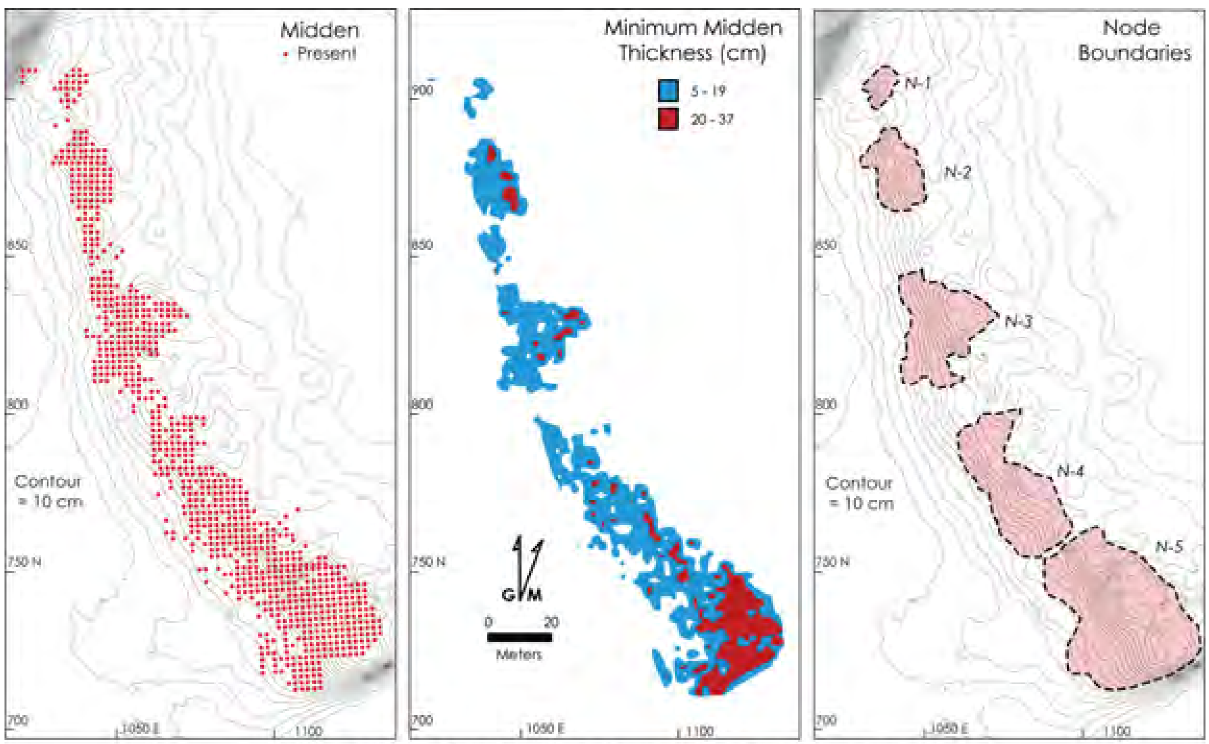
ST. JOHNS ARCHAEOLOGICAL FIELD SCHOOL 2005: HONTOON ISLAND STATE PARK



Discriminated Shell Midden Nodes at the Hontoon Dead Creek Village site (8VO215)

Asa R. Randall

with contributions by Kenneth E. Sassaman and Neill J. Wallis

Technical Report 7
Laboratory of Southeastern Archaeology
Department of Anthropology
University of Florida

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December 2007

MANAGEMENT SUMMARY

The St. Johns Archaeological Field School of the Department of Anthropology, University of Florida, conducted a fifth season of archaeological investigations at Hontoon Island State Park in the summer of 2005. This research was conducted under a 1A-32 Permit, 0405.72. Two projects were undertaken: (1) mapping, coring, and stratigraphic excavation of the Hontoon Dead Creek Village (8VO215); and (2) reconnaissance survey of the perimeter of Hontoon Island to complete subsurface characterization of sites previously recorded, and to locate and characterize any additional sites.

Intensive investigations of the Hontoon Dead Creek Village (8VO215) involved topographic mapping of discrete shell deposits and surrounding terrain, bucket augering and close-interval soil coring to delimit the extent and characterize the composition of subsurface shell deposits across the site, and stratigraphic excavation of nine test units (16 m^2) within shell midden. This research demonstrates that the Hontoon Dead Creek Village is characterized by five discrete shell deposits registering nearly 7000 years of repeated inhabitation spanning the Mount Taylor, Orange, and St. Johns periods. Internal divisions within shell deposits are indicative of differentiated activity areas. Coupled with the similarity in the structure of discrete activity areas, equal spacing between shell deposits may reflect coeval domestic compounds during the Mount Taylor period. Time-transgressive trends are also evident. Habitation occurred as early as 6200 radiocarbon years ago, coeval with Mount Taylor basal strata at the adjacent Hontoon Dead Creek Mound, apparently along a now in-filled channel or lagoon. Later Orange and St. Johns period inhabitation is situated away from the mound, a pattern that reflects the cessation of activities at the monument and localized hydrologic change.

The field school targeted the northern periphery of Hontoon Island for shovel test reconnaissance, continuing the methodology established during the 2003-2004 field schools. The boundaries of known sites 8VO7493 and 8VO8312 were established for all terrestrial components. Additionally, the circumferential survey of Hontoon Island, initiated in 2003, was completed. Isolated archaeological deposits were encountered in five loci on the northwestern margin of the island, although no new sites were recorded. A total of ten archaeological sites have been documented on Hontoon Island. The perimeter of the island contains an almost unbroken chain of archaeological deposits characterized by shell and non-shell middens. These sites are largely restricted to elevations between 1.5 and 2.5 m amsl (5 to 10 ft amsl).

Recommendations for continued investigations at Hontoon Island State Park and associated State-owned properties include remote sensing and limited testing of non-mound sites on Hontoon Island; reconnaissance survey and limited testing of small sites on the east terrace of the St. Johns; topographic mapping and limited testing of Blue Spring Oxbow Mound (8VO44); block excavations at Hontoon Island North (8VO202); and coring and testing of the swamp margins fronting the St. Johns River.

ACKNOWLEDGMENTS

The unequivocal success of the 2005 season of St. Johns Archaeological Field School was made possible by the collaborative efforts of many individuals and the generosity and support of multiple agencies. The continued achievements of the field school as a research and educational project were directly enabled and enhanced by our relationships with Florida State Parks. Many thanks go to Steve Martin and Norman Edwards for facilitating our cause within State Parks, and to Danny Paul, Robert Rundle, and Richard Harris for their support at the local level. Marty Miller and the staff of Hontoon Island (Dick, Keith, J.R., and John) deftly managed fifteen college students and three staff members for five weeks. Special thanks to the many CSO volunteers who happily transported us to and from the island.

This work would not have been possible without the guidance and energies of project director Ken Sassaman. In particular I thank him for allowing me to use the field school as a source of dissertation related data. Teaching assistant Neill Wallis did a fantastic job directing reconnaissance survey and supervising test unit excavations. This research benefited greatly from his efforts and after-hours discussions. The brunt of the season's fieldwork was conducted by undergraduate students, without whom none of this work could have been accomplished. Although we always seem to say it, this year's crew was without a doubt the hardest working and most professional of all. The student field crew included Julian Andrews, Chris Borlas, David Carlson, Meghan Chisholm, Christina D'Elia, Jennifer Dark, Ashley Davis, Rachel Kirby, Morgan Kopani, Matt Overton, Jake Shidner, Jack Stoetzel, Chris Sypniewski, Johanna Talcott, and Kimberly Wescott. Several of these students, in addition to numerous others, spent countless hours back at the lab cataloging, sorting, and analyzing the excavated materials.

The Department of Anthropology at the University of Florida provided crucial institutional support under the guidance of Ken Sassaman. The many administrative details were handled by Karen Jones, who cheerfully makes the process of running a field school seem effortless. Funds for the radiocarbon dates were provided by a John W. Griffin award through the Florida Archaeological Council. Special thanks to Greg Smith who provided expert guidance in the application process.

Our thanks go to Division of Historical Resources Supervisor Frederick Gaske for administering our permit applications, and to the many Division staff members who aided in times of need. We also thank State Archaeologist and Bureau Chief Ryan Wheeler for his support of this work.

Asa Randall
Gainesville, Florida
December 1, 2007

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CHAPTER 1
INTRODUCTION AND RESEARCH ORIENTATION

Asa R. Randall and Kenneth E. Sassaman

The St. Johns Archaeological Field School of the Department of Anthropology, University of Florida, conducted one five-week season of field work during the summer of 2005 on Hontoon Island State Park in Volusia County, Florida. Hontoon Island is home to a wide array of significant archaeological resources, including massive shell mounds and subtle shell middens (Figure 1-1), collectively revealed by over a century of research. Results of the 2005 field season build upon prior work at Hontoon Island by Jeffries Wyman (1875), Barbara Purdy and colleagues (1991; 1987), and recent campaigns of the St. Johns Archaeological Field School (Randall and Sassaman 2005; Sassaman 2003a). Two interrelated projects were executed during the field season: (1) mapping, coring, and stratigraphic testing of the Hontoon Dead Creek Village site (8VO215); and (2) continued reconnaissance survey of the perimeter of Hontoon Island. As a complement to the research-driven efforts, field school students were trained in a wide variety of archaeological techniques, including topographic mapping with a total station, reconnaissance survey, subsurface sampling with bucket augers and soil tubes, stratigraphic test unit excavation, plan and profile drawing, subsistence column recovery, matrix flotation, and sample sorting and cataloging.

This technical report presents the product of a final season of work on Hontoon Island State Park by the field school. Previous work is available in technical reports issued by the University of Florida's Laboratory of Southeastern Archaeology. The 2000-2001 field campaigns were conducted on Hontoon Island and Blue Spring State Parks, and the results are reported by Sassaman (2003a). Work during the 2003 and 2004 field seasons focused almost exclusively on Hontoon Island and is detailed by Randall and Sassaman (2005).

In this chapter we provide an overview of the 2005 field season's research design and a brief summary of the results to date. As of this report's writing only primary information has been collected from the excavated assemblages. The subsistence columns are still being analyzed, and most collected flotation samples await basic processing and analysis. This report details the structure and sequence of tested archaeological deposits and provides summary information on materials recovered from test units and shovel test pits. Grant funds will be sought to complete the final analyses of the faunal and botanical assemblages from the 2003-2005 campaigns. Current plans for this research include ongoing University of Florida graduate student dissertation research and a final synthetic monograph that will include appendices of recovered materials. Finally, updated site files have been submitted to the Florida Master Site Files for seven previously recorded sites (8VO44, 8VO202, 8VO214, 8VO215, 8VO216, 8VO7493, 8VO7494) and new files have been submitted for sites identified through reconnaissance survey (8VO8312, 8VO8313, 8VO8314, 8VO815).

