeological deposits extend around much of the island, with the possible exception of the southeastern portion. Given the width of the hammock in this portion of Hontoon Island, additional transects within the target area are required to rule out additional sites. Additionally, it is unknown how far the sites extend into the wetlands, as STPs were not excavated there due to the highly saturated and mucky conditions. Although there are general similarities among these sites, closer inspection indicates that important differences exist.

Hontoon Hammock

The Hontoon Hammock site is located approximately 300 m south of the East Hontoon site (8VO7494). In maximum dimension, the site is 400-m long, and 40-m wide (Figure 6-2). The site was tested with a total of 105 STPs, 45 of which yielded culture materials (Table 6-1). The irregular boundaries suggested in Figure 6-2 are partially a product of the low density of the deposits, as well as the excavation methodology.

The site was initially encountered as part of the T1E transect during 2003. At the time, a small shell deposit with surrounding low-density vertebrate faunal remains was cruciformed. The reconnaissance of T1E was terminated for the season, as work shifted towards completing the excavation units at site 8VO202. Towards the end of the field season, a pedestrian survey was initiated to relocate one of the "Shell Midden" sites depicted by Purdy. According to that map, it was located approximately 600 m south of the East Hontoon site. Using a handheld GPS to guide the crew, a small surface deposit of ashy shell midden was located in that approximate location. One STP (T1ESD5001) was excavated here. Additional STPs were subsequently excavated, with positive STPs cruciformed. At the end of the 2003 season, it appeared to be a discrete site, separated by

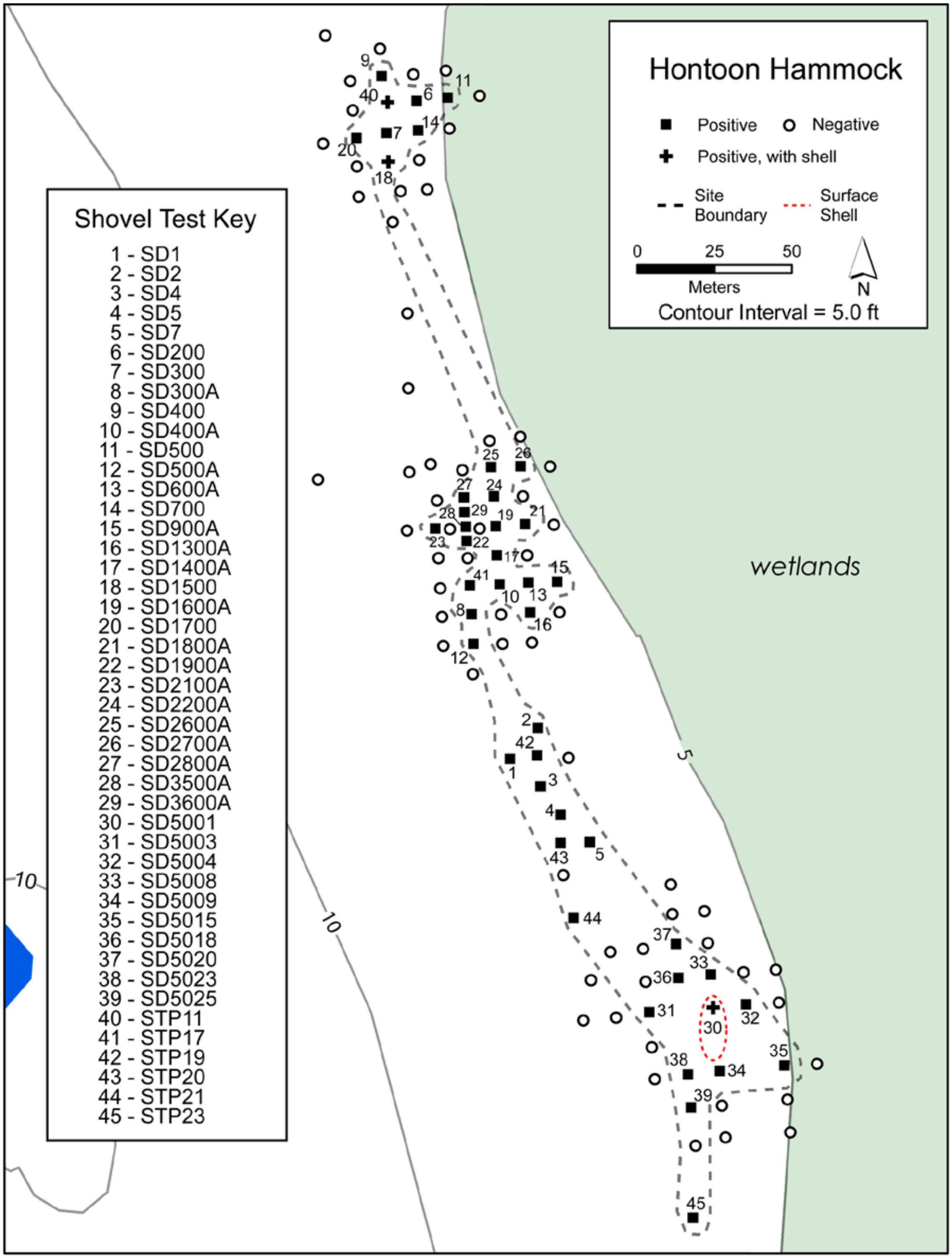

Figure 6-2. Shovel test pit map of the Hontoon Hammock site, illustrating the location of positive and negative shovel test pits from the 2003 and 2004 seasons. Geographic data are from the Florida Geographic Data Library.

Table 6-1. Cultural Material Recovered from Shovel Test Pits at the Hontoon Hammock Site.

Transect	STP Type	STP ID	Orange Sherds	Lithic Flake	Modified Bone	Vertebrate Wt. (g)
T1E	SD	1				0.8
T1E	SD	2				4.4
T1E	SD	4				0.2
T1E	SD	5	1			2.9
T1E	SD	7				0.9
T1E	SD	200				17.1
T1E	SD	300A				3.3
T1E	SD	400				0.7
T1E	SD	400A				15.0
T1E	SD	500		1		
T1E	SD	500A				1.1
T1E	SD	600A				2.3
T1E	SD	700				6.1
T1E	SD	900				2.2
T1E	SD	900A		1		0.6
T1E	SD	1300A				3.4
T1E	SD	1400A				24.4
T1E	SD	1500		1		64.7
T1E	SD	1600A		1		11.1
T1E	SD	1700				0.5
T1E	SD	1800A				4.4
T1E	SD	1900A				2.5
T1E	SD	2100A		1		
T1E	SD	2200A			2	6.8
T1E	SD	2600A				0.4
T1E	SD	2700A				0.1
T1E	SD	2800A				22.8
T1E	SD	3200A				0.8
T1E	SD	3500A				1.2
T1E	SD	3600A				13.5
T1E	SD	5001				1.3
T1E	SD	5003				10.1
T1E	SD	5004				10.8
T1E	SD	5008				56.3
T1E	SD	5009				15.4
T1E	SD	5015				3.0
T1E	SD	5018				2.2
T1E	SD	5020				4.6
T1E	SD	5023				8.7
T1E	SD	5025			2	
T1E	STP	17				16.3
T1E	STP	19				0.8
T1E	STP	20		2		25.5
T1E	STP	21	1			
T1E	STP	23		1		0.7

almost 300 m from the small site tested a few weeks prior by the field crew. It was thought that these sites were separate deposits. In 2004 we tested between the sites, and found at least two more concentrations of cultural materials. The decision was made to prioritize locating new sites, and cruciforming them when possible. For this site we decided to work south to define the southern extent. Thus, many STPs remain to be cruciformed, and the void area between the northern and central portions of the site needs further testing. Regardless, given the diffuse nature, the general lack of shell, and the low-lying topography, these should all be considered part of one site.

With the exception of a low rise of ashy shell midden to the south, there is no surface manifestation of this site. The site is characterized by minimal shell midden deposits surrounded by diffuse non-shell midden typically yielding minimal vertebrate faunal remains (Table 6-1) In general, the deposits are thin, with anthropogenic midden identified irregularly. Typical STPs without shell revealed the following stratigraphic sequence: 0-20 cm below the surface (cm BS), sterile organic root mat; 20-40 cm BS brown to gray sand containing vertebrate fauna and artifacts; 40-60 cm BS a light gray sand with mineral concretions and organic mottling and occasional fauna and artifacts; 60+ cm BS dense mineral concretions, hard pan, or in some cases clay. The stratigraphic changes appear to be more indicative of soil horizons than discrete anthropogenic strata.

Shell deposits were restricted to three STPs. In both STP11 and SD1500 the upper stratigraphy seen in other STPs was replicated, while the basal stratum between 60-80 cm BS yielded *Viviparus*, as well as apple snail and bivalve shell. In contrast, SD5001 was excavated in a very dense shell midden deposit. This STP was placed next to the only surface exposure of shell on the site. In actuality, the midden is apparent on the surface as a low, linear rise oriented roughly north-south, and which is approximately 20-m long, 10-m wide, and 0.5-m high. The STP profile revealed a root mat 15-cm thick, above 80 cm of gray, ashy concreted shell midden. In general, the shells were small *Viviparus*, although occasional apple snail and bivalve were noted as well. Vertebrate fauna was surprising rare from this deposit. STPSD5009 was excavated approximately 20 m south of this hole, and no shell midden was observed.

Material culture was rarely recovered at the site. Pottery was limited to two Orange sherds. In addition 8 small chert flakes, and at least one bone tool were recovered from across the site. Based solely on the presence of Orange sherds, the site dates at least to the Late Archaic Orange period, although other components are quite possible. In particular, the lack of ceramics within any of the shell deposits suggests that some may be preceramic Archaic in age.

It is clear that shellfish collection was not a prominent component of activities at the site. In this case, the general lack of shell and the low faunal densities are reminiscent of the southern portion of the East Hontoon site.

The Dredge Site

The Dredge site was intercepted with only three positive STPs along transect T1E (Figure 6-3). Initially, the site was thought to have extended 100 m to the northeast. Approximately 300 m south of Hontoon Hammock, the reconnaissance crew began to encounter well-preserved organic materials, such as wood and nut shell fragments. These were recovered from STPs at the interface of the wetlands. In retrospect, these deposits are quite similar to the muck deposited above the submerged midden to the west of the Hontoon Dead Creek Mound (Chapter 4). Believing that these may have represented wet archaeological deposits, such as those identified by Purdy at site 8VO202, the crew continued to the southeast, into an area that was at a slightly higher elevation. Here the crew observed a deposit of white sand, which was about 90-m wide, approximately a meter high in the center. It appears to have been partially mined for sand. Believing this may be a sand mound, the crew excavated four STPs in this area. These yielded clay clasts, some preserved wood fragments, and several pieces of coal. Upon review of an aerial photograph of the area (Figure 6-3 inset), it became clear that this sand is actually a spoil pile, deposited during channel dredging.

Just south of this exposure, the crew recovered St. Johns Plain sherds and vertebrate fauna from one STP, and vertebrate fauna from two others. The St. Johns sherds are likely derived from a single sherd broken during excavation. In general, the stratigraphy in these STPs consisted of a 20-cm thick root mat, gray or brown sand from

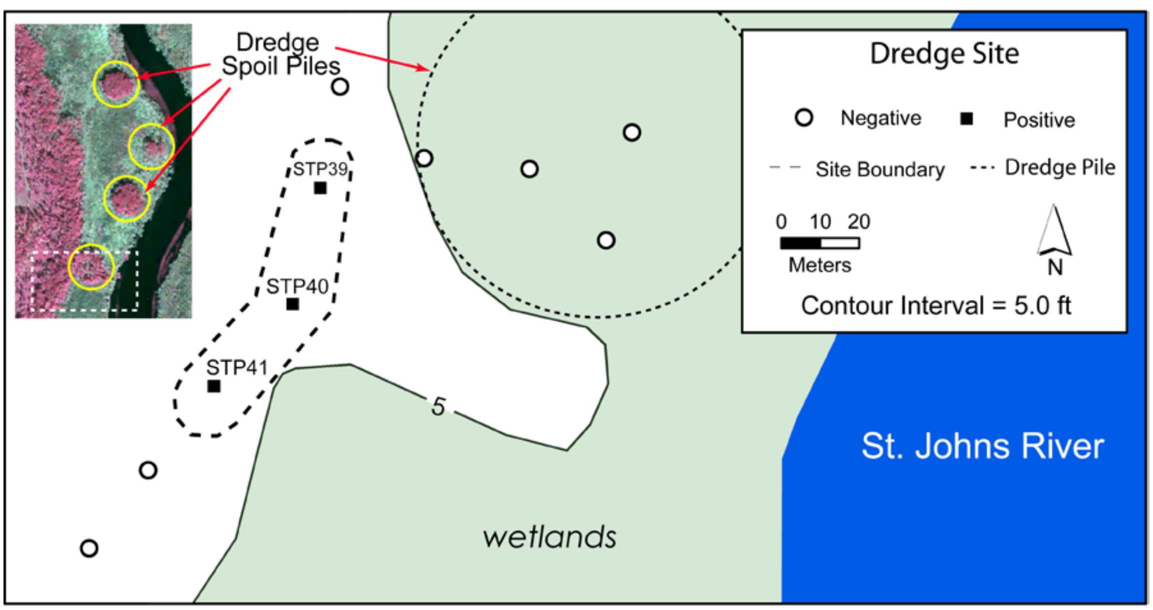

Figure 6-3. Shovel test pit map of the Dredge site, illustrating the location of positive and negative shovel test pits from the 2004 season in relationship to the dredge spoil pile. The inset is a false-color infrared aerial photograph which shows the relationship of the map to other spoil piles on Hontoon Island. All STPs are within the T1E transect. Geographic data and images are from the Florida Geographic Data Library.

Table 6-2. Cultural Material Recovered from Shovel Test Pits at the Dredge Site.

Transect	STP Type	STP ID	Ceramic Sherds		Vertebrate Wt. (g)
			St. Johns Plain	Crumb Sherd	
T1E	STP	39	5	1	0.7
T1E	STP	40			7.8
T1E	STP	41			0.4

20-50 cm BS from which the material culture was recovered, and then saturated sandy deposits below. The sherds indicate that the site dates to at least the St. Johns I period. Given the dispersed nature of the deposits, this site has similarities to Hontoon Hammock to the north. Without further testing, nothing more substantive can be said about this occurrence.

South Hontoon Midden

South Hontoon Midden is located in a mixed hammock at the southern tip of Hontoon Island, approximately 600 m south of the Dredge site (Figure 6-4), and adjacent to the terminus of the eastern-most road. The site is situated on a peninsula, surrounded to the east, west, and south by low-lying wetland vegetation and mucky soils. As defined through shovel testing, the site measures 120 x 100-m in maximum extent. A total of 48 STPs were excavated here, 29 of which yielded cultural material (Table 6-3). The site is characterized by a central area of shell midden, with diffuse non-shell deposits outside of this core area. The anthropogenic deposits are generally restricted to elevations higher than 5 feet, with some dispersed deposits occurring below this elevation.

The site was initially intercepted during survey of the T1E transect. The crew encountered a surface exposure of shell near what Purdy (1991:106) recorded as "shell midden." During testing the crew observed an oval-shaped area of elevated shell midden approximately 25-m long, 15-m wide, and 1-m high. In addition, there appears to be an eroded test unit in the center of this topographic rise (Figure 6-4). Although no STP was placed in the highest point, two STPs (65 and 66) excavated near it produced upwards of 50 cm of shell midden with ashy, concreted midden occurring near the base. Both of these STPs were terminated at 50 cm BS due to impenetrable concreted midden. Vertebrate fauna was the most abundant in these two STPs, as were artifacts, which included 5 sherds and 24 lithic flakes were recovered from STP65 alone. The other two shell-bearing STPs excavated encountered shell deposits some 10-20 cm thick at the base, but without concreted midden. A visit to the site after the active 2004 hurricane season revealed several large downed palm trees that had uprooted these shell deposits, one of which is pictured in Figure 6-5. This particular exposure demonstrates that dense midden is present, with concreted midden occurring at the base.

With the exception of a few STPs, the majority of the site is characterized by shell-free deposits. Near the wetlands, a typical stratigraphic profile revealed a 30 cm root mat; vertebrate fauna and artifacts in a gray or brown sand below that to a depth of 60 cm; and basal strata that were either concreted hard pan or white sands. STPs in the

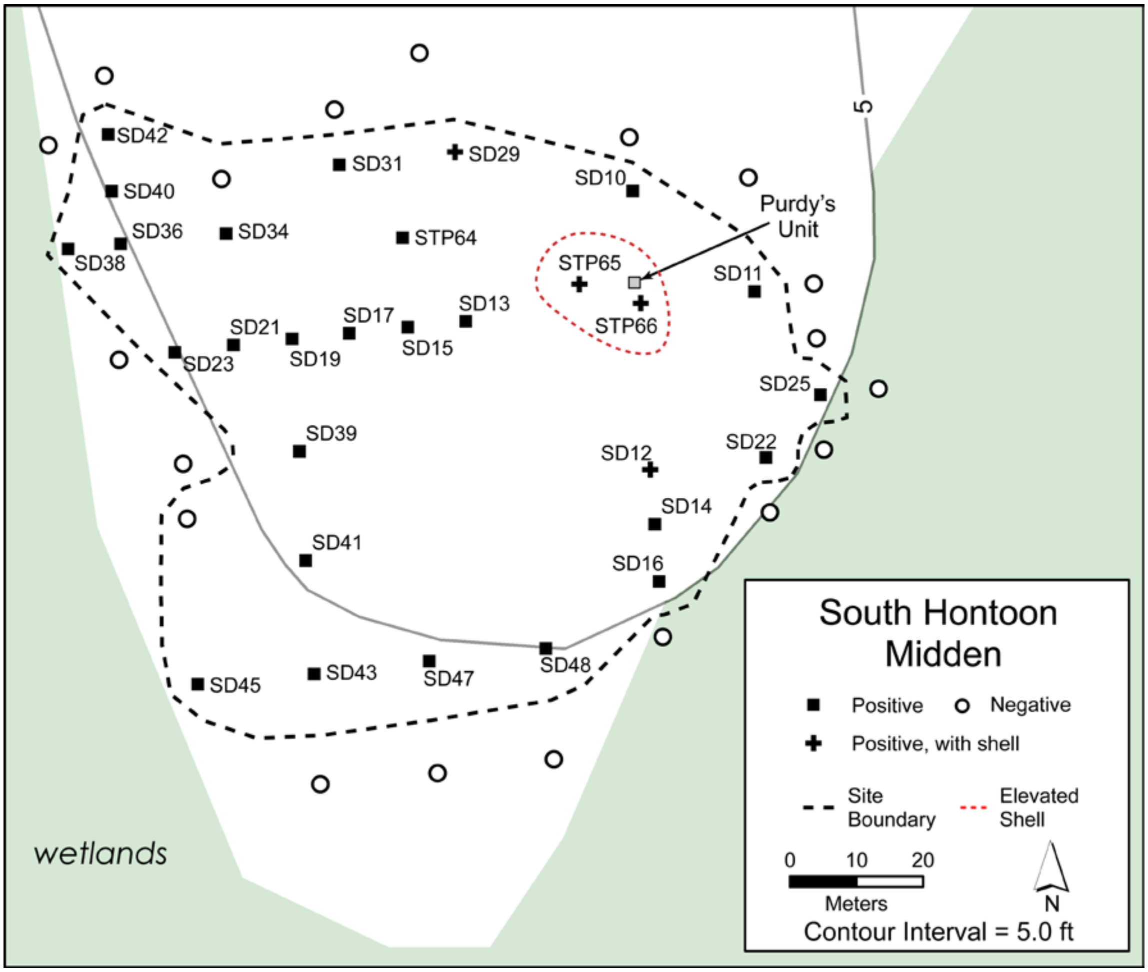

Figure 6-4. Shovel test pit map of the South Hontoon Midden site, illustrating the location of positive and negative shovel test pits from the 2004 season. All STPs are within the T1E transect. Geographic data are from the Florida Geographic Data Library.

northernmost aspect of the site typically yielded the following stratigraphy: a dark root mat from 0-20 cm BS; white/light gray sand from 20-50 cm BS, dark gray/brown sand between 50 and 80 cm BS; and a fine white loamy sand or gritty clay at the base.

Cultural materials from South Hontoon Midden included vertebrate faunal remains, Orange Plain and Incised (Figure 6-6a) and St. Johns Plain sherds, and 25 lithic flakes recovered from two STPs. Although the artifacts were dispersed across the site, they occur with greatest frequency nearest to the elevated shell. Based on the diagnostic ceramics, the site dates at least to the Orange and St. Johns I periods. Moreover, the presence of exposed shell midden on the surface suggests that this is the site illustrated by Purdy, about which she suggested that preceramic Archaic deposits may be present at the base. Given the evidence for preceramic Archaic deposits at sites 8VO202 and 8VO7494, this is a plausible conclusion, although it remains to be tested with stratigraphic excavation.

Table 6-3. Cultural Material Recovered from Shovel Test Pits at the South Hontoon Midden Site.

			Ceramic Sherds				
Transect	STP Type	STP ID	Orange	St. Johns Plain	Crumb	Lithic Flake	Vertebrate Wt. (g)
T1E	SD	10					2.8
T1E	SD	11					4.5
T1E	SD	12	2				66.9
T1E	SD	13					9.5
T1E	SD	14					4.6
T1E	SD	15					4.1
T1E	SD	16					5.7
T1E	SD	17	1				44.4
T1E	SD	19					9.0
T1E	SD	21					0.6
T1E	SD	22					0.2
T1E	SD	23					1.1
T1E	SD	25		1	3		
T1E	SD	29					3.4
T1E	SD	31					2.2
T1E	SD	34					12.3
T1E	SD	36					0.4
T1E	SD	38					0.1
T1E	SD	39	1[a]				
T1E	SD	40					1.1
T1E	SD	41					6.6
T1E	SD	42					0.8
T1E	SD	43					2.3
T1E	SD	45					0.8
T1E	SD	47					46.2
T1E	SD	48					1.1
T1E	STP	64				1	19.0
T1E	STP	65			1	24	283.2
T1E	STP	66	2	1	2		158.8

[a]Orange Incised

The distribution of artifacts and midden indicate that the organization of the site was highly structured. Although tests in the midden were limited, the lack of stratification, as well as the addition of ash, and the presence of concreted midden suggests that this area served primarily as a place of secondary midden deposition. If that is the case, then we may expect to find evidence for architecture near the larger shell deposit. At the very least, the concreted midden and ash are suggestive of frequent burning events. It remains to be seen if the elevated portion of the mound resulted from domestic refuse discard or mortuary activities.

Figure 6-5. Overturned tree exposing thick shell midden at the South Hontoon Midden site.

Snake Creek Midden (8VO216)

Snake Creek Midden is located 250 m northwest of South Hontoon Midden. It is situated adjacent to Snake Creek, and is bordered to the south and east by wetlands. The site was encountered while testing along transect T1W. Snake Creek Midden was bounded by a total of 28 STPs, 15 of which yielded archaeological deposits (Figure 6-7, Table 6-4). The site is approximately 125-m long and 90-m wide. With the exception of one STP, the site is restricted to elevations above 5 feet.

In many ways, this site bears a striking resemblance to South Hontoon Midden. The site is characterized by a dense and elevated shell midden deposit near the center. More diffuse deposits lacking shell surround this central core. Unlike South Hontoon Midden, this central midden is significantly larger horizontally, measuring approximately 30 x 60 m. In addition, the surface of this portion of the site is characterized by varied surface topography, with several peaks and depressions evident. In this, the site has more similarities to site 8VO215 to the west.

Two STPs (SD52, SD54) were excavated in this central midden. Stratigraphy in these can be generalized as follows: 0-30 cm BS organic root mat with trace amounts of shell; 30+ cm BS ashy shell midden with abundant pottery, bones, and charcoal. Both of these STPs were terminated due to impenetrable concreted midden at a depth of 50 cm

Figure 6-6. Artifacts recovered from shovel test pits at the South Hontoon Midden site and the Snake Creek Midden site (8VO216): a-e. Orange Incised sherds; g, h. St. Johns Check Stamped sherds; f. ground stone fragment.

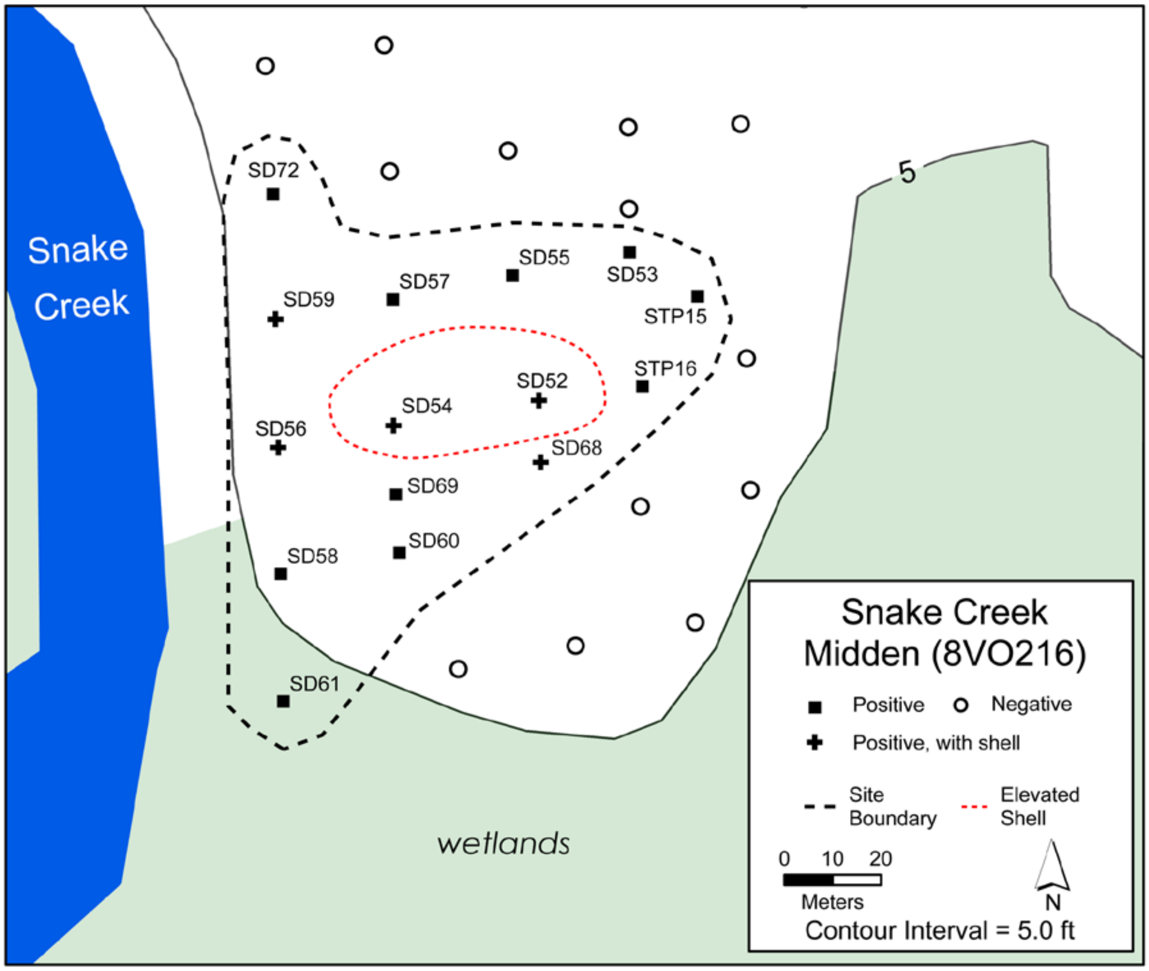

Figure 6-7. Shovel test pit map of the Snake Creek Midden site (8VO216), illustrating the location of positive and negative shovel test pits from the 2004 season. All STPs along T1W transect. Geographic data are from Florida Geographic Data Library.