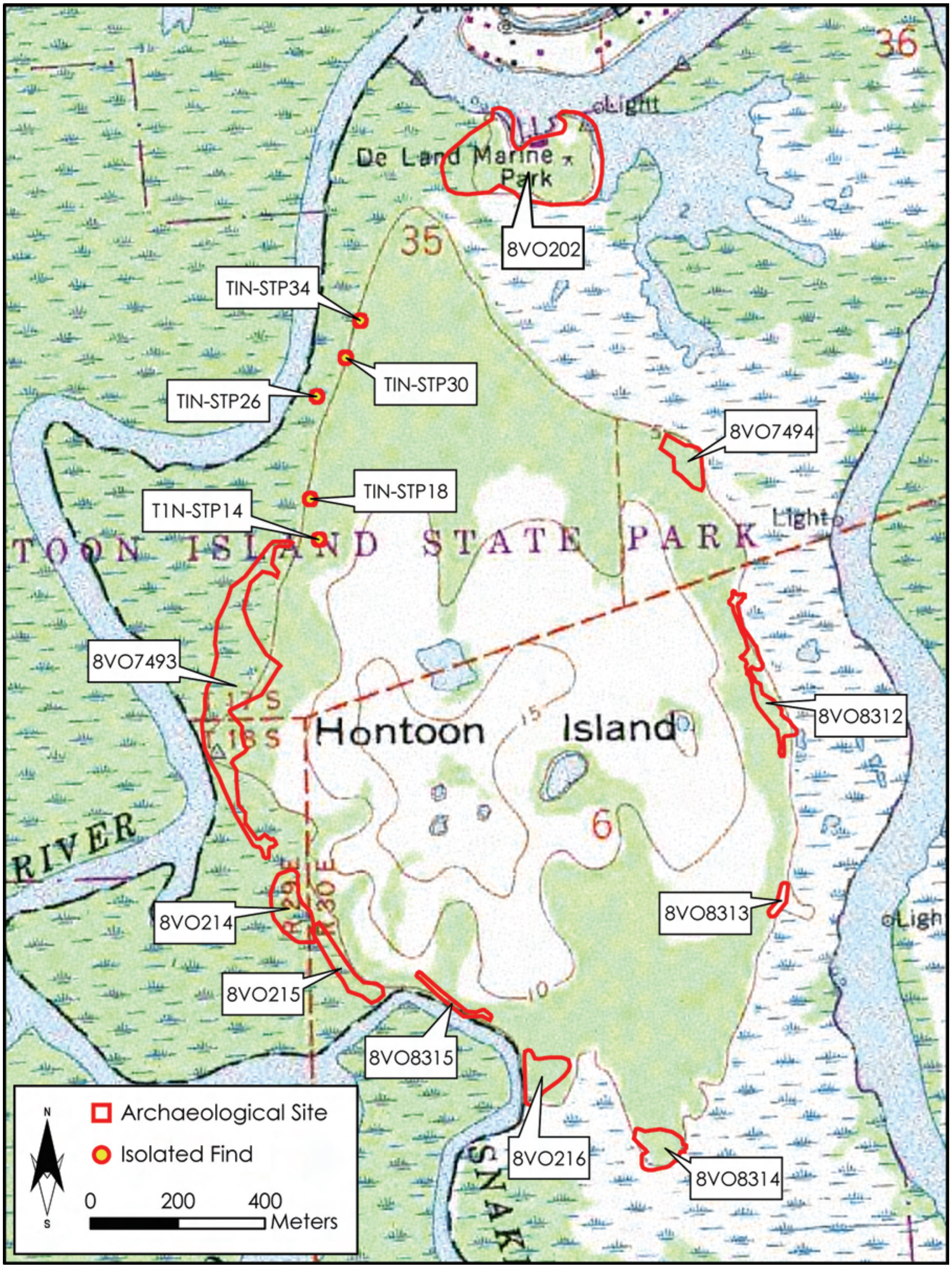

Figure 1-1. Subsection of USGS Orange City topographic quadrangle showing the location of archaeological sites identified on Hontoon Island State Park, Volusia County, Florida.

RESEARCH ORIENTATION

The middle St. Johns River valley is a premier locality for examining ongoing social and environmental interactions amongst hunting and gathering societies as both short- and long-term processes. First occupied some 12,000 years ago, the region has been repeatedly inhabited up to the present day seemingly without significant hiatus. Although the earliest Late Pleistocene and Early Holocene occupation is sparse, beginning some 6200 years ago[1] the region witnessed increasingly intensive and sustained inhabitation at the onset of the preceramic Archaic Mount Taylor period (ca. 6200 to 4100 BP). Regional occupation continued through the later ceramic Archaic Orange period (4100 to 3500 BP) and successive traditions of the St. Johns period (3500 to 500 BP). These actions are evident today as the many shell mounds and seemingly ubiquitous middens that dominate the wetlands and terraces of the valley.

The fieldwork conducted during 2005 is part of the authors' long term research detailing the initial contexts and long-term histories of hunter-gatherer lifeways along the St. Johns during the Middle to Late Archaic periods. Globally, this time period (ca. 7000-3000 BP) witnesses a decreased rate of sea level rise resulting in the establishment of near-modern hydrological regimes and stabilized wetlands (Fleming et al. 1998; Knox 1983). Concomitant to these broad scale environmental developments is the appearance of so-called "complex" hunter-gatherer societies typified by economies predicated on intensive exploitation of abundant aquatic resources (Price and Brown 1985). Whether this emergence reflects historical patterns or is simply an issue of increased archaeological visibility of coastal and interior settlement is a matter of debate (Bailey and Milner 2002). Regardless, attending such transformations typically are technological innovations, wide-ranging exchange networks, emergent social inequality, and the establishment of sedentary village life and ceremonial and/or mortuary facilities.

Our research is oriented towards determining how the global patterns discussed above are manifest as distinct histories and transformations among societies inhabiting the St. Johns region. In particular, our research is organized around several interrelated issues: (1) under what conditions did inhabitants begin intensively exploiting shellfish and other aquatic resources? (2) how sustainable was intensive aquatic resource use? (3) how did short-term or long-term perturbations in the St. Johns hydrology affect resource availability and settlement location? (4) how permanent were settlements, and how were households or villages organized? (5) how did technological innovations such as pottery, or engagement in exchange networks affect domestic and political economies? (6) what is the significance of monument construction? Answers to any of these questions require long-term research projects involving multiple scales of analysis. Moreover, our current knowledge of Middle-Late Archaic social and environmental dynamics is hampered by poorly documented chronologies, in addition to sampling limitations due to historic destruction of many mounds. In the following paragraphs we note a few regional and historical trends evident from the available data, and pose more specific and timely research questions.

[1] All dates are corrected but uncalibrated radiocarbon years before present (rcybp) unless otherwise noted.

The broad trends in Middle Holocene environmental change concomitant with the emergence of intensive shellfish during the preceramic Archaic are relatively well understood. After a rapid rise in sea level and likely submergence of many low-lying zones, river levels appear to have been one to two meters below present day (Miller 1997). In contrast, our understanding of the social and ecological contexts surrounding the emergence of intensive shellfishing is impoverished. The earliest anthropogenic shell deposits are now restricted to inundated and now-saturated near-shore deposits, or alternatively are encased under meters of later deposition in large shell mounds. The limited data available suggest that subsistence patterns focused on aquatic resources established 6200 years ago continued relatively unchanged for millennia (Russo et al. 1992; Wheeler and McGee 1994). While some have suggested the exploitation of shellfish throughout the Southeast was largely a response to environmental change (e.g., Brown and Vierra 1983), others suggest a ritual origin for shellfish use (e.g., Claassen 1996). In this context a number of research question remain unanswered: how were shellfish used? What effect on social structure or labor organization did the addition of shellfish and other aquatic resources have, if any? Were settlement patterns transformed as large tracts of the basin were inundated? Were these earliest shell middens short-period encampments or long-term and structured villages? In what kinds of ecological or hydrological contexts were these earliest places established?

Our knowledge of emergent village life along the St. Johns improves as the river attained a near-modern regime by 5500 years ago, and sites become more archaeologically visible. Most research has focused exclusively on shell mounds or large shell middens. Moreover, many projects, including previous seasons of the St. Johns field school, have been largely salvage operations at sites already mined for shell or in the midst of destruction. From these studies several trends emerge. Mount Taylor societies appear to have created large settlements adjacent or superimposed upon preexisting shell middens. At Hontoon Island North (8VO202) the field school documented what appears to have been a highly structured settlement separated into primary house middens and secondary refuse deposits (Sassaman et al. 2005). Over a meter of complex and stacked shell deposits signal a routine sequence of inhabitation. A mortuary may have also been emplaced nearby as well. Similarly, a structured Mount Taylor settlement was documented at the Lake Monroe Outlet Midden (Archaeological Consultants, Inc. and Janus Research 2001). Other sites throughout the region likely contain similar sequences. Are these patterns indicative of multiseasonal or sedentary villages? Were these villages occupied at the same time, or moved as local ecological change necessitated? What were the economic or ceremonial links between households and communities throughout the region? Data on the environmental context, horizontal site structure, midden composition, and sequences of site use and abandonment are sorely needed to answer such questions.

Arguably, there is more data available on Mount Taylor ceremonial life than domestic life. Investigations at sites such as Harris Creek (Aten 1999), Thornhill Lake (Endonino 2003a; Moore 1999), and other mound complexes throughout the region (Piatek 1994) indicate that as early as 5300 years ago Mount Taylor societies constructed ceremonial mortuary mounds. Typically built incrementally as mounded and prepared sand surfaces upon preexisting settlements, such places were transformed into dedicated spaces for the dead and for objects of nonlocal origin. In addition, recent work on State property by the field school indicates that many shell mounds thought to be either late period constructions or domestic sites were actually the locus of Mount Taylor ritualized depositional activities involving the massive quantities of shellfish and little else. Notably sites such as Live Oak Mound (8VO41) and Hontoon Dead Creek Mound (8VO214) are composed of large-scale staged construction episodes and are almost devoid of domestic debris. The settlement at Hontoon Island North may have also been transformed into a ceremonial mound. A number of interesting questions emerge from these new data. What is the relationship between domestic and ritual space at mound sites? Why were ceremonial mounds constructed upon preexisting settlements? Did the extraction of large quantities of shellfish for construction events adversely (or positively) impact local ecological structures? How were local and regional communities involved in ceremonial activities? Are mortuary sand mounds and ceremonial shell mounds coeval phenomena? Are social differences, either in terms of economic status or ethnic origin, evident in burial treatment? Verification of patterns identified at these sites requires detailed histories of site construction coupled knowledge of the composition and structure of deposits.