BS. In addition, concreted midden was encountered at approximately 30 cm BS in SD56. Although this was not located in an elevated portion of the site, it demonstrates that concreted midden occurs beyond the visibly elevated portion of the site. Outside of this core area of concreted midden, SD59 and SD68 yielded 5 to 10-cm thick lenses of shell at approximately 50-60 cm BS. Surrounding these shell midden deposits are more diffuse shell-free deposits. In general, the stratigraphy in these nonshell areas is as follows: 0-20 cm BS organic root mat; 20-40 cm BS brown sand; 40-70 cm BS gray sand; 70+ cm BS light gray sands or basal clay with endemic shell. The material culture appears to be derived from the brown and gray sands.

Snake Creek Midden differs from South Hontoon Midden in the abundant artifact assemblages recovered from both shell and non-shell contexts (Table 6-4, Figure 6-6). Excluding small crumb sherds (any sherd that can be passed through 1/2-inch square mesh), 170 sherds were recovered from the site. This includes 70 St. Johns Plain sherds,

Table 6-4. Cultural Material Recovered from Shovel Test Pits at the Snake Creek Midden Site, 8VO216.

Tran-sect	STP Type	STP ID	Ceramic Sherds					Lithic		Vert. Wt. (g)	Other
			Orange	St. Johns Plain	St. Johns Check Stamped	Other	Crumb	Tool	Flake		
T1W	SD	52	6	2	6					26.8	
T1W	SD	53	2								
T1W	SD	54	6	7			4			261.0	
T1W	SD	55	2							2.9	
T1W	SD	56		7	1		5			20.6	
T1W	SD	57	13	7		2[a]	11			54.1	
T1W	SD	58	7	8			4		1	112.7	
T1W	SD	59	16	26	9		44			269.0	2[b]
T1W	SD	60	1	7			3	1		58.4	
T1W	SD	61								21.9	
T1W	SD	68	1				3			15.0	
T1W	SD	69	15	5			28			128.5	
T1W	SD	72	14	1			10			20.7	
T1W	STP	15								13.3	
T1W	STP	16								9.5	

[a] Sand-tempered plain sherds
[b] Polished ground stone fragments

17 St. Johns check stamped sherds (Figure 6-6g-h), and 82 Orange sherds. Given the large number of St. Johns sherds recovered from sites 8VO202 and 8VO7494, their abundance at this site is not surprising. The inclusion of St. Johns check stamped sherds is somewhat anomalous, as they do not occur with great frequency outside of site 8VO202 on the island. Most interesting, however, is the dominance of the pottery assemblage by Orange sherds, which are typically found as a small minority around Hontoon Island. While the majority of sherds are plain, at least five sherds are consistent with the Orange Incised type (Figure 6-7a-b, d-e). Aside from the unusually dense ceramic inventory, a chert flake, a biface fragment, and a polished stone fragment (Figure 6-6f) were also recovered.

Taken together, the abundant vertebrate fauna and ceramic assemblages in tandem with the presence of circumscribed ashy/concreted shell midden suggests that this site was likely the locus of domestic activities. The variations in surface topography are suggestive of domestic architecture. Detailed topographic mapping will be required to document these surface patterns. Based on the diagnostic artifacts, this site has components dating to at least the Orange, St. Johns I, and St. Johns II components.

This site is likely 8VO216, based on the location of the site (approximately 400 m east of site 8VO215), as well as its topographic and assemblage characteristics. Wyman described two “shell fields” at the southern end of Hontoon Island. The first was located at the confluence of Snake Creek and Hontoon Dead Creek. This site, designated

8VO215 was relocated by the Field School in 2001 (Endonino 2003b). According to the FMSF, the general location of site 8VO216 was estimated to occur where we discovered the Saw Palmetto site (see below), which does not match Wyman's description. Because Wyman had described the two sites as being very similar in artifact content and structure, the reconnaissance data support the conclusion that this is 8VO216. Wyman also noted that both of the sites appeared to be mostly destroyed. It is unclear if the varied surface topography noted in the field is why Wyman suggested these site were destroyed.

Saw Palmetto

Just to the northwest of the Snake Creek midden, the shovel test crew entered a dense saw palmetto bordered to the south by Snake Creek. The creek has eroded the southern margin of the site, creating a steep slope down to the water. Adjacent to the creek's edge the crew encountered a total of five positive STPs, excavated at 30-m intervals (Figure 6-8, Table 6-5). The site measures approximately 200 x 30-m in maximum extent. Due to the dense saw palmetto, it was not feasible to bound these positive STPs. Additionally, the crew noted several small sand piles, 1-m high and 2 to 3-m in diameter. The origin of the piles was not evident, but the crew felt they were not natural.

With the exception of STP27 which yielded 6 St. Johns Plain sherds, the site is typified by lithic waste flakes. Stratigraphy across the site consisted of a root mat from

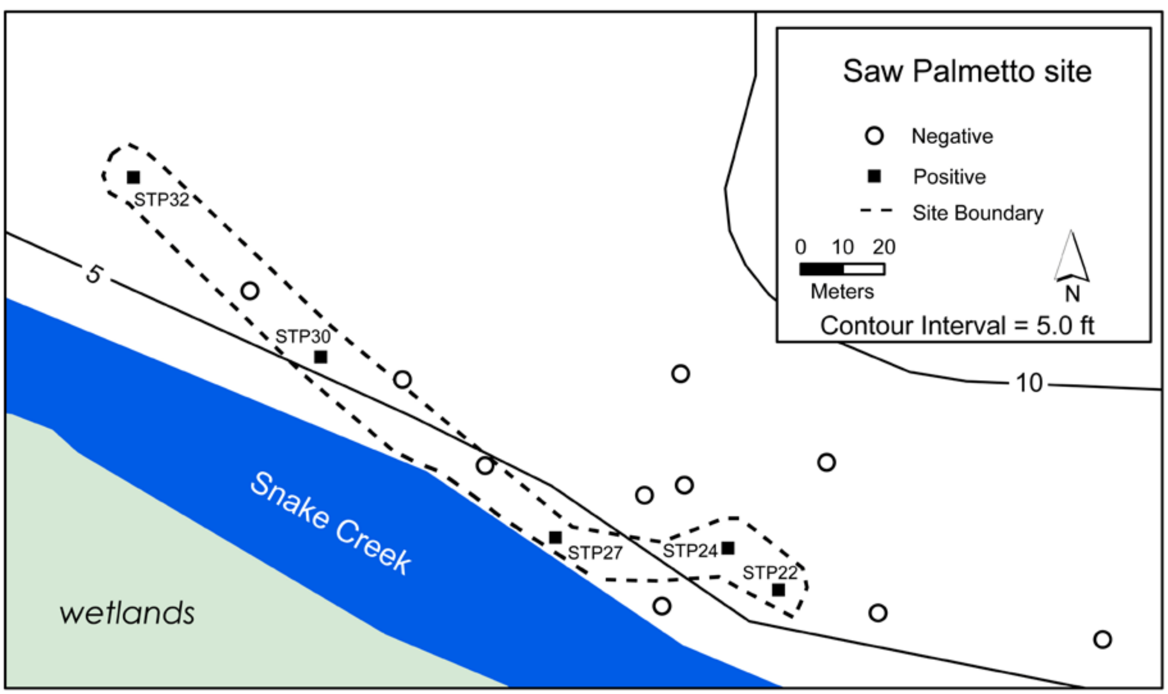

Figure 6-8. Shovel test pit map of the Saw Palmetto site, illustrating the location of positive and negative shovel test pits from the 2004 season. All STPs along T1W transect. Geographic data are from the Florida Geographic Data Library.

Table 6-5. Cultural Material Recovered from Shovel Test Pits at the Saw Palmetto Site.

			Ceramic Sherds			
Transect	STP Type	STP ID	St. Johns Plain	Crumb	Lithic Tool	Lithic Flake
T1W	STP	22				1
T1W	STP	24				3
T1W	STP	27			1	
T1W	STP	30	6	31		
T1W	STP	32				1

0-20 cm BS, light gray sand to a depth of 70 cm BS, underlain by concreted sand. This concretion is likely not due to the addition of ash or shell to the deposits but likely represents a localized process due to fluctuating water levels. This concreted sand is visible all along the cut-bank of Snake Creek.

Based on the presence of St. Johns Plain sherds, the site dates at least to the St. Johns I period. At the moment little else can be said about the Saw Palmetto site, except that these deposits were different from any yet encountered elsewhere on the island. Future survey is required to characterize the deposits. It may be necessary to wait until the next prescribed burn reduces the vegetation, which is currently impenetrable.

Hontoon Dead Creek Village (8VO215)

8VO215, the Hontoon Dead Creek Village site, is located on the southwest terrace of Hontoon Island, below the 5-foot contour. It was first described by Wyman and later characterized by shovel test reconnaissance during the 2000/2001 Field School seasons. The site was previously referred to as the “Middle Midden” site, but has since been renamed to reflect its location and relationship to the Hontoon Dead Creek Mound. At the time the site was bounded to the east and west with negative STPs, but remained unbounded to the north and south. As discussed by Endonino (2003b), the site is characterized by shell midden deposits upwards of 50-cm thick. Ceramics diagnostic of the Orange, St. Johns I, and St. Johns II periods were recovered. At the time the site measured approximately 110 x 45 m in maximum extent.

During the 2004 field season, the field crew bypassed the saw palmetto along Snake Creek, and tested north of the established boundaries of site 8VO215 towards Hontoon Dead Creek Mound (Figure 6-9). Archaeological deposits were encountered up to 50 m from the base of the mound. These STPs differed from those encountered previously, as the two northernmost were without shell. STP36 yielded shell midden, from which four Orange Plain sherds were recovered. North of this, STPs 37 and 38 yielded a small amount of bone, and 1 lithic flake. These STPs require that the site boundaries be provisionally extended to a total area of 180 x 45 m.

In addition to the STPs, the crew performed a pedestrian survey across the site. A cursory inspection of the southern edge demonstrated that shell midden was being eroded by Snake Creek, indicating the site extends to the very south of the landform. Surface

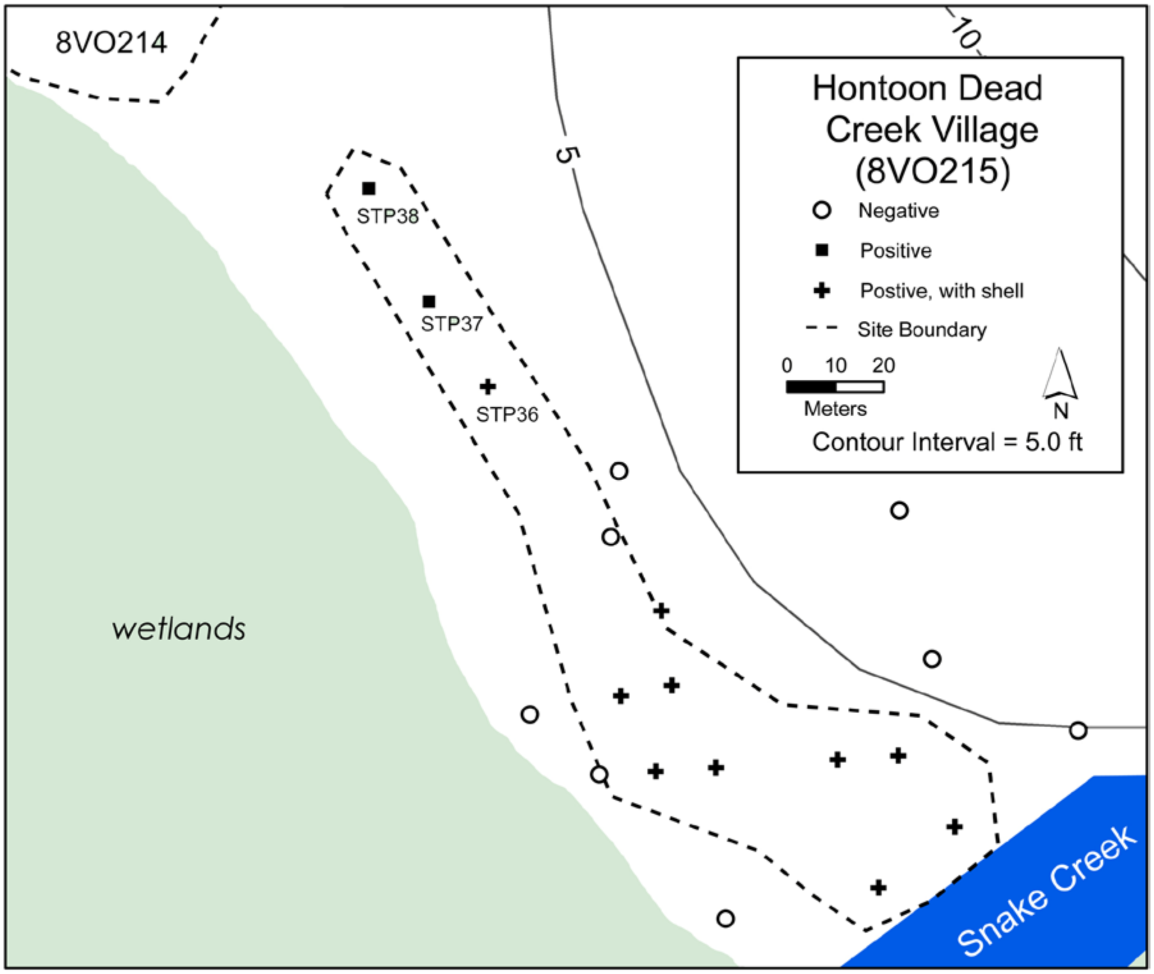

Figure 6-9. Shovel test pit map of the Middle Midden site (8VO215), illustrating positive and negative shovel test pit location. All labeled STPs along T1W transect, prior seasons not labeled. Geographic data are from the Florida Geographic Data Library.

Table 6-6. Cultural Material Recovered from Shovel Test Pits at the Hontoon Dead Creek Village site, 8VO215.

Transect	STP Type	STP ID	Orange Sherd	Lithic Flake	Vertebrate wt. (g)
T1W	STP	36	4		88.1
T1W	STP	37			2.4
T1W	STP	38		1	

survey revealed the presence of a number of regularly spaced rises adjacent to the shell deposits. Some of these appear to have shell midden within them. The origin of these features is currently unknown, but they are tantalizingly suggestive of household mounds arranged in an arcuate pattern. If this is the case, then this site may be domestic space associated with the nearby mound. During a casual inspection of the site after the active hurricane season we also noted shell midden near the wetlands, south of STPs 37 and 38, indicating that the site boundaries are even larger than have been established through shovel testing. In total, however, the STPs from previous seasons mimic those from the Snake Creek Midden and South Hontoon Midden, suggesting that the site was likely a similarly configured domestic space.

Indian Mound Trail (8VO7493)

The Indian Mound Trail site (8VO7493) is located directly north of the Hontoon Dead Creek Mound. As the name suggests it follows the general course of the main foot trail between the mound and the northern end of the island. The site was first identified on the last day of the 2001 field school season. At the time, the site was known through three positive STPs. These were quite interesting as one STP yielded a chert biface while the other yielded four bone pin fragments. Although the sample was small, it suggested that the site was preceramic Archaic in age. During the 2004 season, the site boundaries were expanded with a total of 44 STPs, 32 of which encountered anthropogenic deposits (Figure 6-10). The site boundaries have been extended to 450-m long and 125-m wide. With few exceptions, the site is restricted to elevations below 5 feet, resulting in many of the deposits within or adjacent to the low-lying swamp to the west. The site also extends into the mixed hardwood hammock to the east. Because much of the site is saturated, we were unable to test the westernmost extent. In addition, we were unable to fully bound the eastern and northern margins of the site due to time constraints. This will be completed during the 2005 field season.

The site was first intercepted along the T1W transect approximately 50 m north of Hontoon Dead Creek Mound. STP42 recovered only vertebrate faunal remains in a gray sandy matrix, between 30 and 60 cm BS. Three site definitional STPs (83-85), however, yielded concreted shell midden. In general, these were characterized by a 20 cm thick root mat, with gastropod shells in a concreted ashy-sand matrix. Surrounding this small area were STPs which yielded only bone and lithic flakes. We did not fully bound this portion of the site, for several reasons. The site is adjacent to the cypress swamp, which is also abutted by the Hontoon Dead Creek Mound. Excavation of the saturated deposits was not feasible with a normal STP. However, it is likely that deposits extend well into this swamp, as has been demonstrated at the Hontoon Dead Creek Mound.

At the time that the initial shell deposit was identified, it was not known how far to the north the site would extend. Continued survey along the T1W track eventually extended the site north of its initial boundaries. The central portion of the site is the least documented, with shell and non-shell deposits occurring at random intervals. To the north of SD104, we excavated two transects of site definitional STPs. Shell-bearing STPs closest to Hontoon Dead Creek generally yielded the following stratigraphy: 0-20

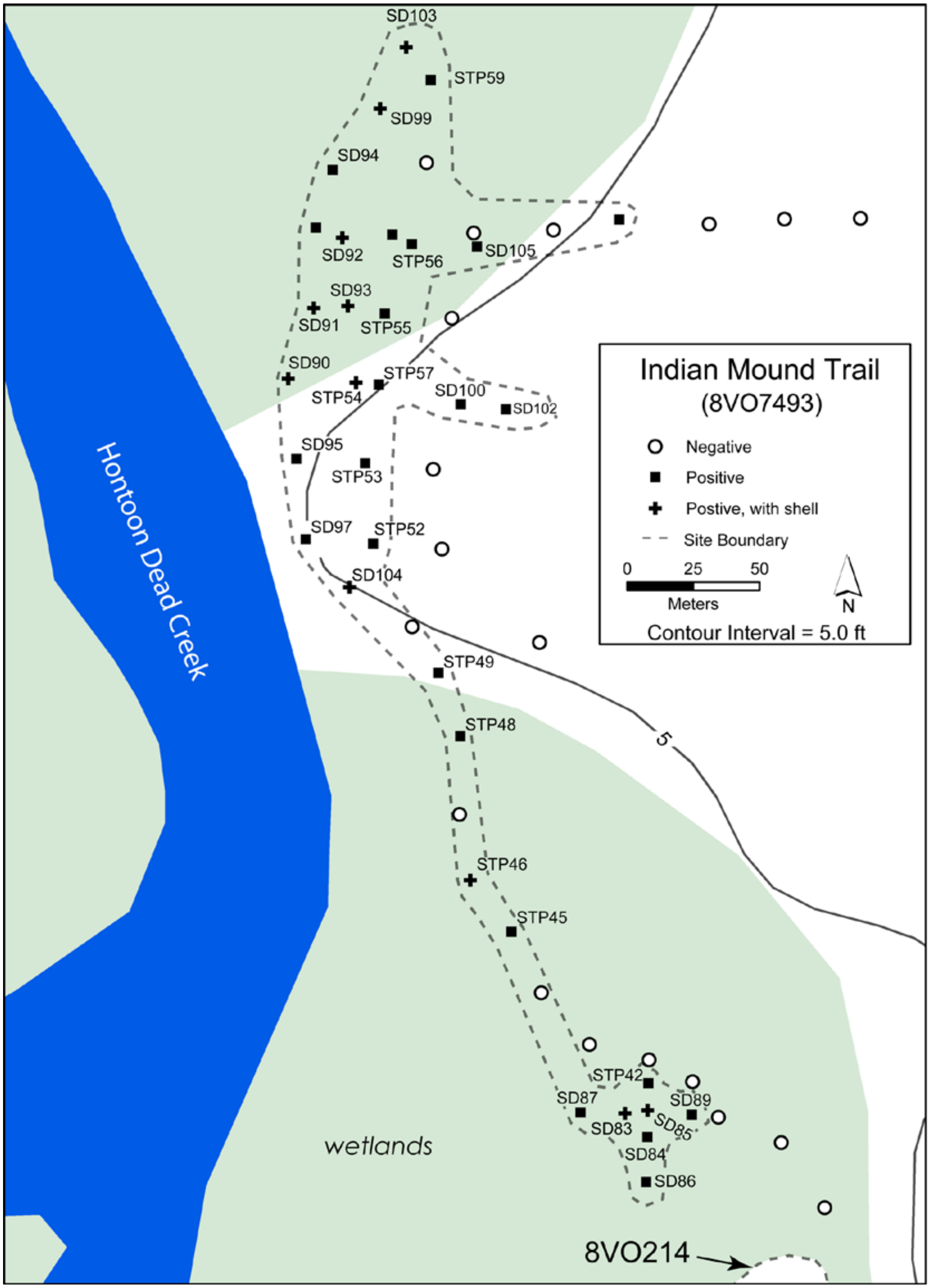

Figure 6-10. Shovel test pit map of the Indian Mound Trail site (8VO7493), illustrating the location of positive and negative shovel test pits from the 2004 season. All labeled STPs along T1W transect. Geographic data are from the Florida Geographic Data Library.

Table 6-7. Cultural Material Recovered from Shovel Test Pits at the Indian Mound Trail Site, 8VO7493.

Transect	STP Type	STP ID	Ceramic Sherds			Lithic Tool	Lithic Flake	Modified Bone	Marine Shell wt. (g)	Vert. wt. (g)
			Orange	St. Johns Plain	Crumb					
T1W	SD	78					1			0.6
T1W	SD	83								4.7
T1W	SD	84								20.3
T1W	SD	85						1		147.1
T1W	SD	86								8.5
T1W	SD	87					1			5.1
T1W	SD	89					1			
T1W	SD	90					1			25.7
T1W	SD	91								15.9
T1W	SD	92	1	1						38.4
T1W	SD	93						2		17.6
T1W	SD	94								0.1
T1W	SD	95								13.1
T1W	SD	97		4			1			107.5
T1W	SD	99							1.6	21.0
T1W	SD	100				1	3			
T1W	SD	102								0.3
T1W	SD	103				2				77.4
T1W	SD	104		26	5		1			71.2
T1W	SD	105				1	1			
T1W	STP	42								2.3
T1W	STP	45								1.8
T1W	STP	46								27.1
T1W	STP	48					3			
T1W	STP	49					1			
T1W	STP	52					1			18.3
T1W	STP	53								11.0
T1W	STP	54			1					33.7
T1W	STP	55								0.5
T1W	STP	56					1			
T1W	STP	57					2			0.1
T1W	STP	59								0.1

cm BS, a dark organic mucky sand; 20-40 cm BS, light gray sand with occasional fauna; 40-60 cm BS, gastropod and bivalve shell in a gray mucky sand; 60+ cm BS, fine gray sand with mineral concretions. Landward within the hammock environment, STP stratigraphy typically consisted of a root mat from 0-20 cm BS; light to dark gray sand with vertebrate fauna and artifacts from 20-60 cm BS; and a dense impenetrable hard pan below 60 cm.

Although the site shares some similarities with Hontoon Hammock on the eastern margin of Hontoon Island, the material culture recovered from site 8VO7493 sets it apart from all other sites on the island (Table 6-7, Figure 6-11). Pottery sherds are relatively rare, and were recovered in only five STPs. A single Orange Plain sherd and 31 St. John Plain sherds make up the entire assemblage. Of the St. Johns sherds, the 26 recovered from SD104 appear to be from a single sherd that was shattered during excavation. These ceramics indicate a minimal presence during Orange and St. Johns I times.

In contrast, bone tools, chert flakes and tools and a fragment of marine shell dispersed throughout the site indicate that the majority of the site is likely preceramic Archaic in age, and likely dates to the Mount Taylor period (Figure 6-11). A fragmentary bone tool was recovered from SD93 (Figure 6-11d). This was manufactured from a mammal long bone, and exhibits extensive striations on the distal tip. In addition, an unmodified bull shark tooth was recovered (Figure 6-11e). These are thought to have served as cutting tools in some contexts (Wheeler et al. 2000). Sixteen chert flakes were recovered from 13 STPs, as were two modified chert flakes, one of which is depicted in Figure 6-11c. The assemblage of formal stone tools is limited to two broken hafted bifaces. The hafted biface stem fragment from SD100 is made out of thermally altered chert (Figure 6-11b). It is consistent with the Florida Archaic Stemmed category. The hafted biface recovered from SD105 is manufactured out of thermally altered silicified coral (Figure 6-11a). It has a broken distal and lateral margin, but the base is consistent with the Newnan type, typically associated with the Mount Taylor period in the St. Johns region.

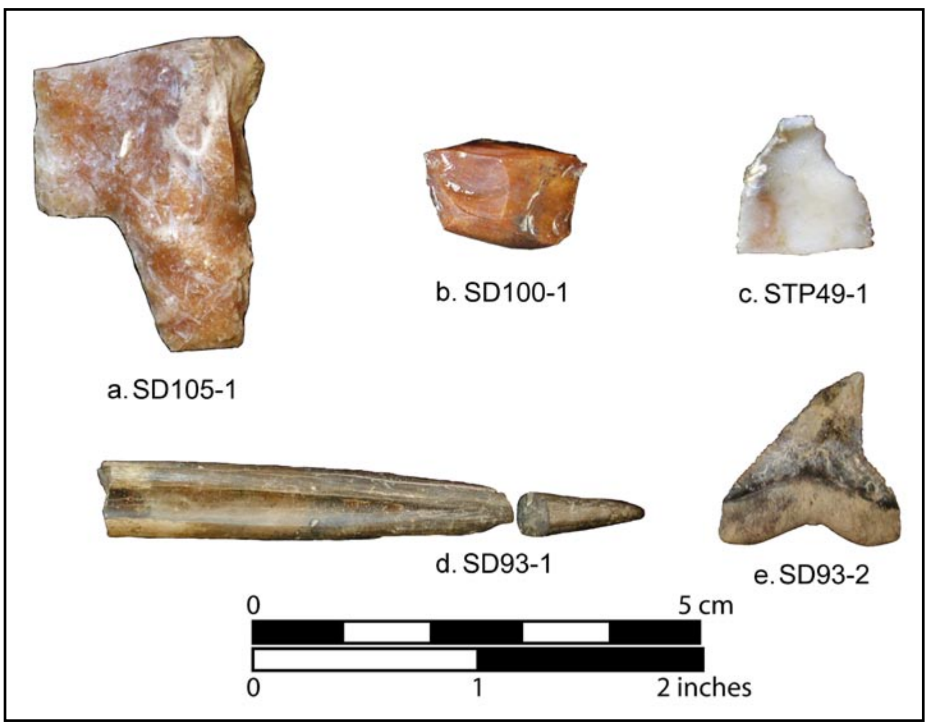

Figure 6-11. Artifacts recovered from shovel test pits at the Indian Mound Trail site (8VO7493). a. Newnan-like hafted biface; b. hafted biface stem; c. modified flake; d. modified bone; e. unmodified shark tooth.