Similar questions regarding settlement duration, resource exploitation, and domestic and ritual practice surround Orange period (ca. 4100 to 3500 BP) inhabitation of the region. The Orange period has traditionally been modeled as a continuation of previous Mount Taylor lifeways, largely unchanged except for the addition of fiber-tempered pottery, the earliest ceramic technology in the region (e.g., Milanich 1994:86). To what extent do Mount Taylor practices continue during the Orange period? Recent investigations at Blue Spring Midden B (8VO43) documented a continuous sequence of deposition spanning the late Mount Taylor and Orange period (Sassaman 2003a). The Orange component is characterized by a domestic compound organized in a semi-circular arc. Analysis of faunal remains failed identify change in domestic economies with the onset of pottery production. Because the arrangement of Mount Taylor compounds is not known, the historical significance of Orange villages is unclear. Despite apparent continuity, other data suggest that Orange period ritual activities were restricted to only a few preexisting Mount Taylor shell mounds as indicated by the restricted distribution of decorated Orange Incised vessels (Randall and Sassaman 2007a). In contrast, ceremonial mounds investigated by the field school (Live Oak and Hontoon Dead Creek) failed to find significant evidence for Orange period occupation. Is the apparent abandonment of previously constructed mounds due to a collapse in shellfish populations? Are sites with abundant Orange Incised vessels characterized by different faunal or floral assemblages? Is there evidence for ritual feasting at such sites? More extensive work at both non-mound and mound sites will be necessary to verify this apparent dichotomy in site use.

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 non-mound sites. It bears repeating then that most insights regarding Middle/Late Archaic lifeways are derived primarily from mounded localities. In an effort to counteract this bias, the 2005 field school focused exclusively on non-mounded localities. Methodologies have been employed to minimize our impact on the archaeological resources while adequately addressing research questions and generating data relevant to State Park's management and educational missions. Our investigation strategy employed a combination of methods: (1) reconnaissance survey to locate all sites on the island; (2) secondary testing to characterize the vertical and horizontal dimensions of sites; (3) bucket auger and soil coring to detail the composition and density of shell midden; (4) stratigraphic testing to establish the sequences of site occupation; (5) topographic mapping of all sites with secondary testing; and (5) collection of column samples from intact stratigraphic profiles for purposes of dietary and paleoenvironmental reconstruction, as well as radiometric dating.

SUMMARY OF RESULTS

Two interrelated projects were executed during the 2005 field season: (1) mapping, coring, and stratigraphic testing of the Hontoon Dead Creek Village site (8VO215); and (2) continued reconnaissance survey of the perimeter of Hontoon Island focused on bounding previously identified sites and locating undocumented archaeological resources.

Hontoon Dead Creek Village

The Hontoon Dead Creek Village site (8VO215) is a 220-m long low-lying shell midden situated immediately south of the Hontoon Dead Creek Mound (8VO214). First identified by Jeffries Wyman (1875), the site was relocated by earlier campaigns of St. Johns Archaeological Field School. Site 8VO215 was selected for excavation to examine possible domestic space associated with the ceremonial shell mound. Investigations in 2005 centered on delimiting the extent of shell midden and documenting the structure and culture-historical associations of these deposits. Detailed topographic mapping of the site revealed a series of five nearly equally spaced elevation anomalies (or nodes), 20 to 50 cm high, oriented in a linear array along the terrace edge. Close-interval coring determined that these nodes are composed of dense shell midden while the low-lying areas between are characterized by culturally-sterile terrace sand or low-density shell midden. Ten test units stratigraphically excavated across the site routinely encountered stacked sequences of shell midden, arguably the result of multiple occupation episodes. Non-shell midden was frequently identified west of the shell nodes.

Although no discrete evidence for architecture was identified, the organization of the deposits detailed through surface and subsurface survey suggest that shell node configurations reflect routinized uses of domestic space. Moreover, a time-transgressive trend spanning the Mount Taylor, Orange, and St. Johns I and II periods was identified on the basis of diagnostic artifacts and radiocarbon assays. Shell nodes become greater in size and younger in age from north to south (away from the Hontoon Dead Creek Mound). Mount Taylor period deposits are situated adjacent to the mound. Radiocarbon assays returned conventional age estimates of 6280 ± 40 BP (7270-7160 / 7110-7100 Cal BP) in the node most proximate to the mound, and 5570 ± 60 BP (6480-6260 Cal BP) in the next node to the south. Mount Taylor basal shell middens are also suspected in shell nodes farther away from the mound. In contrast, fiber-tempered sherds diagnostic of

Orange period occupation were restricted to the central and southern shell nodes. Later St. Johns I and II occupation was restricted to the southernmost aspect of the landform. Taken together, the spatial and historical patterning indicate that the Hontoon Dead Creek Village was the locus of multiple and possibly contemporaneous domestic spaces through time. In particular, circumstantial evidence indicates the site may have been occupied by as many as five distinct domestic units during the Mount Taylor period, prior to the inception of mound building there. Later occupations were oriented away from the mound, a pattern likely reflecting infilling of the adjacent lagoon and an abandonment of mound-top activities at the Hontoon Dead Creek Mound.

Shovel Test Reconnaissance

Continuing the methodology of previous seasons, the field school conducted a shovel test reconnaissance survey along the northern periphery of Hontoon Island. Site-discovery transects targeted high-probability areas adjacent wetlands. The boundaries of known sites 8VO7493 and 8VO8312 were fully established for all terrestrial components. Additionally, the circumferential survey of Hontoon Island, initiated in 2003, was completed. Although no new sites were discovered, isolated archaeological deposits were encountered in five loci on the northwestern margin of the island. The results of this survey confirmed and expanded upon previously documented patterns on Hontoon Island. The perimeter of the island contains an almost unbroken chain of archaeological deposits characterized by shell and non-shell middens. These sites are largely restricted to elevations between 1.5 and 2.5 m amsl (5 to 10 ft amsl). Analysis of the reconnaissance survey data also demonstrated that internal divisions within sites are present. In some cases components are separated in space, while at others multiple activities are spatially segregated.

ORGANIZATION OF THE REPORT

This technical report features the results of the 2005 field school campaign. Chapter 2 situates the current research within regional environmental and culture-historical contexts. Chapter 3 provides an account of intensive investigations of the Hontoon Dead Creek Village (8VO215). After reviewing the history of research at the site, the chapter synthesizes the methods and results of work conducted. Chapter 4 is focused on the outcome of the reconnaissance survey, and places the results of the 2005 season in the context of efforts over four previous years of site location and characterization. Chapter 5 draws together the results of the 2005 season, and provides recommendations for management and future research within the bounds of Hontoon Island and Blue Springs State Park, as well as associated State properties within the St. Johns valley. Finally, Appendix A presents the results of radiocarbon assays from two contexts at the Hontoon Dead Creek Village.

CHAPTER 2
ENVIRONMENTAL AND ARCHAEOLOGICAL CONTEXTS

Asa R. Randall

This chapter situates the 2005 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 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 portion of the river. Hontoon Island's physiography is typical of this middle 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 level 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). Those aspects relevant to the middle St. Johns River basin are discussed here.

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

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

Palmlico Terraces (0-8 m amsl) and Penholoway and Talbot Terraces (8-21 m amsl). 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 (1998:28) 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 responsive 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. The drainage 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 as early as 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 emergent vegetation 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 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 throughout the basin provide habitat for a diverse array of aquatic fauna. Aquatic vertebrates such as alligator, turtle, otter, and upwards of 40 species of fish of economic importance to humans are present. In addition, the wetlands are habitat for numerous 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 currently available. It is unknown in what frequencies these invertebrate species normally co-occur. Moreover, few data exist on whether there is predictable variation in their seasonal or spatial 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 marshes with emergent vegetation, typically with at least 50 cm of water (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 1990a) and for the state of Florida (Borremans 1990; Milanich 1994; Milanich and Fairbanks 1980; Russo 1990b). 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 1964), the "Aucilla adze," and a variety of bone and ivory tools (Dunbar and Webb 1996). 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 2003b). 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 2004; 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 2004), and Trilisa Pond (Neill 1964) indicate an increase in the diversity of unifacial technology.

This period also witnesses the establishment of a long-standing mortuary tradition involving the interment of individuals 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

2002b). These sites are typified by large numbers of individuals, and appear to have been repeatedly used over extended periods. For example, at least 168 individuals were interred at Windover Pond over the course 1300 years. Outside of the middle St. Johns pond burials continue into the Middle Archaic (Beriault et al. 1981; Doran 2002a).

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 demonstrated that there is great potential for recovering early assemblages in the region (Sassaman 2003b). 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. Similar surveys elsewhere will be necessary to determine the extent to which this is a regional pattern of early occupation.

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 5600 rcybp on the northeast coast of Florida (Russo 1996). 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, presumably 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 (Endonino 2007).

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 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 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 a multiseasonal occupation (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).

Sites with Mount Taylor components are present throughout the middle St. Johns basin (Sassaman et al. 2000). Although many sites are located adjacent to the main channel of the St. Johns, many others are situated 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.

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, Inc. and Janus Research 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). Similarly, at the Hontoon Island North site primary and secondary midden were separated in space suggesting the presence of discrete habitation and refuse areas (Sassaman et al. 2005). 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 shell midden, which can occur either as thick, extensive lenses or as localized conglomerates (Wheeler et al. 2000:145). 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 between 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 rcybp. 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 a widespread and prominent component of Mount Taylor period lifeways, as evidenced by the construction of ceremonial shell mounds. Although traditionally viewed as relatively late-period constructions or the result of mundane activities, Mount Taylor shell mounds were deliberately constructed as ritual and mortuary mounds as demonstrated by early observations by Jeffries Wyman (1875) and C.B. Moore (1999), and more recent excavations at Bluffton Burial Mound (8VO23) (Sears 1960), Mount Taylor (8VO19) mound (Wheeler et al. 2000), the Harris Creek site (8VO24) on Tick Island (Aten 1999), Live Oak Mound (8VO41) (Sassaman 2003a), Hontoon Dead Creek Mound (8VO214) (Sassaman 2005), and the Tomoka Mound complex (8VO81) (Piatek 1994) on the Tomoka River. Although Mount Taylor burials have only been recorded in a few cases, similarities in the form and internal structure of these mounds indicates that many if not all were mortuaries at one point in time (Endonino 2003a).