The limited number of ceramics, in tandem with the abundance of other artifacts, and the lower-than-normal elevation of the deposits suggests that the site likely dates primarily to the preceramic Archaic, and most likely represents the locus of more intensive occupation than its eastern counterparts.

Blue Spring Oxbow Mound (8VO44)

In addition to reconnaissance of Hontoon Island, the field school also briefly investigated Blue Spring Oxbow Mound. The site is a shell mound approximately 1.5-km southwest of the mouth of Blue Spring (Figure 6-12). On the USGS Orange City topo it is visible as a topographic high point. The site was initially brought to our attention by Richard Harris, Wildlife Biologist for Blue Spring State Park. The site was first visited by Ken Sassaman, Asa Randall, and Meggan Blessing prior to the 2003 field season. During the 2003 field season, we performed limited reconnaissance, including a pedestrian survey and excavation of two STPs. Goggin (1952:91) called this site "Midden one mile above Blue Spring," and recorded it as site 8VO44 in the FMSF.

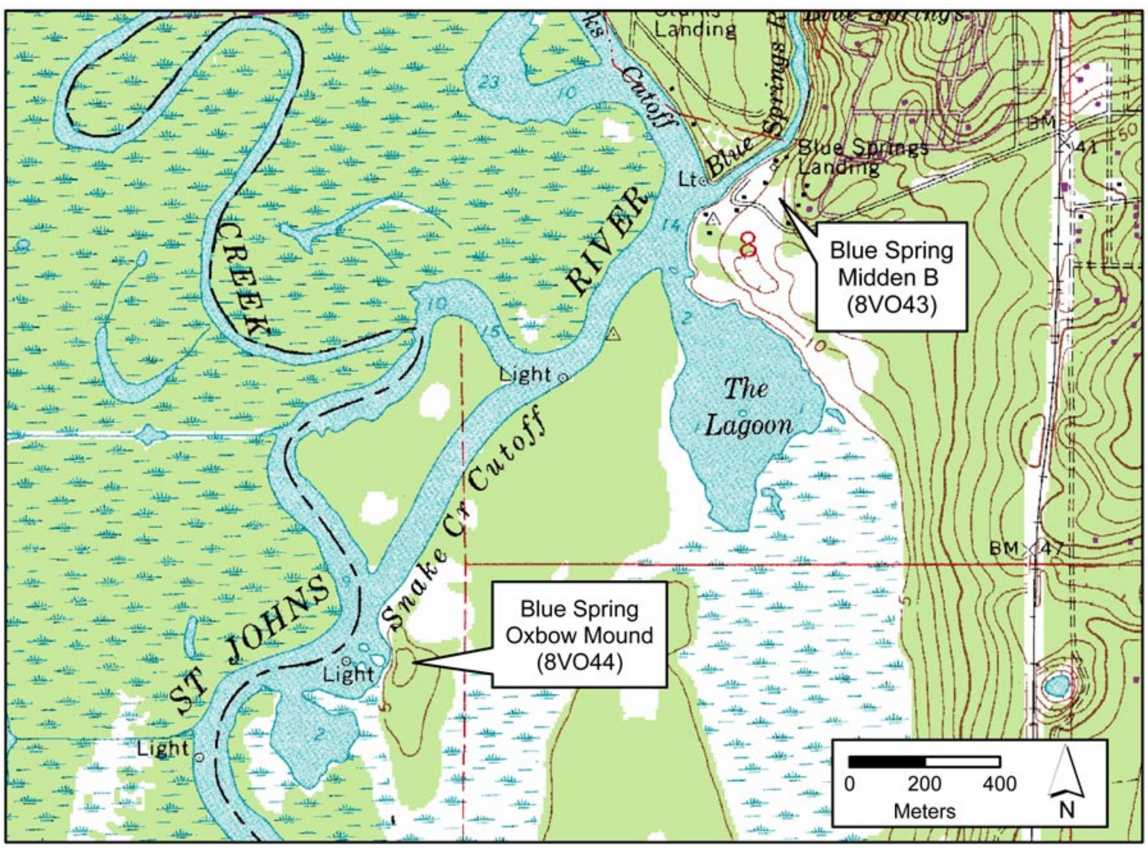

Figure 6-12. Location of Blue Spring Oxbow Mound (8VO44) in relation to Blue Spring Midden B (8VO43). The contour lines indicate the presence of the mound on this USGS Orange City topographic quadrangle

The site is similar to, although smaller than, sites 8VO214 and 8VO41, the two intact and primarily Mount Taylor mounds investigated by the field school. As observed in 2003, the mound is a linear shell ridge, oriented roughly north-south. It is approximately 45-m in length, 8-m wide, and 2.5 to 3-m high. The summit of the mound is generally flat, and measures 33-m long, and 6 to 8-m wide. The site is adjacent to a small lagoon, located to the west, and is surrounded by low-lying muck and wetland vegetation. The surface of the site is covered in small palmettos and a few large live oaks. The western edge, which fronts the lagoon, has been eroded and partially undercut. The eastern margin slopes more gently down into the wetlands. Evident are other more destructive activities at the apex of the mound. Here we found a partially filled depression, some 2-m wide, bisecting the mound (Figure 6-13). The depression has the distinct appearance of a trench with straight walls.

Figure 6-13. Two views of the trench-like disturbance atop Blue Spring Oxbow Midden (8VO44).

During our short investigation, we scoured the surface for diagnostic artifacts. Gastropod and bivalve shell was evident across the entire surface, while no modified artifacts were observed. A single STP was excavated to a depth of 80 cm in the top-center of the mound. Although limited, the test revealed intact stratigraphy. The top 30 cm was composed of a fine sandy loam, with crushed *Viviparus* and bivalve shell. One St. Johns Plain sherd was recovered near the surface. Below this to a depth of 65 cm we noted whole *Viviparus* and apple snail shell with trace amounts of vertebrate fauna.

Below this was whole and crushed Viviparus, apple, and bivalve shell in a medium sandy loam, with noticeable charcoal and vertebrate fauna. Another STP was excavated approximately 30 m to the east of the mound. No cultural materials were observed. A survey of nearby downed trees failed to yield any evidence for archaeological deposits, although we did not range too far from the mound.

A review of the mounds location and shape indicates that it was visited and excavated by Jeffries Wyman. He did not provide a name, but describes it (1875:21-22) as

> Another and very interesting mound, somewhat over a mile above Blue Spring, is one hundred and eighty feet long, eleven high, and has a breadth of thirty-seven feet in the widest part. In the rear is a large open prairie and to the south is the entrance to a lagoon, now mostly closed by water plants an island; to the north is an extensive meadow. The condition of the mound is such as to show unequivocally that the river once ran close upon its base, and undermined it, so that considerably more than half has been washed away by the current, a portion of the reach or landward slope alone remaining. The channel of the river, however, no longer runs at its base, but is removed several hundred feet distant leaving the mound at the bottom a deep bay, where the still water has allowed a great abundance of aquatic plants to take root and form a barrier between it and the river.

This description matches well our own field observations. Although the site now fronts a pine and cypress community, it is not impossible that 150 years ago it could have been a prairie.

Wyman (1875:22) did excavate there, and provides confirmation that pottery is absent both on and within the mound:

> Looking over the whole surface, including the river front, where the shells are fully exposed to the extent of several hundred square feet, and where examination can be easily made, not a single piece of pottery was seen. Excavations made at the top, middle, and the lowest part of the front, in which many cart loads of material were moved, gave the same result. The following indications of the presence of man, were, however, discovered, viz.: three fireplaces, at different depths, with coal, ashes, and calcined shells, a bone awl and the ulna of a deer from which a piece had been sawed.

These observations suggest that the site is primarily preceramic in addition to being stratified. The sequence of deposition appears similar to that identified at the Hontoon Dead Creek Mound (Chapter 4). It also suggests that the large trench-like feature depicted in Figure 6-13 is Wyman’s partially backfilled trench.

Although Wyman was focused on the mound, he does note that there is an extensive shell field adjacent to or nearby the mound. From his own observations this site yielded numerous sherds, as well as other bone, stone, and shell tools. We did not see any evidence for this on our visits. However, given the low elevation in this area, it is possible that silt and muck has obscured the site as observed by Wyman.

CONCLUSIONS

The shovel test reconnaissance surveys of 2003-2004 extended the boundaries of two sites, relocated three sites, and discovered two new sites. More importantly, the circumferential shovel test reconnaissance survey has demonstrated that virtually the entire periphery of Hontoon Island contains archaeological deposits. Although many of the sites still require shovel testing to define their boundaries, analysis of the distribution of deposits and assemblages indicates that there are significant differences in site structure and culture historical associations. Results of these findings are summarized in Table 6-8.

The western and eastern flanks of the island are characterized by two elongated sites (8VO7493 and Hontoon Hammock). These sites share a number of characteristics. Most notably, they contain discrete shell-bearing deposits, some of which yielded concreted midden. With the addition of ash to the matrices, these are likely secondary refuse. In contrast to the shell, the majority of each site is composed of more diffuse anthropogenic deposits which contained only traces of vertebrate faunal remains. Neither site yielded substantial pottery inventories. Although quite similar, there are important differences. STPs at site 8VO7493 recovered a relatively large lithic assemblage, composed of stemmed hafted bifaces, modified flakes, and lithic waste flakes. At least two bone pins and other modified bone artifacts were recovered. Site 8VO7493 is also different in that it lies at lower elevations, and many of the STPs were saturated. Whether or not this was a real pattern is unknown; future shovel testing is required to bound out both of these sites, and coring will be required to determine the extent to which the deposits are present below the surface of the wetlands today. The limited presence of Orange and St. Johns sherds suggests that these sites were occupied only intermittently during these periods. The bulk of the sites may very well date to the preceramic Archaic. As far as site function is concerned, it is not entirely clear what kinds of activities are represented by the deposits. Although shell is present, the highly localized nature would seem to suggest that on average, shell deposition episodes were intermittent. However, the presence of concreted midden seems to suggest that more sustained deposition and burning episodes did take place.

In stark contrast to the eastern and western margins, the three bounded sites to the south (8VO215, 8VO216, and South Hontoon Midden), appear as much more organized habitation areas. Each is characterized by a more or less centralized core of elevated, concreted shell midden. This core is surrounded by more diffuse midden yielding low densities of vertebrate fauna. At least two of the sites (8VO215, 8VO216) have varied surface topography that may actually be highly structured. Casual surface survey of 8VO215 suggested the presence of areas approximately 3 m in diameter that were arranged in a linear or arcuate fashion. Future work will be required to resolve what these areas actually represent, but speculatively they may be house mounds. Regardless, these three sites consistently yielded diverse artifact assemblages, including the highest ceramic inventories. Evidence for all ceramic periods was present among these three sites, with St. Johns Plain and Orange Plain sherds dominating. This pattern is actually quite surprising. The prevalence of Orange habitation contrasts with sites 8VO202 and

Table 6-8. Summary of Shovel Test Reconnaissance Survey Results, 2003-2004 Seasons.

		Components Present					
Site ID	Site Name	Pre-ceramic Archaic	Orange	St. Johns I	St. Johns II	Size (m)	Result
8VO215	Middle Midden		X	X	X	190 x 45	Boundary Extended
8VO216	Snake Creek		X	X	X	125 x 90	Relocated, Characterized
8VO7493	Indian Mound Trail	X	X	X		450 x 125	Boundary Extended
n/a	Hontoon Hammock	?	X			400 x 40	Relocated, Characterized
n/a	South Hontoon Midden	?	X	X		120 x 90	Relocated, Characterized
n/a	Dredge		X			60 x 30	Newly Identified
n/a	Saw Palmetto	?		X		200 x 30	Newly Identified
8VO44	Blue Spring Oxbow Mound	?		X		45 x 8	Relocated

8VO214 where very limited evidence for Orange components has been documented. While surprising at Hontoon Island, these sites actually share some similarities with Blue Spring Midden B at Blue Spring State Park. In addition, given the numerical dominance of St. Johns Plain and Checked Stamped sherds at site 8VO202, the numerical inferiority of check stamped sherds at other sites on Hontoon Island is interesting. Together, these data indicate that these sites have extensive components dating to the Orange and St. Johns I periods. Given the presence of preceramic deposits at virtually every other site on the island, however, we should expect to find preceramic Archaic deposits at these sites as well. While the data is still limited, the presence of centralized secondary midden, and the possible presence of house mounds suggests that these sites served primarily as domestic habitation places.

Finally, two sites were located at the southeastern and southwestern margins of Hontoon Island. Given the limited testing at either of these sites, we are unable to say much about them. However, they both demonstrate that there is significant potential for more archaeological deposits to be identified along the perimeter. In particular, the wide, expansive hammock at the southeastern edge of the island was only tested with a transect near the water. Future survey in the area is needed to determine the presence or absence of deposits there.

CHAPTER 7
CONCLUSIONS AND RECOMMENDATIONS

Asa R. Randall and Kenneth E. Sassaman

Five-week episodes of field work on Hontoon Island State Park in 2003 and 2004 builds on the previous two St. Johns Archaeological Field Schools (Sassaman 2003a) in contributing to knowledge that has been accumulating since the 1870s. As usual, the latest work has raised as many new questions as it has answered, underscoring the richness, diversity, and complexity of archaeological resources along the middle St. Johns River. In the interest of advancing this research further, specifically with regard to the archaeology at Hontoon Island and surrounding State Parks land within the middle St. Johns area, we offer a prospectus for an additional phase of field work in this closing chapter. The following recommendations are in keeping with the Unit Management Plan for the parks, which indicates that "further research and survey opportunities should be pursued when possible… [to] support increased interpretation of the two parks' cultural resources as part of the Florida Park Service's ecotourism efforts" (Dept. of Environmental Protection 1999:48). We might also add that additional efforts to identify and characterize cultural resources in the parks is consistent with modern archaeological practice aimed at preserving sites through management of the information potential contained within such resources. To this point, the St. Johns Archaeological Field School has utilized low-impact surveying techniques and small-scale sampling to fulfill these goals, and the work proposed below continues in this spirit. Before delving into the details of future prospects, a review of the results to date is warranted.

SUMMARY OF RESULTS

Field schools in 2003 and 2004 focused on four projects: (1) mapping and stratigraphic testing of Hontoon Island North (8VO202); (2) mapping and stratigraphic testing of Hontoon Dead Creek Mound (8VO214); (3) mapping, site characterization, and small-scale block excavation at East Hontoon (8VO7494); and reconnaissance survey of the perimeter of the island to locate and characterize new sites, and to relocate and characterize sites already on record in the Florida Master Site Files. Below we summarize the major findings of each of these four projects.

Hontoon Island North (8VO202)

Hontoon Island North (aka Hontoon Island Midden; 8VO202) was documented by Jeffries Wyman (1875) in the 1860s and rose to prominent in the modern era with the wet-site investigations headed by Barbara Purdy (1987, 1991) in the 1980s. As described by Wyman, the site consisted of two massive shell ridges oriented parallel to the St. Johns River, and two conical mounds landward of the ridges at its eastern end. Wyman observed pottery in his limited digging of the conical mounds and both he and Clarence B. Moore (1999) observed pottery in the eroded bluff of the shell ridge fronting the river. Much of the shell-ridge and mound complex was destroyed in the 1930s when shell was mined for road fill in the nearby town of Deland. Purdy's work in the lagoon to the immediate east of the mined site documented intact, well preserved shell deposits dating to the last two millennia and dominated by St. Johns pottery. Limited testing in the terrestrial area of the site to the west suggested that earlier archaeological deposits survived shell mining across portions of the site.

Field school efforts in 2003 and 2004 were designed to bound and characterize the entire terrestrial component of 8VO202 with particular emphasis on locating intact preceramic deposits. This latter goal was an unequivocal success. Shovel tests and a series of five excavation units revealed intact preceramic deposits across virtually the entire expanse of the site. Three of the units were sited to take advantage of scarps left by mining at both ends of the 300+ m inner ridge. All three units included preceramic deposits at and immediately above the current water table, and each provided at least suggestive evidence for preceramic-era shell mounding. Importantly, the basal components of each unit were distinct. TU1 at the east end of the ridge included an 80-cm thick secondary midden on a buried A horizon at the water table overlain by mounded shell. A test unit 50 m to the west (TU3) revealed a primary midden with possible architectural features and overlying mounded shell near the slightly elevated center of the inner ridge. A 2 x 2-m unit (TU5) was added in this same area in 2004 to verify the existence of preceramic features at the base of the mound. Preserved at the west end of the inner ridge is an area roughly 50 x 50 m that was spared deep mining for lack of dense shell. The discovery of human remains in a single test unit in this area was reported to BAR in a letter report (Sassaman 2003b) and the unit then back-filled without further excavation. Without further testing we can only speculate on these possible mortuary deposits although limited bucket augering and the nearby TU4 provides circumstantial evidence for a mortuary feature similar to the Mount Taylor age component at Harris Creek (8VO24) on Tick Island, dating to ca. 5400 rcybp (Aten 1999). In sum, the preceramic component at Hontoon Island North is extensive but spatially differentiated into habitation space and primary midden, secondary midden, and possibly a mortuary mound.

Surviving ceramic-era deposits at Hontoon Island North exist not only in the thick apron surrounding the large mining pit at the east end of the inner ridge, and in the adjoining lagoon that Purdy tested, but also in the remnant of the outer ridge that now forms the peninsula of the park, just to the east of its harbor. As much as 3 m of stratified shell midden was located by bucket augering, most of it below the water table. That so much midden exists in now-submerged contexts suggest that either the outer ridge was initiated in the water of the river channel (as the midden in the lagoon seems to have been), or when water levels were drawn down at least 1.5 m from current levels. Either way, the outer ridge appears to be largely, if not exclusively, a St. Johns construction. We have too few data to suggest more precisely when this ridge was initiated in the St. Johns period, but we can infer from the prevalence of check-stamped sherds across the entire eastern portion of the site that much of the mound/midden accumulation took place over the half-millennium before Europeans arrived.

Subsistence columns 50 x 50-cm in plan were collected from four 1 x 2-m units dispersed across for fine-screening and flotation processing. Analysis of these materials awaits the acquisition of research funds, as do accelerator mass spectrometer assays on the small bits of charcoal recovered. The research potential of these materials and the vast remaining subsurface record of 8VO202 is considerable (see recommendations below).

Hontoon Dead Creek Mound (8VO214)

Field school work at the shell mound at the end of the nature trail at Hontoon Island was especially fruitful. Renamed Hontoon Dead Creek Mound , 8VO214 was tested by Wyman (1875) and later mapped by Ray McGee (1987) in conjunction with Purdy's work on the island. Virtually nothing was known about the age or internal configuration of this largely intact mound when we dug a 9-m long trench into the west side of it in 2004. Wyman's mention of pottery in digging at the apex of the mound has not been substantiated by repeated surface inspections since the first field school in 2000. Our work established that much, perhaps most of the fill in this 5-m-high ridge-like mound is likely preceramic. In conjunction with mapping and testing the mound, we ran a series of bucket-auger transects into the muck of the adjoining cypress swamp. Running the entire length of this 150-m-long mound for a maximum distance of ca. 30 m into the swamp we encountered beneath one meter of muck a buried shell-bearing midden with impeccable organic preservation. Uncharred but cracked hickory nutshell from this midden returned a conventional radiocarbon assay of 6040 ± 70 rcybp. This addition to 8VO214 enhances the inventory Mount Taylor sites in aggraded swamp locales (Wheeler et al. 2000:143). The stratigraphic relationship of this midden to the mound remains uncertain, but it would minimally account for the basal component of the mound and perhaps one or two "capping" events similar to those documented at Harris Creek. It stands to reason that the core of 8VO214 houses a Mount Taylor mortuary feature.

The upper mantle of the mound consist of alternating layers of burned shell, mostly bivalve, and unconsolidated whole and crushed shell, mostly Viviparus but also *Pomacea*. The burned shell layers resemble the "floors" uncovered at Blue Spring Midden B (Sassaman 2003a), but they lack the rich vertebrate faunal remains and artifact assemblage of this latter site. There is actually little to recommend that Hontoon Dead Creek Mound was ever a locus if intensive occupation. The repeated layers of burn shell attest to fires and perhaps even food processing, but the limited bone and artifact assemblage runs counter to expectations for routine domestic activity. The stratigraphic sequence evinces a cyclical quality to mound construction and use. As the layers grew up they also grew outward, toward to swamp, requiring the construction of a bulkhead to support an increasingly higher mound platform. The conical apex at the south end, into which Wyman appears to have dug, was likely added by later occupants, presumably of St. Johns cultural affiliation. This same pattern was observed at Live Oak Mound (8VO41) north of Blue Spring (Sassaman 2003a).

East Hontoon (8VO7494)

With the exception of shovel-test data, virtually nothing was known of the surface or subsurface characteristics of 8VO7494 when testing of the site began in earnest in 2003. Although dwarfed by the shell mounds on the island, East Hontoon provides important data on lifeways away from ceremonial contexts. Moreover, small sites like East Hontoon are rarely investigated, making characterization of this site even more important from both research and management perspectives. Excavation of three dispersed 1 x 2-m test units in 2003 and one 3 x 3-m unit in 2004 documented upwards of 50 cm of intact and stratified archaeological deposits. These deposits contained evidence for a minimum of three culture-historical components. Preceramic Archaic deposits were observed in the westernmost test units, away from the water. These were characterized by an organic shell midden devoid of diagnostic artifacts, but containing abundant vertebrate faunal remains within a gastropod and bivalve shell midden matrix. Although no radiocarbon dates have been ascertained as of yet, this component likely dates between 6300 and 4200 rcybp based on the lack of pottery. In all units we recovered fiber-tempered pottery diagnostic of the Orange period (4200-3500 rcybp). These deposits were typically associated with limited shell midden, but abundant vertebrate fauna. A large assemblage of St. Johns plain sherds, diagnostic of the St. Johns I component (3000-1200 rcybp) was recovered from across the site.

Excavations and bucket auger survey documented the spatial patterning of artifacts, features, and subsistence remains across the site. Spatial data from piece plotted artifacts in TU3 demonstrated that during the St. Johns I period, the site was the locus of intensive, if short-duration activities. The large sherds, in tandem with their high refit frequency and spatial circumscription is indicative of primary deposition. One large feature attests to potential processing activities focused on shellfish and aquatic vertebrate fauna. The comparison of snail shell sizes suggests that not only were *Viviparus* larger later in time, but that the largest were selectively processed during St. Johns I. Other possible features were also recovered in TU3, but due to their diffuse nature they are not readily interpretable. In addition to food processing, the large pit (Feature 13) observed in TU4 indicates that at least one individual may have been interred at the site. Whether or not this is a recurrent practice across the site is not known.

Finally, the field school also conducted a close-interval bucket-auger survey. These data revealed differential spatial distribution of deposits. In the north and south, the site is characterized by trace amounts of vertebrate fauna in shell-free midden. To the west, there is some variation, but the deposits tend to be shallow and slope with the natural topography. No deposition appears to have occurred above the local arbitrary 5 m elevation, and is certainly contained between 5 and 10 ft amsl. To the east, the site is characterized by shallow shell midden deposits lacking vertebrate faunal remains. It is presently unknown how far the deposits extend into the wetlands. The core of the site contains dense, stratified deposits composed of shell midden, dense ceramic inventories, and large features. Taken together, these spatial patterns indicate that there is significant intrasite organization in the deposits. In particular, there is a dichotomy between the dense shell deposits in the north and the shallow, diffuse, shell-free deposits to the south. It is currently unknown if these register different types of activities through time, or are reflective of the organization of space at one point in time.

Shovel Test Reconnaissance Survey

Reconnaissance survey targeted the margins of Hontoon Island, between 5 and 10 ft amsl in elevation. This circumferential survey was conducted as two contiguous transects, starting north of 8VO7494 on the eastern margin, and concluding at the northern boundary of 8VO7493. Results of this survey demonstrate that with few exceptions, the entire periphery of the Hontoon Island contains archaeological deposits. In practical terms, the shovel test reconnaissance survey extended the boundaries of two previously recorded sites (8VO215, 8VO7493), relocated and tested three sites (8VO216, Hontoon Hammock, South Hontoon Midden), and discovered of two new sites (Dredge and Saw Palmetto sites). This brings the inventory of known sites on Hontoon Island to a total of 10, excluding the two mounds (8VO182, 8VO183) that most likely fell within the current boundaries of 8VO202. In addition, the field school briefly investigated 8VO44, a linear shell mound south of Blue Spring.

Examination of the shovel test results indicates that there is important variation in the culture history, assemblage content, and site structure at these different sites. In general, Orange and St. Johns plain sherds are numerically dominant and widespread, although they are more or less restricted to the southern sites. The dearth of evidence for St. Johns II occupation (as based on the occurrence of St. Johns Check-stamped pottery) is surprising given its conspicuous nature at 8VO202. The recognition of preceramic Archaic deposits is hampered by a lack of diagnostic material culture. We suspect that the majority of deposits at 8VO7493 date to this period. It is also likely that preceramic Archaic components form the foundation of all of the shell mounds, as well as 8VO7494. In terms of site structure, deposits along the eastern boundary are characterized by discrete shell deposits surrounded by extensive diffuse anthropogenic deposits with trace amounts of vertebrate fauna. To the west, 8VO7493 shares more similarities with 8VO7494 in terms of midden composition. Concreted midden in both the east and west suggests that burning and processing of shell and fauna were important, most likely in association with other daily tasks. In contrast, the southern sites are characterized by elevated and concreted shell midden deposits surrounded by shell-free midden. In at least two cases (Southern Hontoon Midden and 8VO215), varied surface topography is suggestive of house mounds and community patterning like that identified at Blue Spring Midden B (Sassaman 2003a).

RECOMMENDATIONS FOR ADDITIONAL WORK

The St. Johns Archaeological Field School hopes to return in 2005 and 2006 to State Park lands, including Hontoon Island and the east terrace of the St. Johns River on the Blue Springs tract, to resolve some of the issues raised in work to date. In addition, we anticipate some larger-scale tasks that would require the acquisition of outside funding. Nine goals are proposed for field schools and extracurricular research in the ensuing years.