Although only seven mounds have been archaeologically tested in modern times (Bluffton, Mount Taylor, Harris Creek, Live Oak, Tomoka, Hontoon Island North and Hontoon Dead Creek Mound), 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; Randall and Sassaman 2005; 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 (8VO58/59) 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. At Bluffton this layer was intentionally burned (Sears 1960). 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. 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 Grove’s 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 lithic materials of nonlocal origin (Endonino 2007). 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 as performs 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, Inc. and Janus Research 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 and Coontie Island respectively) (Clausen 1964; Moore 1999). 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, 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 2003c). 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 2003c) 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 (Milanich 1994:86). Excluding the production of pottery, and new hafted biface types such as the Culbreath, Clay and Levy types, 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 Groves' Orange Midden (Russo et al. 1992), populations continued to exploit aquatic habitats, 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 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 and 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). 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 (2003c) 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 (2003c) 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 2003c). 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 indicates that this interval will likely be populated with components as more dates are acquired (Russo and Heide 2002).

St. Johns (ca. 2500-500 rcybp)

Although St. Johns pottery dates as early as 4000 rcybp, fully developed St. Johns lifeways begin 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 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, Mount 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 DEAD CREEK VILLAGE (8VO215)

Asa R. Randall

A shell midden with variable surface topography located on the southwestern aspect of Hontoon Island is recorded in the Florida Master Site File (FMSF) as site 8VO215. The site has traditionally been referred to as "Middle Midden" based on its location mid-way between two sites described by Jeffries Wyman. Site 8VO215 is in fact one of many shell-bearing middens situated on the southern terrace edge of Hontoon Island. It is herein renamed "Hontoon Dead Creek Village" to discriminate it from other sites on the island, and reference its relationship to the Hontoon Dead Creek Mound (8VO214).

During the 2005 field season of the St. Johns Archaeological Field School the Hontoon Dead Creek Village site was the locus of intensive investigations. The goal of this research was to detail the structure and culture-historical associations of deposits at the site. Efforts included (1) topographic mapping of shell deposits and surrounding terrain, (2) close-interval coring, and (3) stratigraphic testing of discrete shell deposits. This chapter first provides a review of the history of research at the site, followed by a discussion of the methods and results of the season's excavation.

The Hontoon Dead Creek Village site provides an unparalleled view into the long-term histories of domestic and ceremonial practices along the middle St. Johns river. In brief, research conducted during the 2005 season demonstrated that the Hontoon Dead Creek Village is characterized by discrete shell deposits registering nearly 7000 years of repeated inhabitation spanning the Mount Taylor, Orange, and St. Johns periods. Internal divisions within shell deposits are indicative of differentiated activity areas, and in some cases may reflect coeval and equally spaced domestic compounds. Time-transgressive trends are also evident. The earliest deposits are coeval with Mount Taylor basal strata at the adjacent Hontoon Dead Creek Mound, and predate mound building there. In some cases these may have been reused for ritual activities during mound construction. Later Orange and St. Johns period inhabitation is situated away from the mound, a pattern that reflects the cessation of activities at the monument and localized hydrologic change.

PREVIOUS INVESTIGATIONS

Prior knowledge of the Hontoon Dead Creek Village is derived from the late 19th century observations of Jeffries Wyman, and the more recent shovel testing and surface surveys conducted by successive campaigns of the University of Florida St. Johns Archaeological Field School. The field school also stratigraphically tested the adjacent Hontoon Dead Creek Mound.

Jeffries Wyman

Jeffries Wyman (1875:26-31) encountered two shell mounds and two "shell fields" on Hontoon Island during his survey of the St. Johns valley. The shell mounds include Hontoon Island North (8VO202) and the Hontoon Dead Creek Mound (8VO214), situated on the northern and southwestern aspects of the island respectively. Wyman made cursory excavations at both sites, and provided descriptions of their shape and structure. In Wyman's lexicon the term "shell field" was reserved for horizontally extensive and low-lying shell deposits, typically under a meter thick (Wyman 1875:11). Of the shell fields on Hontoon Island, he provides only the following observations (Wyman 1875:26):

> At the point where Huntoon Creek enters this lagoon is the remnant of a small shell field, and a second was found a quarter of a mile higher up. Both show signs of having been largely destroyed; from each, pottery, bones of animals, worked bones and shell tools were obtained, and from the heap last mentioned an arrowhead. Leaving the first mentioned shell field and following the edge of the swamp in a northwesterly direction for about a quarter of a mile, a large and conspicuous mound is reached.

While frustratingly short, this passage reveals several key aspects of site 8VO215's location and disposition. The lagoon Wyman mentions is today situated just south of the intersection of Hontoon Dead Creek and Snake Creek. Collectively these bodies of water form the western and southern boundaries of Hontoon Island. On the basis of this description, John Goggin entered the two shell fields into the FMSF as 8VO215, the "Middle Midden" situated on the lagoon, and 8VO216, the "Southern Midden" situated above or "upstream" on Snake Creek, to the south. Of the structure of site 8VO215, Wyman suggests that 8VO215 was largely destroyed. Although he does not offer any further detail, a consideration of his descriptions of other sites along the St. Johns indicates he frequently referred to sites as "destroyed" when there was evidence for river-bank erosion. Moreover, it is unclear if Wyman only surface collected artifacts or if he excavated at the site. Finally, it would appear from his description that he considered the site to not be horizontally extensive, and confined to the southern terrace edge approximately one quarter mile south of the Hontoon Dead Creek Mound.

Reconnaissance Survey

The extent and nature of subsurface deposits at site 8VO215 were initially characterized during successive shovel test reconnaissance survey campaigns by the St. Johns Archaeological Field School. Between 2000 and 2001, the site was relocated and provisionally bounded with 20 shovel test pits (STPs), ten of which encountered cultural materials in both shell and shell-free matrices (Endonino 2003b:102-103). These cultural deposits were confined to an area measuring 50 m east-west and 100 m north-south along Hontoon Island's southwest terrace edge, some 20 m to the north of Snake Creek. The deposits were mostly restricted to elevations below 2 m amsl, within a mixed hardwood hammock, bounded by low-lying cypress swamp to the west and pine flatwoods to the east. Shell midden was encountered across much of the bounded site area and consisted primarily of *Viviparus* shell, ranging from 30 to 50 cm in thickness. Survey crews frequently encountered concreted, culturally-sterile sands under the shell midden. Shell-free midden deposits were also encountered to the west and north of shell, typically at higher elevations. Moderate to abundant vertebrate faunal remains were distributed across the deposits. Temporally diagnostic cultural materials recovered included St. Johns, Orange, and sand-tempered plain pottery sherds. The field school also determined that shell is not present to the east of Hontoon Dead Creek Mound.

The site was revisited by the field school's reconnaissance survey during the 2004 season (Randall and Hallman 2005:172-174). The goal of reconnaissance survey was to establish the relationship between 8VO215 and the Hontoon Dead Creek Mound. Testing focused on the excavation of three STPs at 30-m intervals to the north of the previously established boundaries of 8VO215. All three STPs encountered midden deposits. The southernmost encountered a shell-matrix, while the northern two yielded non-shell matrices. These STPs were consistent with those documented during the previous survey, and yielded abundant vertebrate faunal remains. One STP also produced Orange fiber-tempered sherds. Shovel testing confirmed that subsurface shell midden was present within 50 m of the Hontoon Dead Creek Mound. The field crew also noted the presence of shell midden and concreted sands eroding from the southern edge of the terrace that fronts Snake Creek. It is presumed that it was this same cut-bank that suggested to Jeffries Wyman the site was mostly destroyed, and is the likely location from which he collected materials. On the basis of these results, the minimum site boundaries were extended to an area 180 m north-south and 50 m east-west.

We also performed a casual surface survey of the site after the active 2004 hurricane season. We failed to find any evidence for significant damage due to fallen and uprooted trees. Shell midden was noted on the surface, but did not appear to be a recent disturbance. However, we also observed at least three discrete and subtle topographic "anomalies" that were higher than the surrounding terrain and deviated from the general slope of the terrace. Because of dense ground cover, it was not possible to determine their orientation. They appeared to be arranged in a linear or curvilinear fashion along the terrace edge, spaced approximately 30 m apart. Their location was generally conformant with the distribution of shell midden identified through previous shovel testing.

Stratigraphic Testing of 8VO214

Additional field work relevant to the current project was conducted by the field school at the adjacent Hontoon Dead Creek Mound. Investigations of 8VO214 during the 2004 season included topographic mapping, bucket augering, and stratigraphic excavation of a 9-m long trench. A comprehensive review of this work is provided by Sassaman (2005), and it is not necessary to repeat many of those details here. However, three observations do warrant mention. First, topographic mapping revealed the above-ground structure of the mound to be a 5-m high, 100-m long ridge with an asymmetrical apex at its southern end. Secondly, stratigraphic excavations provided evidence that the mound was constructed intentionally as a ceremonial monument during the preceramic Archaic Mount Taylor period. Massive lenses of freshwater shellfish lacking abundant vertebrate faunal remains attest to moments of rapid, staged construction, and large quantities of bivalve shell were burned, crushed, and deposited on the platform surface. The presence of large allocthonous blocks of concreted shell midden also suggest that a preexisting shell midden was mined for construction fill. No evidence suggesting the site was used as a place of habitation, such as primary or secondary midden, was documented within the trench. Because excavations did not intercept the base of the mound, such deposits may be internally present at lower elevations. Regardless, the bulk of the mound appears to date to the Mount Taylor period. While sherds of the later St. Johns period were recovered in the trench, they were restricted to surface exposures and recent disturbances.