Field School Goals

Continue and Finalize Circumferential Reconnaissance Survey of Hontoon Island. The method of 30-m interval shovel testing at elevations between 5 ft and 10 ft amsl has been extremely successful on Hontoon Island. We propose continuing the circumferential transect initiated in 2004 to the north and west at 30-m intervals, cruciforming positive shovel test pits as they are encountered. In addition, more shovel testing around several of the sites identified or relocated during 2004 is required. In particular 8VO7493, Hontoon Hammock, and the Dredge and Saw Palmetto sites have been located but the boundaries still need to be defined. We propose cruciforming and bounding positive shovel tests in these locations.

GPR Survey of Sites on Hontoon Island. Excavation data from 8VO7494 indicate that large subsurface features could be present throughout the site, while sites such as South Hontoon Midden, Hontoon Hammock, Hontoon Dead Creek Village, and Snake Creek Midden (8VO216) have surface features suggestive of subsurface architecture (e.g., house mounds), and well defined areas of secondary and primary deposition. Ground Penetrating Radar (GPR) survey of Blue Spring Midden B (Sassaman 2003a) demonstrated the potential of remote sensing to identify subsurface feature clusters, in addition to delimiting primary and secondary midden deposits. We propose close-interval GPR transects at selected sites along the periphery of Hontoon Island. As GPR is inherently non-destructive, this method would allow for site wide characterization of subsurface deposits without extensive excavation. Bucket augering, shovel testing, and limited controlled excavation units (1 x 1-m or 1 x 2-m) may be employed to ground-truth GPR anomalies.

Subsurface Characterization of Small Shell-Bearing Sites on Hontoon Island. Now that sufficient work has been conducted to characterize the two major shell-mound sites on Hontoon Island (8VO202, 8VO214), attention now turns to site characterization at several of the lesser shell-bearing sites. This entails the same sort of strategy used at 8VO7494 over the past two years: after delineating the horizontal and vertical extent of archaeological deposits at a given site, three to four 1 x 2-m or 2 x 2-m units are needed to adequately characterize the components present. In addition to collecting subsistence and stratigraphic data, a particular goal of testing these sites is to locate materials suitable for radiometric dating. Given the lack of evidence for intensive habitation use of mounds such as Live Oak and Hontoon Dead Creek, it stands to reason that some of these shell-bearing sites are the locus of habitation for communities who use the mound for non-domestic purposes. Sites earmarked for testing include Indian Mound Trail (8VO7493), Hontoon Dead Creek Village (8VO215), Snake Creek Midden (8VO216), South Hontoon Midden, Hontoon Hammock, Saw Palmetto, and Dredge.

Survey Hurricane Damage. A casual foot survey by the authors in January of 2005 revealed that numerous trees fell on and in the vicinity of 8VO202, 8VO214, and

8VO215 during the 2004 hurricane season. In some cases the exposed root systems of these trees opened up to 3-m diameter exposures of shell midden. One large exposure at 8VO202 held what appeared to be intact features. These exposures can provide useful information as to the spatial variation in deposits and material culture. We propose that these should be located by pedestrian survey, mapped and characterized by limited processing of exposed midden. These data may prove useful to State Parks in future resource management planning.

Reconnaissance Survey of East Terrace of the St. Johns. The results of the 2003-2004 seasons indicate that along the St. Johns River terrestrial sites will be concentrated between the 5 and 10-ft contour interval. We propose shovel test reconnaissance along this elevation on the east terrace of the St. Johns River north of Blue Spring State Park. The low mound Wyman (1875) referred to as Palmetto Shell Mound (8VO40), north of Live Oak Mound (8VO41), is presumed to be along this span of terrace but has yet to be located. Preliminary surface reconnaissance in 2001 failed to detect any trace of this site. Given its low relief and location proximate to a bend in the St. Johns River, Palmetto Shell Mound may very well have been destroyed by flooding or obscured by a mantle of recent alluvium. Thus, shovel-test transects along the east terrace edge are needed to search for subsurface evidence of this site. If found, the site will be shovel tested and/or augered in a cruciform pattern to defined its boundaries.

Subsurface Characterization of Small Shell-Bearing Sites along East Terrace of the St. Johns. Two small shell-bearing sites fronting Lake Beresford (8VO38, 8VO39) and the shell midden at Starks Landing (8VO42) have never been mapped or characterized. We propose shovel testing, topographic mapping, and limited 1x 2-m or 2 x 2-m test unit excavations to characterize subsurface deposits and collect samples for radiometric dating.

Mapping and Limited Testing of Blue Spring Oxbow Mound (8VO44). Virtually nothing is known of this small mound south of Blue Springs, which was relocated in 2003 by Richard Harris, the Wildlife Biologist at Blue Spring State Park, and investigated with two shovel tests by the Field School that same year. We propose to map the site in its entirely. While excavation of preserved deposits is not warranted, there is a large trench-like disturbance present in the southern aspect of the mound, cross cutting it. We therefore propose to re-excavate this disturbance for the purpose of recording stratigraphic data and recovering materials for radiocarbon dating. We suspect that this mound is preceramic in age, and can aid in interpreting other destroyed mounds in the region. In addition, we propose a close-interval bucket auger survey to identify subsurface deposits surrounding the mound.

Larger Goals Requiring External Funding

Block Excavation at 8VO202. Although Hontoon Island North (8VO202) was severely damaged by shell-mining in the 1930s, a subsurface midden and remnant mound deposits dating to the preceramic era are well preserved at and below the water table across most of the site, and in larger subaerial portions of the southern and western portion of the site. Our testing in the scarps and floors of shell-mining pits in the eastern portion revealed preserved subsurface features consistent with habitation activities, and well as extensive secondary midden. Portions of the larger mining pits have floors situated just above the feature level, exposing these for the past 75 years to the damaging effects of root action, animal burrowing, and surface erosion. These deposits were covered by mounded shell for six millennia before they were exposed, and now they are quickly becoming obscured by these various near-surface disturbances. Given that we know virtually nothing about habitation associated with shell mounds this old, we propose to conduct block excavation of the deposits exposed by shell mining at and immediately above the ancient surface (i.e., buried A horizon). This would be an expensive endeavor, requiring both in-field support and considerable analysis and curation costs. Depending on water levels at the time of excavation, dewatering of the excavation area may be needed.

Coring and Testing Cypress Swamp along Margins of Hontoon Island and the Eastern Terrace of the St. Johns River. The 6000-year-old buried midden on the western fringe of 8VO214 is not likely to be an isolated example of mid-Holocene deposits in saturated contexts. The entire western margin of Hontoon Island holds great potential for more such deposits because of the nearly continuous distribution of preceramic and early ceramic sites along the terrace margin. Equally likely to contain mid-Holocene deposits is the swamp fronting 8VO41, with a basal radiocarbon date of 6260 ± 50 rcybp. Indeed, all wetland locales around the island and the eastern margin of the St. Johns River hold this potential and need to be examined with cores that can penetrate one meter or more of muck. Bucket augering is sufficient, though extremely difficult, to locate such deposits, but more sophisticated coring technology is need to extract samples conducive to dating and stratigraphic interpolation. Survey extensive and intensive enough to locate all buried deposits will be expensive and extremely time consuming, but worth the effort. As we have seen with wet-site excavations in general (e.g., Purdy 1991), the extraordinary preservation of organic matter is not duplicated in terrestrial contexts and thus its recovery has the potential to thoroughly change perspectives on ancient human technology, subsistence economy, even mortuary practice (Doran 2002). However, we do not recommend large-scale excavation of wet sites, at least not yet, for it seems more pressing that we locate and assess these deposits across entire locales or subregions so that their management and preservation can be incorporated into plans that hitherto have been shaped largely by terrestrial archaeological records.

Core Survey of Mounds on State Property. Stratigraphic excavations of several shell mounds on State property have revealed striking similarities in construction sequences, as well as remarkable intersite diversity. In order to document the full range of variation in stratigraphic sequences, we propose a regional program of coring at shell mounds on public lands. Here again we have a technical challenge in that many such mounds exist in heavily wooded areas that preclude the use of truck-mounting hydraulic rigs. A smaller rig mounted on an ATV or some-such all-terrain vehicle may prove effective. The goal in coring mounds must be to retrieve continuous columns of sufficient diameter to both characterize microstratigraphy as well as collect organic materials suitable for radiocarbon dating. In addition, such cores can be split, with one half curated for future research. All such mounds also need to be fully mapped with surveying instrumentation. Few extant mound son public land have been mapped to tested in the modern era, and thus our knowledge of them has been largely assumed. For instance, many such mounds are listed in the FMSF as St. Johns period constructions because Wyman or Moore found pottery at or near their surfaces. We now know enough about mounds on and around Hontoon Island to suggest that most are actually Mount Taylor constructions with lesser St. Johns components sometimes added on as conical mortuary features. A comprehensive assessment of the internal configuration and age of middle St. Johns mounds is sorely needed.

REFERENCES CITED

Adamus, Christine, David Clapp and Stephen Brown

1997 *Surface Water Drainage Basin Boundaries St. Johns River Water Management District: A Reference Guide*. Technical Publication SJ97-1. St. Johns River Water Management District, Palatka, Florida.

Archaeological Consultants, Inc. (and Janus Research, Inc.)

2001 *Phase III Mitigative Excavations at Lake Monroe Outlet Midden (8VO53), Volusia County, Florida*. Report Submitted to U.S. Department of Transportation Federal Highway Administration and Florida Department of Transportation District Five by Archaeological Consultants, Inc. and Janus Research.

Aten, Lawrence E.

1999 Middle Archaic Ceremonialism at Tick Island, Florida: Ripley P. Bullen's 1961 Excavations at the Harris Creek Site. *The Florida Anthropologist* 52:131-200.

Austin, Robert J

2001 *Paleoindian and Archaic Archaeology in the Middle Hillsborough River Basin: A Synthetic Overview*. Report Prepared for Tampa Bay Water, Inc. by Southeastern Archaeological Research, Inc.

2004a Environmental and Archaeological Contexts. In *Multidisciplinary Investigations at West Williams, 8Hi509: An Archaic Period Archaeological Site Located Within Florida Gas Transmission Company's Bayside Lateral Pipeline Corridor, Hillsborough County, Florida*. Report Submitted to Florida Gas Transmission Company, Inc. by Southeastern Archaeological Research.

2004b *Multidisciplinary Investigations at West Williams, 8hi509: An Archaic Period Archaeological Site Located within Florida Gas Transmission Company's Bayside Lateral Pipeline Corridor, Hillsborough County, Florida.* Report Submitted to Florida Gas Transmission Company, Inc. by Southeastern Archaeological Research.

Austin, Robert J and Richard W. Estabrook

2000 Chert Distribution and Exploitation in Peninsular Florida. *The Florida Anthropologist* 52:116-130.

Blitz, John H.

1993 Big Pots for Big Shots: Feasting and Storage in a Mississippian Community. *American Antiquity* 58:80-95.

Borremans, Nina

1990 *The Paleoindian Period*. Florida Historical Contexts.

Bullen, Ripley

1955 Carved Owl Totem, Deland, Florida. *Florida Anthropologist* 8:61-73.

1975 *A Guide to the Identification of Florida Projectile Points*. Revised ed. Kendall Books, Gainesville.

Bullen, Ripley P.

1972 The Orange Period of Peninsular Florida. In *Fiber-Tempered Pottery in Southeastern United States and Northern Colombia: Its Origins, Context, and Significance*, edited by R. P. Bullen and J. B. Stoltman, pp. 9-33. Florida Anthropological Society Publications 6, Gainesville.

Clausen, C. J.

1964 *The A-356 Site and the Florida Archaic.* Masters Thesis, University of Florida.

Clausen, C. J., A. D. Cohen, Cesare Emiliani, J. A. Holman and J. J. Stipp

1979 Little Salt Springs, Florida: A Unique Underwater Site. *Science* 203:609-614.

Clench, William J. and Ruth D. Turner

1956 Freshwater Mollusks of Alabama, Georgia and Florida. *Bulletin of the Florida State Museum, Biological Sciences* 1:108-111.

Connaughton, Sean P.

2001 *Resource Depression in the Subsistence Economy of Prehistoric Hunter-Gatherers of the St. Johns River Valley, Florida.* Senior Thesis, Department of Anthropology, University of Florida, Gainesville.

Cook, Anthony

1985a Euglandina Feeding Strategies. *Malacologia* 26:182-190.

1985b Functional Aspects of Trail Following by the Carnivorous Snail *Euglandina Rosea*. *Malacologia* 26:173-181.

Cooke, C. Wythe

1939 *Scenery of Florida Interpreted by a Geologist*. Florida Geological Survey Bulletin no. 17, Tallahassee.

Cordell, Ann S.

1985 Pottery Variability and Site Chronology in the Upper St. Johns River Basin. In *Archaeological Site Types, Distribution, and Preservation within the Upper St. Johns River Basin, Florida*, edited by B. Sigler-Eisenberg, pp. 114-134. Florida State Museum Miscellaneous Project and Report Series No. 27. Department of Anthropology, Florida State Museum, University of Florida, Gainesville, Florida.

Cordell, Ann S. (continued)
2004 Paste Variability and Possible Manufacturing Origins of Late Archaic Fiber-Tempered Pottery from Selected Sites in Peninsular Florida. In *Early Pottery: Technology, Function, Style and Interaction in the Lower Southeast*, edited by R. Saunders and C. T. Hays, pp. 63-104. The University of Alabama Press, Tuscaloosa.

Cumbaa, Stephen L.
1976 A Reconsideration of Freshwater Shellfish Exploitation in the Florida Archaic. *The Florida Anthropologist* 29:49-59.

Daniel, I. Randolph and Michael Wisenbaker
1987 *Harney Flats: A Florida Paleo-Indian Site*. Baywood Publishing Company, Inc., Farmingdale, New York.