A final key detail was revealed through bucket augering. Today 8VO214 is located some 200 m from permanently standing water, and is thus a significant distance from prime shellfish habitat. However, bucket augering in the cypress swamp west of the mound demonstrated that 8VO214 was once situated immediately adjacent a stream channel or lagoon. Saturated shell midden deposits extending 30 m out from the base of the mound were identified under upwards of 1 m of muck. The distribution of shell midden was found to mirror that of the mound from north to south. Unlike mound strata, this shell midden was consistent with primary habitation refuse and contained abundant well-preserved faunal and botanical remains. These deposits became increasingly thinner away from the mound, and terminated abruptly in a 2-m thick sequence of shell-free muck 30 m east of the mound. This sequence likely reflects an in-filled relict channel of Hontoon Dead Creek. An AMS date on uncharred hickory from the saturated midden yielded a conventional age estimate of 6040 ± 70 BP (7150-6710 Cal BP). These data suggest that midden deposition at 8VO214 was initiated seven millennia ago, and subsequently inundated and filled in by muck deposits. Similar patterning was identified at Groves' Orange Midden on Lake Monroe (McGee and Wheeler 1994).

Summary and Prospects of Previous Observations

Collectively, prior observations of 8VO215 indicated that it was a multi-component site characterized by subtle but discrete variations in surface topography. In part such variation is similar to other elevated surface middens identified at habitation sites on Hontoon Island. Sites 8VO216 and 8VO8314 in particular are characterized by centralized middens. At 8VO215, however, it appeared they were distributed either in an arc or linear array along the terrace edge, suggesting the possibility the site was a multi-household compound. Long-term changes in the local ecology are also evident. Not only is the southern aspect of the site currently being eroded, but standing water was once present in what is a now a cypress swamp. Finally, the structure and history of use at Hontoon Dead Creek Village are made all the more significant in that the site is located adjacent the Hontoon Dead Creek Mound. To date, no habitation space associated with such a ceremonial mound has been sufficiently documented in the middle St. Johns river valley. This makes 8VO215 a potentially significant discovery in need of comprehensive investigation.

METHODS AND RESULTS OF MAPPING

A detailed topographic map of 8VO215 was generated as part of the field school's efforts during the summer of 2005. This map was created to reveal the overall structure and organization of surface features on the site, determine the spatial relationship between 8VO214 and 8VO215, assist in the placement of test units during excavation, and enable accurate post-excavation analysis and display of the field school's testing strategies.

The field school established a site-wide reference grid for 8VO214 during the 2004 season. The preexisting grid was extended to 8VO215 in order to facilitate mapping and enable direct comparison with the Hontoon Dead Creek Mound. The details of this grid are provided by Sassaman (2005:85):

> 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 N967.02 E1000.00 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.

These baseline data were used to sight temporary stations away from the mound. No new permanent data were established on either site. During recording, temporary stations were marked with nails and pin flags.

Acquisition of three-dimensional data was accomplished with a Nikon DTM-310 total station by crews consisting of three students. Crews first established temporary stations near the southern base of 8VO214. Taking advantage of this location, points were acquired on the southern toe of the mound insufficiently mapped during 2004. Over the course of five weeks, crews recorded a total of 1318 points on the terrace and surrounding upland and lowland terrain south of the mound. Mapping generally proceeded in a southerly direction by establishing temporary stations and recording points along ca. 30-m long transects radiating out from each station. Lines of sight were judiciously cut through palmetto vegetation, and occasionally ground clutter was cleared to reveal and record topographic anomalies. Mapping was generally restricted to elevations above datum between 8 m to the east and 6.2 m to the west.

The resultant topographic map including sites 8VO214 and 8VO215 is presented in Figure 3-1, projected with 25-cm contour intervals. Most obvious on this map is the 5-m high Hontoon Dead Creek Mound to the north. Excluding minor refinement of the southern aspect, the mound remains unchanged from the earlier published map. To the west of the mound is the cypress swamp, with the extent of submerged shell midden noted. To the east of the mound is a low-sloped region leading up to the pine/palmetto flatwoods above 8 m in elevation. South of the mound, the terrace edge travels some 220 m in a southeasterly direction until its abrupt intersection with Snake Creek. This zone

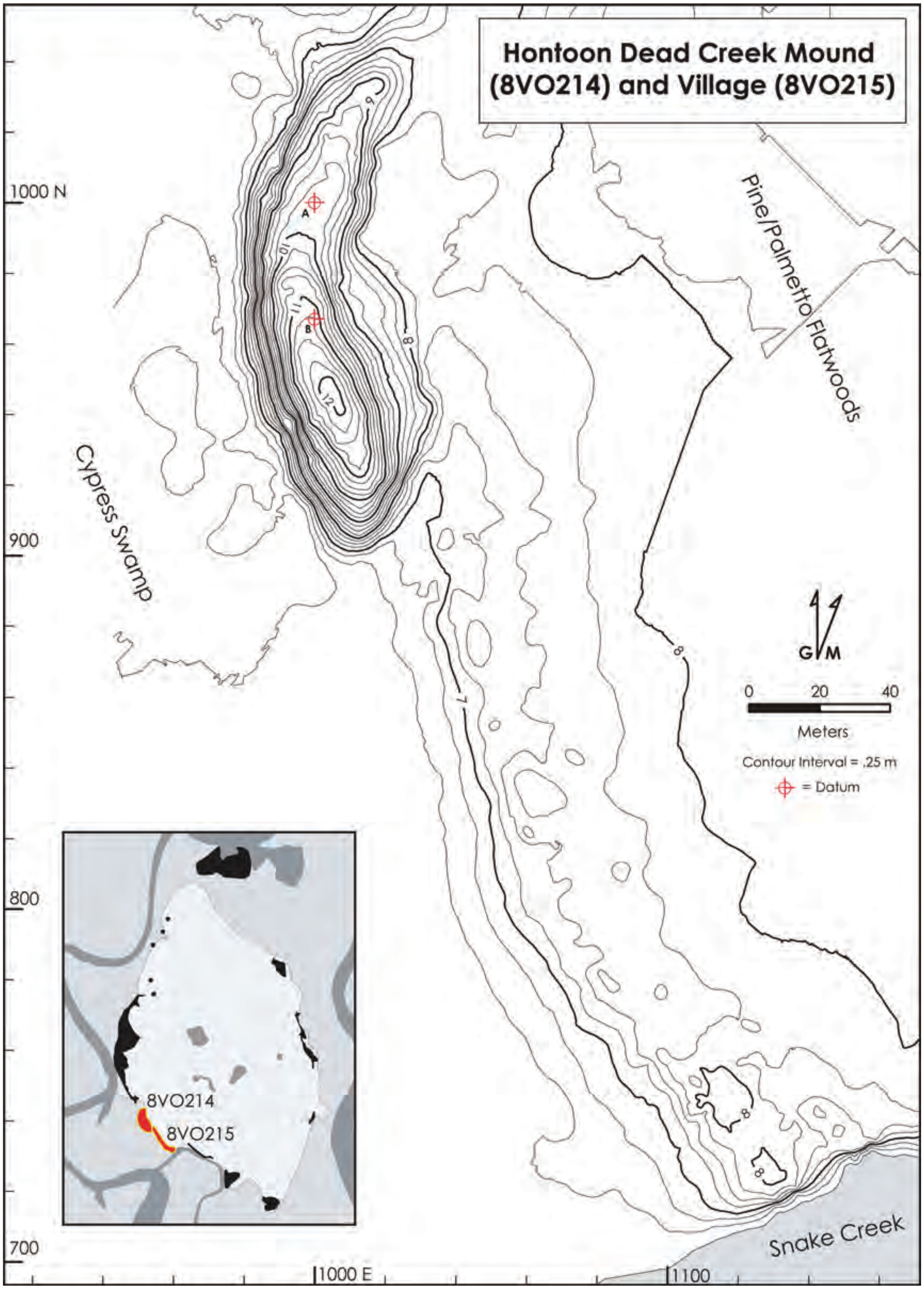

Figure 3-1. Topographic map of the Hontoon Dead Creek Mound (8VO214) and the Hontoon Dead Creek Village (8VO215).

encompasses the known boundaries of site 8VO215. The locality is generally characterized by a noticeable slope trending 0-5%, down from 8 m in the east to 6.5 m to the west. This slope is typical for Hontoon Island and similarly configured landforms along the St. Johns. However, between elevations of 7 and 7.75 m there are deviations from the general slope of the terrace edge. These are evident as high-points, typically 25-50 cm above the surrounding terrace.

A higher-resolution topographic map of only site 8VO215 is presented in Figure 3-2, projected with 10-cm contours. This resolution provides more detail on the structure of surface features. At the scale of the site, at least five easily discriminated zones of higher elevation are evident. Just to the south of the mound is a small dome, approximately 30-cm high and 10-m wide. Roughly 20 m to the south is a larger, ovoid area. It is characterized by a central elongated dome, approximately 40-cm high, with subtle extensions to the north and east. A more extensive circular area is evident 30-m to the south of this point, again about 40-cm higher than the surrounding terrain, and 20-m in maximum extent. Like the area just to the north, it has an attenuated slope to the west along the swamp margin, but extends further to the east. Some 40 m to the south of this area is a smaller and lower locale, 20-cm higher than the surrounding terrain. Moving south again another 30 m is an extensive area of higher topography. This locale is composed of at least two domes 1 m higher than the surrounding terrain, and is characterized by highly variable boundaries to the north and east. The southern edge is abrupt, ending in a near-vertical slope into Snake Creek.

Topographic mapping confirmed the presence of discrete micro-topographic anomalies at site 8VO215. Contrary to our earlier suspicions, these are not organized in an arc or semi-circle. Instead, they are aligned in a linear array along the terrace edge, spaced 30 to 60 m apart, and situated between elevations 7 m to 8 m above datum. Each area is characterized by a central elongated dome, although there is significant variation in the overall size, height, and structure of each.

METHODS AND RESULTS OF SUBSURFACE SURVEY

A subsurface survey was conducted in tandem with topographic mapping. Survey methods were implemented to quickly and accurately assess subsurface deposits while minimizing disturbance of the site. Two strategies were employed. Testing was conducted with a bucket auger to gather baseline data on shell and non-shell matrices. Subsequently a close-interval soil core survey was performed to test whether surface features co-varied with shell deposits, and to determine shell midden density and thickness when possible.

Bucket Augering

Limited testing was conducted with a 4-inch bucket auger. This auger has a 20-cm long sampling tube, and with extensions can penetrate depths up to 3 m. For each auger

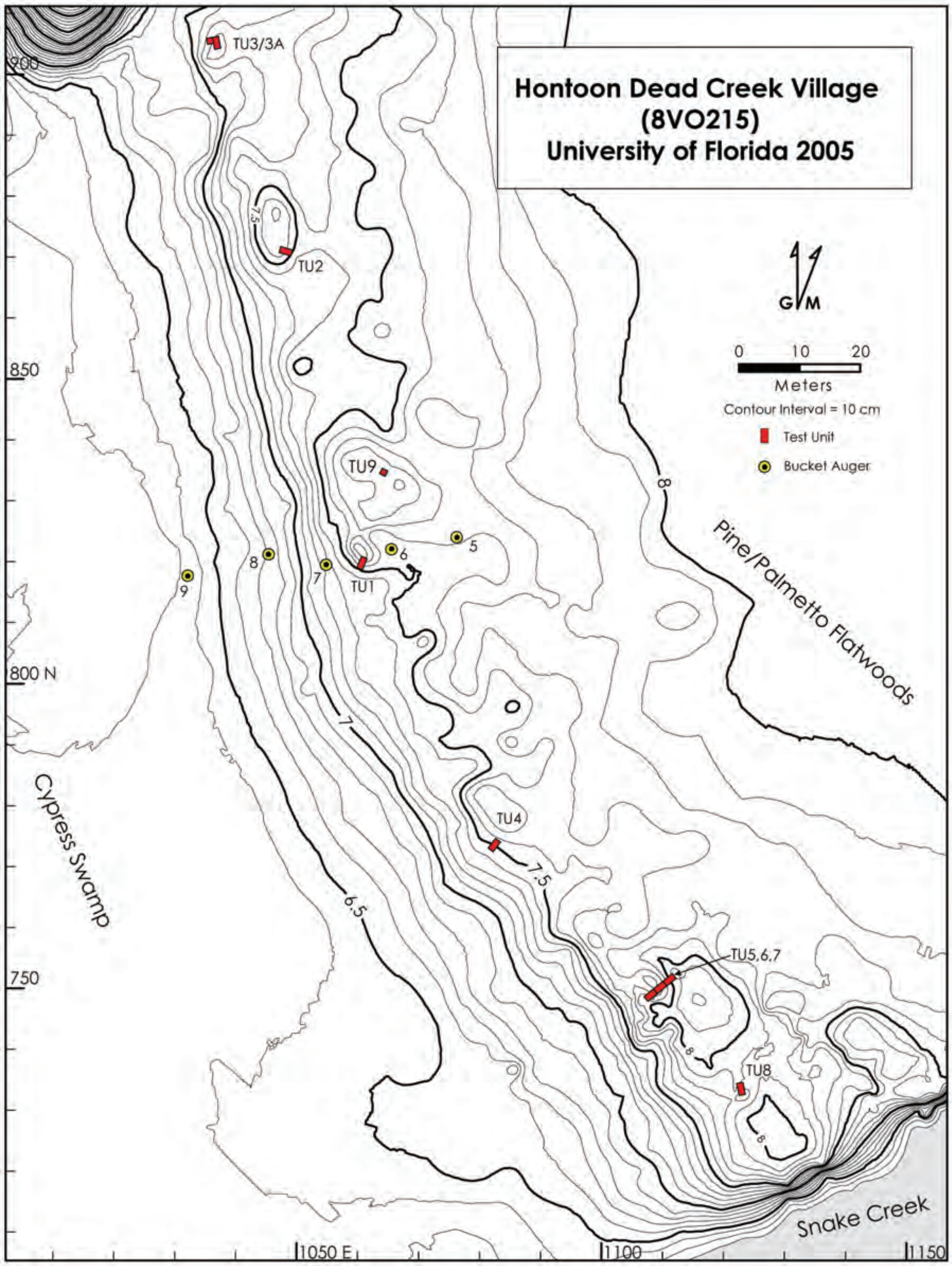

Figure 3-2. Topographic map of the Hontoon Dead Creek Village site (8VO215), showing the location of 2005 test units and bucket augers.

test, notes were recorded on the characteristics and maximum depth of matrices. A total of 17 auger tests were completed along four transects. These tests were extracted along east-west transects perpendicular to the terrace, and spaced at roughly 30-m intervals. Within transects, auger-tests were placed at roughly 10-m intervals. Grid coordinates and elevations above datum were recorded only for augers extracted along Transect-2 (Figure 3-2). However, this transect's profile can be generalized because other augers yielded approximate results.

Bucket augering along Transect-2 revealed the presence of five distinct matrices at different elevations (Figure 3-3). At higher elevations on the eastern terrace edge Augers 5 and 6 revealed a culturally sterile gray/brown fine sand which contained increasing amounts of mineral concretions with depth. This matrix was consistent with EauGallie fine sand, present along much of Hontoon Island's margins. Similarly, these augers also encountered a concreted hard pan approximately 50 cm below surface (BS), between 7.1 and 6.8 m. We could not penetrate this concreted zone with the auger. At lower elevations to the west, between 6.6 and 6.1 m, Augers 8 and 9 encountered a thin lens of organic muck overlaying shell or sand. This matrix is consistent with Terra Ceia muck. Shell midden of varying density was identified in Augers 6-8. A thin lens of sand and shell was first encountered in Auger 6. Shell midden in Auger-7 was initially dense, all but lacking sand within the matrix. This midden graded into a fine sand matrix with occasional shell decreasing in abundance with depth. A final 10-cm thick lens of shell midden, characterized by moderately abundant shell and other debris, was present below muck within Auger 8.

Because of the limited scope of the bucket auger survey, little can be said about the distribution of shell across the site. It does, however, provide a key insight into the broader geomorphic context of anthropogenic deposits. Higher elevations are characterized by sand with an underlying hardpan, typical of Florida soils subject to frequent water table fluctuations within flatwoods. A surprising result of this survey is that neither shell or muck was encountered in appreciable quantities to the west of 8VO215. At 8VO214, thick muck deposits underlain by dense midden deposits were encountered upwards of 30-m to the west of the mound. At 8VO215, however, lower elevations are characterized by a 20 to 25-cm thick deposit of muck with limited shell only encountered in Auger 8. This suggests that there is not an early, inundated midden to the west of 8VO215. By extension, the lagoon or channel that is implied by the stratigraphic sequence west of Hontoon Dead Creek Mound was not present to the west of 8VO215.

Close-interval Soil Core Survey

The results of topographic mapping and bucket augering guided a close-interval core survey of 8VO215. The survey was conducted with a 1-inch Oakfield soil core. This core has a 20-cm long open-faced sampling tube, and with an extension it can reach a maximum depth of 40 cm below surface. This coring technique has the advantage of allowing the rapid inspection of subsurface deposits by depth, yet because of its small

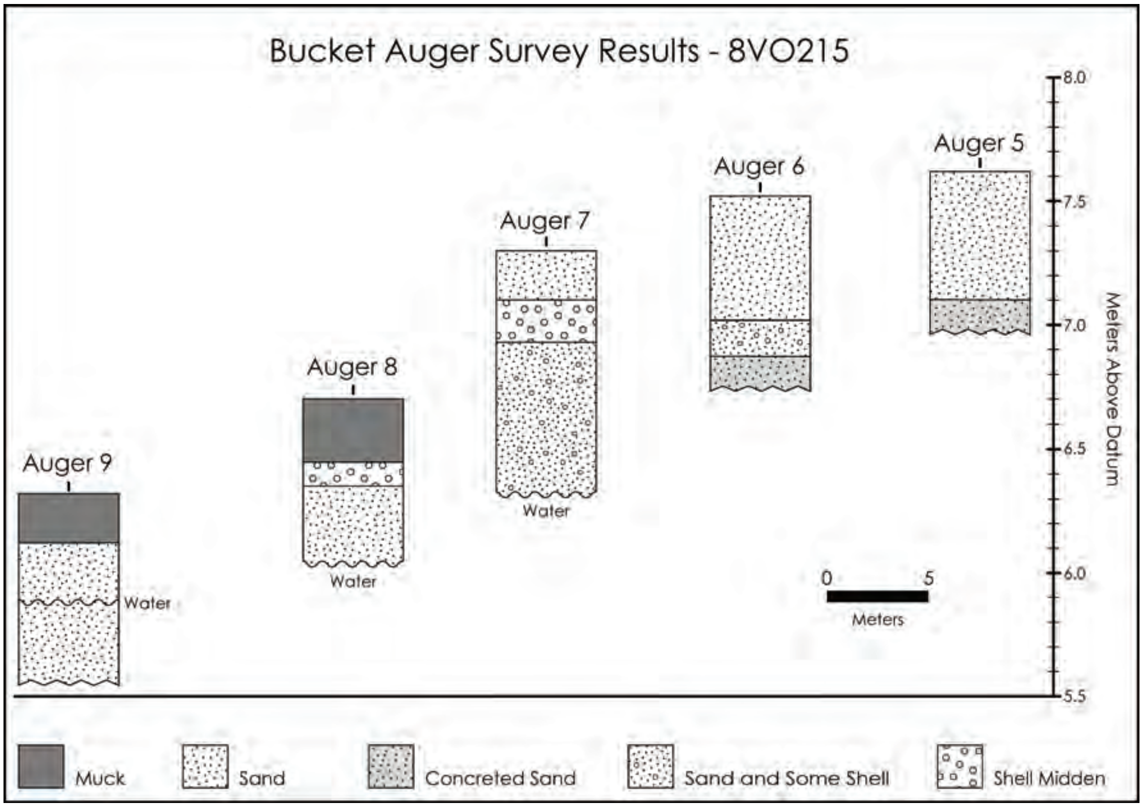

Figure 3-3. Bucket auger survey profile log of Transect 2 showing the distribution by elevation of shell midden, terrace sands, and organic muck at 8VO215.

diameter it is minimally invasive. One disadvantage is that the small tube is easily clogged by roots, shell, or concretions. It was frequently impossible to pass the core through dense shell deposits.

Cores were extracted at 2-m intervals across the site. A north-south baseline was first established down the center of the site using sighting compasses. From this baseline locations for cores were then laid out in square blocks 10 m on a side using 30-m tape measures. Pin flags marking the location of cores to be extracted were placed at 2-m intervals within each block, resulting in a total of 25 cores per block. Corner coordinates for most blocks were acquired with the total station. The grid coordinates of cores were then georeferenced from the block-corner coordinates. The survey was initiated at the southern edge of Hontoon Dead Creek Mound. In general, blocks were laid out and tested successively to the west or east. No further blocks were initiated when shell was no longer encountered along the margins. In a few cases only a portion of a block was tested, and in others no further block was established when shell was still being recorded. Due to a mapping error, the southern third of the core blocks have an estimated horizontal accuracy of ± 2 m.