Daniel, I. Randolph, Michael Wisenbaker and George Ballo
1986 The Organization of a Suwannee Technology: The View from Harney Flats. *The Florida Anthropologist* 39:24-56.

Darby, Philip C., Robert E. Bennetts, Steven J. Miller and H. Franklin Percival
2002 Movements of Florida Apple Snails in Relation to Water Levels and Drying Events. *Wetlands* 22:489-498.

Department of Environmental Protection
1999 *Blue Spring State Park and Hontoon Island State Park Unit Management Plan (*draft). Division of Recreation and Parks, Tallahassee.

Doran, Glen H. (editor)
2002 *Windover: Multidisciplinary Investigations of an Early Archaic Florida Cemetery*. University of Florida Press, Gainesville.

Dunbar, James S., Michael K. Faught and David S. Webb
1988 Page/Ladson (8JE591): An Underwater Paleo-Indian Site in Northwestern Florida. *The Florida Anthropologist* 41:442-452.

Dunbar, James S., Mark Russo, Tom Nieldson and Star Lockwood
1978 *Huntoon Island State Park Cultural Resource Survey*. Underwater Archaeological Research Section, Division of Archives, History and Records Management, Tallahassee.

Dunbar, James S. and Ben Waller
1983 A Distribution Analysis of the Clovis/Suwannee Paleo-Indian Sites of Florida: A Geographic Approach. *The Florida Anthropologist* 36:18-30.

Dunbar, James S. and S. David Webb
1996 Bone and Ivory Tools from Submerged Paleoindian Sites in Florida. In *The Paleoindian and Early Archaic Southeast*, edited by D. G. Anderson and K. E. Sassaman, pp. 331-354. The University of Alabama Press, Tuscaloosa.

Endonino, Jon C.
2003a Pre-Ceramic Archaic Burial Mounds Along the St. Johns River, Florida. Paper presented at the 59th Annual Southeastern Archaeological Conference, Charlotte, NC.

2003b Hontoon Island Reconnaissance Survey. In *St. Johns Archaeological Field School 2000-2001: Blue Springs and Hontoon Island State Parks*, edited by K. E. Sassaman, pp. 91-108. Technical Report 4. Laboratory of Southeastern Archaeology, Department of Anthropology, University of Florida, Gainesville.

Espenshade, Christopher T.
1983 *Ceramic Ecology and Aboriginal Household Pottery Production at the Gauthier Site, Florida*. Masters Thesis, Department of Anthropology, University of Florida, Gainesville.

Faught, Michael K.
2004 The Underwater Archaeology of Paleolandscapes, Apalachee Bay, Florida. *American Antiquity* 69:275-289.

Ferguson, Vera Masius
1951 *Chronology at South Indian Field, Florida*. Yale University Publications in Anthropology 45. Yale University Press, New Haven.

Goggin, John M.
1952 *Space and Time Perspectives in Northern St. Johns Archaeology, Florida*. University Press of Florida, Gainesville.

Gosselain, Olivier P.
1992 Bonfire of the Enquiries. Pottery Firing Temperatures in Archaeology: What For? *Journal of Archaeological Science* 19:243-259.

Hemmings, C. Andrew
2004 The Organic Clovis: A Single Continent-wide Cultural Adaptation. Ph.D. Dissertation, Department of Anthropology, University of Florida, Gainesville.

Johnson, Robert E.
2002 *Phase III Archaeological Data Recovery at the Fort Florida Midden Site (8VO48), at Traderscove's Riverside at Debary Development, Volusia County, Florida*. Report Submitted to Traderscove Corp. by Florida Archeological Services, Inc. Jacksonville, Florida.

McGee, Ray M. and Ryan J. Wheeler

1994 Stratigraphic Excavations at Groves' Orange Midden, Lake Monroe, Volusia County, Florida: Methodology and Results. *The Florida Anthropologist* 47:333-349.

Milanich, Jerald T.

1994 *Archaeology of Precolumbian Florida*. University Press of Florida, Gainesville.

Miller, James A.

1997 Hydrogeology of Florida. In *The Geology of Florida*, edited by A. F. Randazzo and D. S. Jones, pp. 69-88. University of Florida Press, Gainesville.

Miller, James J.

1998 *An Environmental History of Northeast Florida*. University Press of Florida, Gainesville.

Miller, James J. and J. W. Griffin

1978 *Cultural Resource Reconnaissance of Lake Woodruff National Wildlife Refuge*. Cultural Resource Management, Inc.

Moore, C. B.

1999 The East Florida Expeditions of Clarence Bloomfield Moore. Edited by J. M. Mitchem. The University of Alabama Press, Tuscaloosa.

Neill, Wilfred T.

1964 Trilisa Pond, an Early Site in Marion County, Florida. *The Florida Anthropologist* 17:187-200.

1971 A Florida Paleoindian Implement of Ground Stone. *The Florida Anthropologist* 24:61-70.

Newsom, Lee A.

1987 Analysis of Botanical Remains from Hontoon Island (8VO202), Florida: 1980-1985 Excavations. *The Florida Anthropologist* 40:47-84.

1994 Archaeobotanical Data from Groves' Orange Midden (8VO2601), Volusia County, Florida. *The Florida Anthropologist* 47:404-417.

2002 The Paleoethnobotany of the Archaic Mortuary Pond. In *Windover: Multidisciplinary Investigations of an Early Archaic Florida Cemetery*, edited by G. H. Doran, pp. 191-210. University Press of Florida, Gainesville.

Piatek, Bruce J.

1994 The Tomoka Mound Complex in Northeast Florida. *Southeastern Archaeology* 13:109-118.

Purdy, Barbara A.
1975 The Senator Edwards Chipped Stone Workshop (Mr-122), Marion County, Florida: A Preliminary Report of Investigations. *The Florida Anthropologist* 28:178-189.

1987 Investigations at Hontoon Island (8-Vo-202), an Archaeological Wetsite in Volusia County, Florida: An Overview and Chronology. *Florida Anthropologist* 40:4-11.

1991 *The Art and Archaeology of Florida's Wetlands*. CRC Press, Inc., Boca Raton.

Quitmyer, Irvy R.
2001 *Zooarchaeological Analyses*. Phase III Mitigative Excavations at Lake Monroe Outlet Midden (8VO53), Volusia County, Florida. Report Submitted to U.S. Department of Transportation Federal Highway Administration and Florida Department of Transportation District Five by Archaeological Consultants, Inc. and Janus Research.

Randazzo, Anthony F. and Douglas S. Jones (editors)
1997 *The Geology of Florida*. University Press of Florida, Gainesville.

Rice, Prudence M.
1987 *Pottery Analysis*. The University of Chicago Press, Chicago.

Russo, Michael
1990a *The Archaic Period*. Florida Historical Contexts.

1990b *East and Central Florida, 3200 B.P.-A.D. 1565*. Florida Historical Contexts.

1996a Southeastern Archaic Mounds. In Archaeology of the Mid-Holocene Southeast, edited by K. E. Sassaman and D. G. Anderson, pp. 259-287. University Press of Florida, Gainesville.

1996b Southeastern Mid-Holocene Coastal Settlements. In *The Archaeology of the Mid-Holocene Southeast*, edited by K. E. Sassaman and D. G. Anderson, pp. 177-199. University Press of Florida, Gainesville.

2004 Measuring Shell Rings for Social Inequality. In *Signs of Power: The Rise of Cultural Complexity in the Southeast*, edited by J. L. Gibson and P. J. Carr, pp. 26-70. The University of Alabama Press, Tuscaloosa.

Russo, Michael, Ann S. Cordell and Donna Ruhl
1993 *The Timucuan Ecological and Historic Preserve, Phase III Final Report*. SEAC.

Russo, Michael and Gregory Heide
2001 Shell Rings of the Southeast Us. *Antiquity* 75:491-492.

2002 The Joseph Reed Shell Ring. *The Florida Anthropologist* 55:67-87.

Russo, Michael, Gregory Heide and Vicki Rolland
2002 *The Guana Shell Ring*. Report Submitted to the Florida Department of State Division of Historical Resources.

Russo, Michael, Barbara Purdy, Lee A. Newsom and Ray M. McGee
1992 A Reinterpretation of Late Archaic Adaptations in Central-East Florida: Grove's Orange Midden (8VO2601). *Southeastern Archaeology* 11:95-108.

Rye, Owen S.
1981 *Pottery Technology: Principles and Reconstruction*. Manuals on Archeology 4. Taraxacum, Washington, D.C.

Sassaman, Kenneth E.
2003a *St. Johns Archaeological Field School 2000-2001: Blue Spring and Hontoon Island State Parks*. Technical Report 4. Laboratory of Southeastern Archaeology, Department of Anthropology, University of Florida, Gainesville.

2003b Interim Report on Archaeological Investigations of the St. Johns Archaeological Field School 2003: Human Skeletal Remains at Hontoon Island Midden (8VO202), Volusia County, Florida. Letter Report Submitted to BAR, Tallahassee.

2003c *Crescent Lake Archaeological Survey 2002: Putnam and Flagler Counties, Florida*. Technical Report 5, Laboratory of Southeastern Archaeology, Department of Anthropology, the University of Florida, Gainesville.

2003d New AMS Dates on Orange Fiber-Tempered Pottery from the Middle St. Johns Valley and Their Implications for Culture History in Northeast Florida. *The Florida Anthropologist* 56(1):5-14.

2004 Common Origins and Divergent Histories in the Early Pottery Traditions of the American Southeast. In *Early Pottery: Technology, Function, Style and Interaction in the Lower Southeast*, edited by R. Saunders and C. T. Hays, pp. 23-39. The University of Alabama Press, Tuscaloosa.

Sassaman, Kenneth E., J. Christian Russell and John Endonino
2000 *St. Johns Archaeological Project Phase I: A GIS Approach to Regional Preservation Planning in Northeast Florida*. Technical Report 3, Laboratory of Southeastern Archaeology, Department of Anthropology, University of Florida.

Saunders, Rebecca
2004 Spatial Variation in Orange Culture Pottery: Interaction and Function. In *Early Pottery: Technology, Function, Style and Interaction in the Lower Southeast*, edited by R. Saunders and C. T. Hays, pp. 40-62. The University of Alabama Press, Tuscaloosa.

Schmidt, Walter
1997 Geomorphology and Physiography of Florida. In *The Geology of Florida*, edited by A. F. Randazzo and D. S. Jones, pp. 1-12. University of Florida Press, Gainesville.

Schulderein, Joseph
1996 Geoarchaeology and the Mid-Holocene Landscape History of the Greater Southeast. In *Archaeology of the Mid-Holocene Southeast*, edited by K. E. Sassaman and D. G. Anderson, pp. 3-27. University of Florida Press, Gainesville.

Scudder, Sylvia
2001 *Archaeopedological Analyses*. Phase III Mitigative Excavations at Lake Monroe Outlet Midden (8VO53), Volusia County, Florida. Report Submitted to U.S. Department of Transportation Federal Highway Administration and Florida Department of Transportation District Five by Archaeological Consultants, Inc. and Janus Research.

Sears, William H.
1960 The Bluffton Burial Mound. *Florida Anthropologist* 13:55-60.

Sigler-Eisenberg, Brenda, Ann S. Cordell, Richard Estabrook, Elizabeth Horvath, Lee A. Newsom and Michael Russo
1985 *Archaeological Site Types, Distribution, and Preservation within the Upper St. Johns River Basin, Florida*. Florida State Museum Miscellaneous Project and Report Series, Number 27. Department of Anthropology, Florida State Museum, University of Florida, Gainesville, Florida.

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

Ste. Claire, Dana
1987 The Development of Thermal Alteration Technologies in Florida: Implications for the Study of Prehistoric Adaptations. *The Florida Anthropologist* 40:203-208.

1990 The Archaic in East Florida: Archaeological Evidence from Early Coastal Adaptations. *The Florida Anthropologist* 43:189-197.

United States Department of Agriculture
1980 *Soil Survey of Volusia County, Florida*. Dept. of Agriculture Soil Conservation Service, Washington.

Watts, William A., Eric C. Grimm and T. C. Hussey
1996 Mid-Holocene Forest History of Florida and the Coastal Plain of Georgia and South Carolina. In *Archaeology of the Mid-Holocene Southeast*, edited by K. E. Sassaman and D. G. Anderson, pp. 28-38. University of Florida Press, Gainesville.

Wheeler, Ryan J. and Ray M. McGee
1994 Report of Preliminary Zooarchaeological Analysis: Groves' Orange Midden. *The Florida Anthropologist* 47:393-403.

Wheeler, Ryan J., Christine L. Newman and Ray M. McGee
2000 A New Look at the Mount Taylor and Bluffton Sites, Volusia County, with an Outline of the Mount Taylor Culture. *The Florida Anthropologist* 53:133-157.

White, William Arthur
1970 *The Geomorphology of the Florida Peninsula*. Bureau of Geology Division of Interior Resources Florida, no. 51, Tallahassee.

Wing, Elizabeth S. and L. McKean
1987 Preliminary Study of the Animal Remains Excavated from the Hontoon Island Site. *The Florida Anthropologist* 40:40-46.

Wyman, Jeffries
1875 Fresh-Water Shell Mounds of the St. John's River, Florida. *Peabody Academy of Science Memoir* 4. Salem, Mass.

APPENDIX A
RADIOCARBON DATA

Prov.	Material	Beta Lab Number	Measured 14C Age BP	13C/12C Ratio	Conventional 14C Age BP	2-sigma Cal BC	2-sigma Cal BP
8VO214							
Auger-1	hickory nutshell	202281	6070 ± 70	-26.4	6040 ± 70	5200-5180 5080-4760	7150-6710 7020-6710