Notes were recorded for each extracted core. Information recorded included a description of matrices and their depth below surface. Based on the results of the bucket auger survey, matrices were broadly classified by the presence or absence of shell midden. Non-shell matrices were typically categorized as terrace sand. Occasionally, non-shell anthropogenic midden was identified by the presence of bone or pottery fragments. Shell midden matrix was divided into two categories based on relative density. Matrices dominated by soil interspersed with shell were classified as "sparse shell midden." Matrices dominated by shell were characterized as "dense shell midden."

The distribution of midden deposits superimposed on the topography of the site is presented in Figure 3-4. A total of 1510 cores were extracted within 64 blocks across the site. Of these, 861 encountered shell midden, while only 12 yielded shell-free midden. Shell midden is tightly restricted to a swath expanding from 10-m wide in the north to 40-m wide in the south, and follows the curvature of the terrace edge. Shell-free midden was encountered in isolated cores throughout the site, although they tended to cluster on the lower western edge of the shell deposits. Midden identified within cores is restricted to elevations between 6.6 m and 8.2 m above datum.

In general, anthropogenic deposits closely overlap the surface features identified through topographic mapping. There is a distinct north-south trend of increasing surface elevations associated with shell midden. Adjacent to the mound, midden is found only at elevations 20-30 cm above the terrace surface. In contrast the highest elevations associated with shell midden are found in the southern aspect of the site, and rise upwards of 50 cm above the terrace. As noted through surface survey, shell was encountered up to the edge of Snake Creek, where it was visibly eroding out of the bank.

Variability in the density and presence of shell midden is also evident. The eastern edge of shell deposits is the most distinct, where the contact between shell and shell-free cores is closely associated with abrupt topographic breaks with few exceptions. Isolated shell deposits were rarely encountered along this margin. Cores were most frequently characterized by "dense" shell midden, further suggesting a difference between shell and non-shell deposits. This pattern contrasts starkly with the western edge, which generally conforms to the slope of the terrace. Diffuse and isolated shell and non-shell midden deposits are more frequent and widely distributed at lower elevations on this western trailing edge. Coring did not follow all western deposits to their maximum extent, and it is unknown how far to the west the trend of isolated deposits may continue. Judging by the distribution of such deposits at the south end of the site, it is unlikely that they continue below elevations of 6.5 m. The western edge is also dominated by "sparse" shell midden, characterized by a low abundance of shell in a sand or muck matrix. The underlying cause of the differential disposition of the eastern and western margins of shell is not directly evident from the core survey. This will be more fully discussed in the following section on the results of test unit excavation.

Midden-free zones are also present between shell midden clusters. These zones tend to correlate with small depressions or gullies. From north to south there is also a general trend for decreasing distinctiveness between shell and shell-free zones. At the northern edge of the site, there is a clearly defined midden-free zone separating the toe of

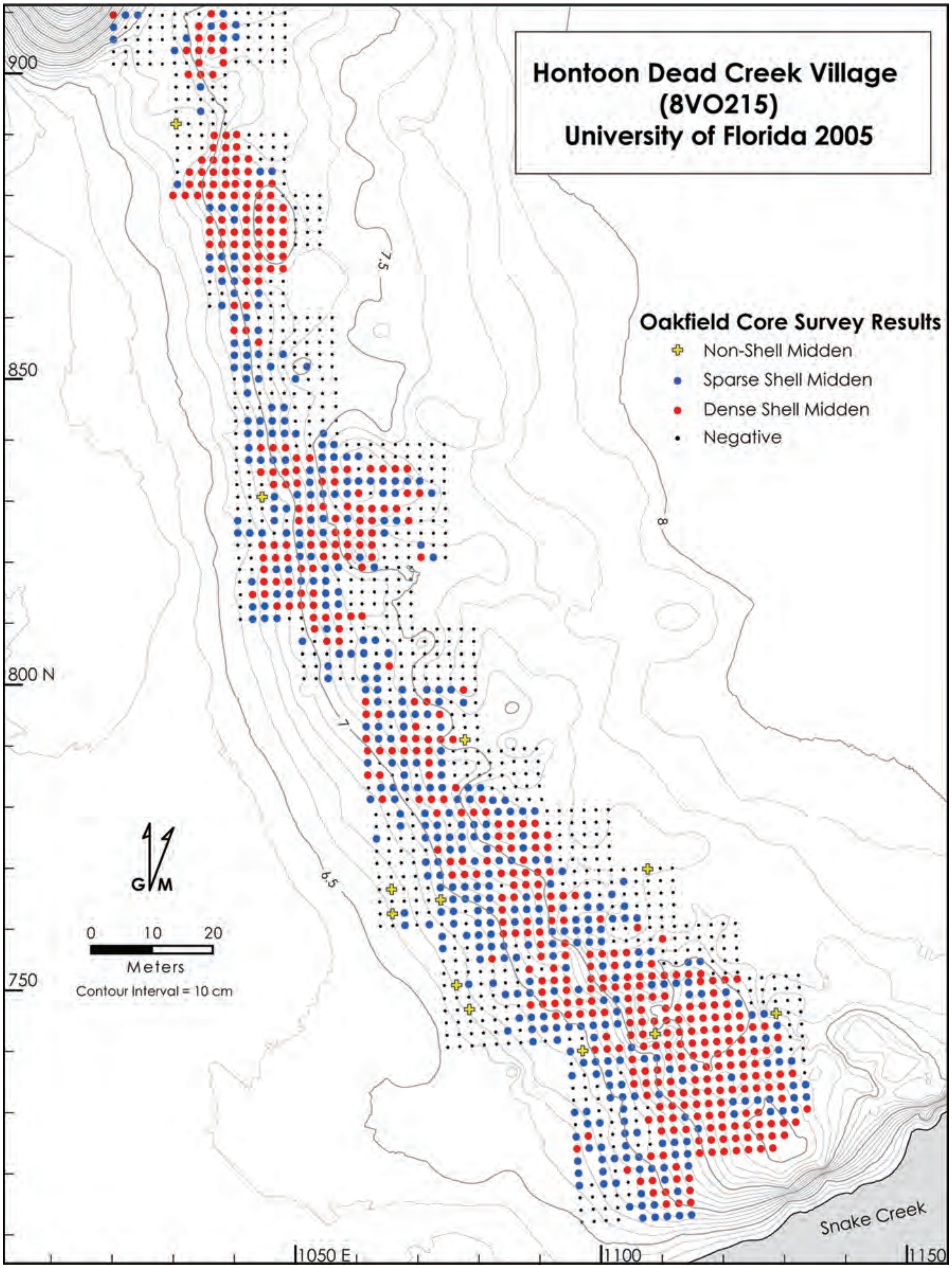

Figure 3-4. Results of close-interval core survey superimposed on topography, 8VO215.

the Hontoon Dead Creek Mound and 8VO215. In this low-lying zone, cores generally encountered organic muck. During the 2005 field season this low area was frequently saturated, and appears to serve as a drainage for water seeping from a valley between the eastern edge of the mound and the terrace. The northernmost shell midden cluster is also separated from midden 20-m to the south by another midden-free zone, characterized by a reappearance of dense shell midden beginning at grid latitude N875.00. The southern edge of this small shell ridge is more diffuse, with an 8-m wide strip of sparse shell connecting it with the next cluster, which in plan view is almost triangular in shape. South of N800.00 there is significant variability within the shell deposits. Despite the presence of at least two areas of elevated topography (centered on N780.00/E1080.00 and N750.00/E1120.00 respectively), no clear breaks between these areas are evident.

The use of descriptors such as “sparse” and “dense” shell midden is admittedly subjective. Another means of exploring the patterns identified in the presence and absence of shell is to consider the subsurface thickness of deposits. Midden thickness values were derived by subtracting the depth below surface at which shell midden was first identified by the maximum depth of midden. These data should be considered “minimum” thickness values because cores could only be extracted to a maximum depth of 40 cm BS. Moreover, cores frequently could not penetrate through dense shell deposits, resulting in only the top of the midden identified.

The resultant interpolated midden thicknesses greater than 5 cm are plotted in Figure 3-5(b). For comparative purposes the distribution of all identified midden deposits is presented adjacent in Figure 3-5(a). As suggested by topography and the distribution of shell, discrete shell deposits are evident within the site boundaries. The smallest and most discrete is the northernmost, just south of the mound. South of this cluster the next midden is composed of both thick midden to the east, and shallower midden on the downslope western edge. A small patch of midden is evident on the southern edge of this cluster, but is not evident on the surface of the site. Another discrete cluster centering at N825.00/E1060.00 is characterized by thick deposits to the east with less dense deposits to the west. As indicated by the distribution of shell, the southern half of the site contains generally diffuse (less than 15-cm thick) shell midden, terminating in a large elongated dome of thick midden.

In tandem with mapping, bucket augering and close-interval coring confirms that shell deposits within 8VO215 are principally associated with elevated surface topography. The density and distribution of shell within the site boundaries further indicates that midden is present in discrete clusters that are typically separated by low-density or midden-free zones. In some cases, internal divisions within these clusters may be present. The eastern margins of clusters tend to be characterized by abrupt changes in elevation associated with dense shell midden. Western edges are typified by diffuse and thin midden trailing into the wetlands. Based on these patterns, at least five shell “nodes” can be identified within the site, presented in Figure 3-5(c). The term node is used to refer to discrete clusters of elevated shell midden. Surface topography and shell midden presence, thickness, and density were considered when delimiting the boundaries of each

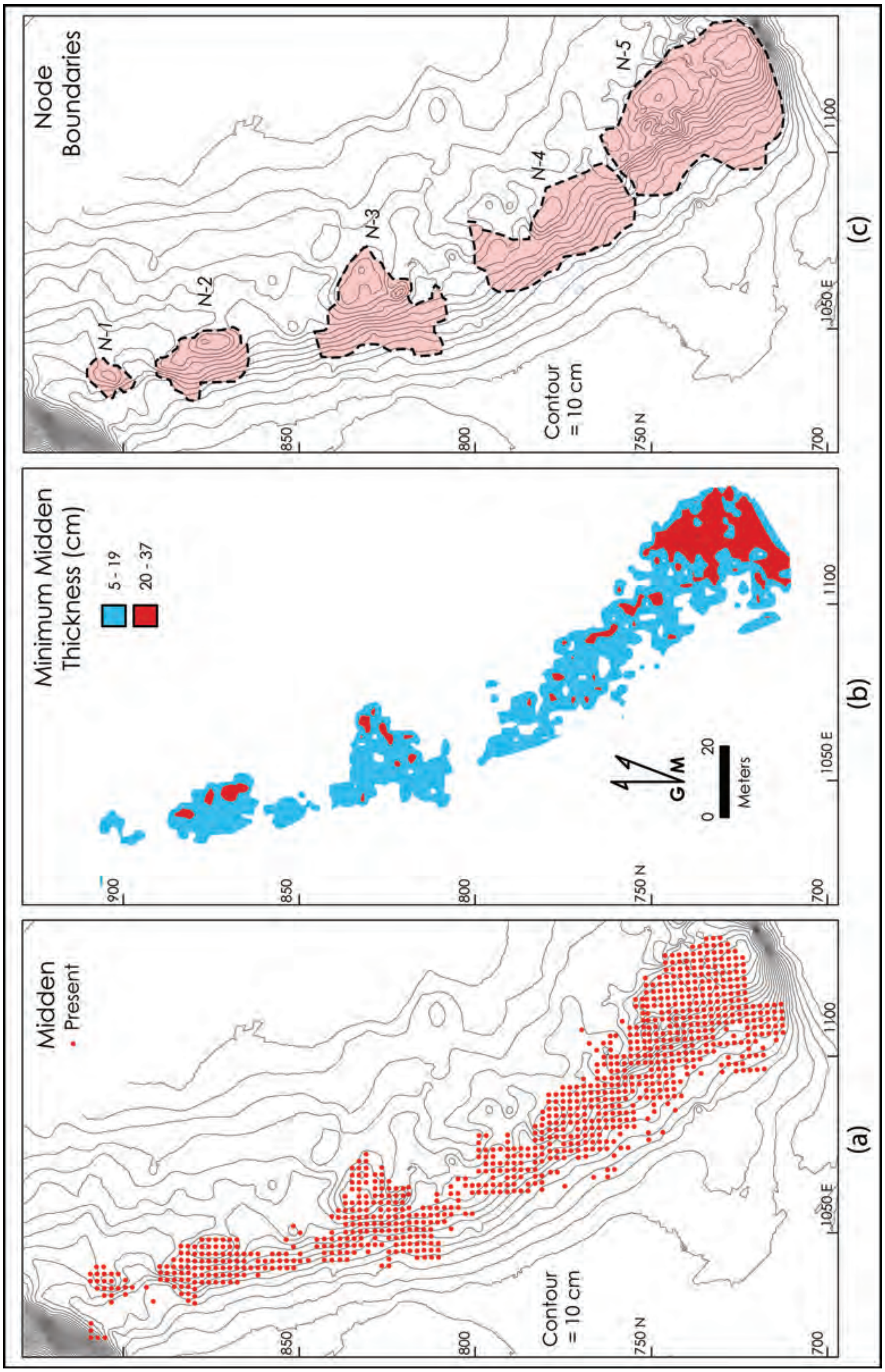

Figure 3-5. Shell node boundaries based on core results: (a) distribution of midden deposits, (b) minimum midden thickness, (c) shell node boundaries.

node. While the boundaries of Nodes 1-3 are distinct, the division of Nodes 4 and 5 are less clear. In this case, the distinctiveness of the surface topography was given more weight in making such a division. These node designations serve to organize the results of test unit excavations discussed in the following section.

METHODS OF TEST UNIT EXCAVATION

Ten stratigraphic test units were excavated during the 2005 field season (Figure 3-2). This total includes eight 1 x 2-m units and two 1 x 1-m units. Several strategies were used in the placement of units for testing purposes. At least one 1 x 2-m unit was placed in each of the identified shell nodes (TUs 1-7). These units were positioned to intersect the junction between the flat terrace edge and elevated shell deposits. An additional 1 x 2-m unit (TU8) was excavated in the center of Node-5. Finally, 1 x 1-m units were placed judgmentally within Node-1 (TU3A) and Node-3 (TU9).

The highest corner of each unit was chosen as the local datum for measurements below surface (BS). Diagonal baulks approximately 20-cm wide were left in the each corner of the unit. Excavation proceeded in 20-cm arbitrary levels with the use of trowels. Successive levels were designated with alphabetic notation. Notes were recorded and a plan map was drawn at the completion of each level. Because of the significant surface slope within many units, the first few levels were frequently wedge-shaped, and did not expose the entire unit. Natural stratigraphic breaks recognized within levels were excavated separately, and given sequential alphabetic “Zone” designations. When possible, test unit excavation was ceased after two culturally-sterile levels were removed. However, excavations in TUs 3/3A, 4, 5-7, and 9 encountered impenetrable concreted shell midden or basement sands. In most cases excavation was ceased at this point of contact.

All materials from general level excavation were passed through 1/4-inch hardware cloth. Excluding freshwater shellfish remains, all artifacts captured in the screen were retained for curation. On occasion artifacts were piece-plotted in three-dimensions and bagged separately. Features recognized in the field were given a sequential number. After a plan map was drawn, features were bisected and a profile was recorded. Subsequent to completion of excavation, the stratigraphic units of each test unit were delineated and described, and the unit walls were profiled and photographed. Seven test units (TUs 1-2, 3A, 4-5, 7-8) were then selected for subsistence column sampling. From each of the selected units, a 50 x 50-cm unit was position in one of the walls. The subsistence column was then excavated by stratigraphic units, divided into 10-cm levels. From each stratigraphic unit a 1-gallon sample of matrix was kept for water flotation. The rest of the matrix was passed through 1/8-inch hardware cloth with the aid of water. All material retained within the screen was kept for analysis. Feature matrix was first processed with 1/8-inch screen. After each feature was bisected, the remaining material was retained for flotation. The flotation and water-screen samples from subsistence columns and features are still being processed at the time of this report’s writing, and are not included in the following discussion of results.

RESULTS OF TESTING NODE-1

Node-1 is situated approximately 10 m south of 8VO214 (Figure 3-6). It is the smallest and most discrete shell deposit within 8VO215, and is separated from both 8VO214 and Node-2 by shell-free matrices. The node is ovoid in shape, and measures 13 x 10-m in maximum dimension. Measured surface elevations range from 6.8 to 7.38 m. The margins are characterized by sparse shell, between 5 and 10-cm thick, as determined through coring. Cores within the node's apex consistently encountered dense and impenetrable shell midden below a 5 to 10-cm thick organic shell-free mantle.

Test Units 3 and 3A

Two contiguous test units were excavated within the boundaries of Node-1. A plan map and composite profile of these units is presented in Figure 3-7. Descriptions of identified stratigraphic units are presented in Table 3-1, and a tabulation of recovered material culture is presented in Table 3-2. Investigations initially targeted the relatively flat apex with TU3, a 1 x 2-m unit. Excavation of this unit was ceased after two levels

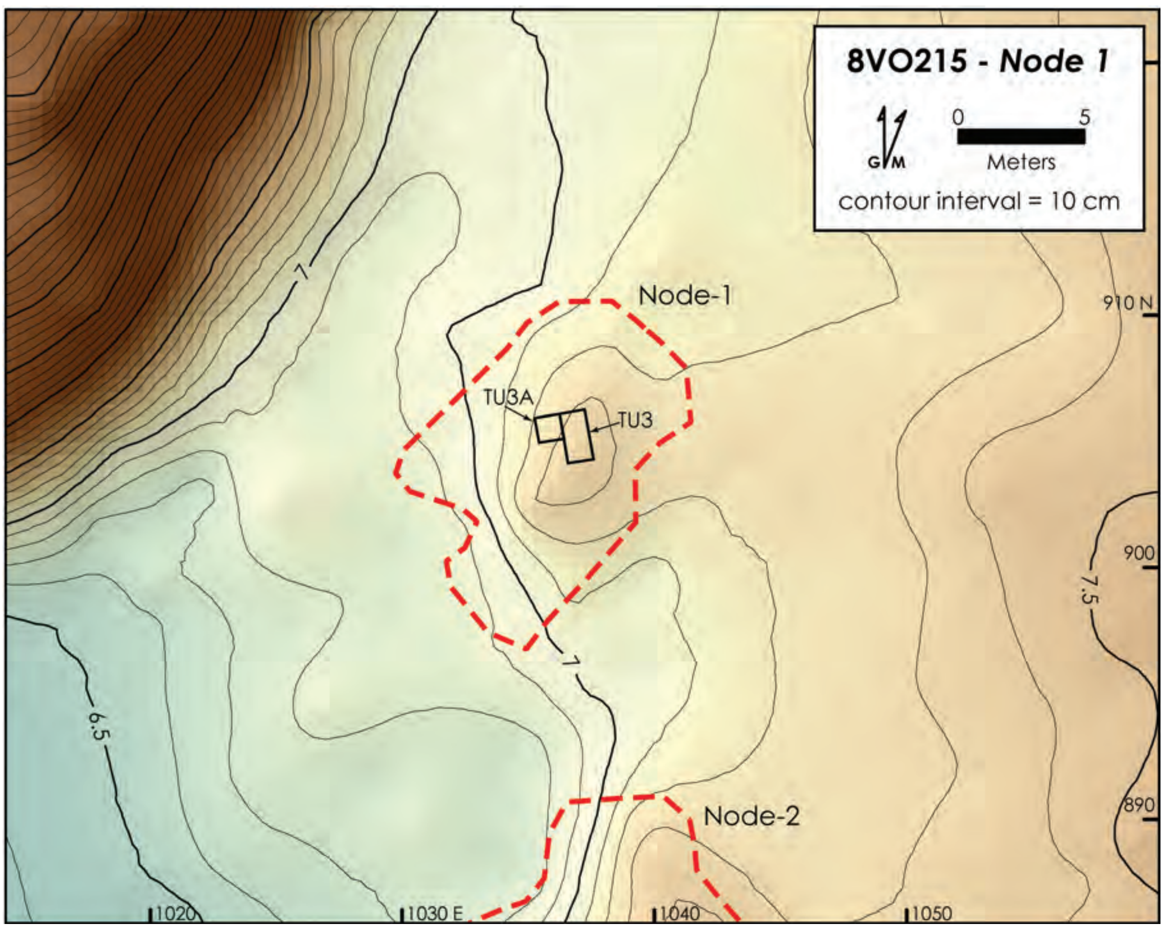

Figure 3-6. False color topographic map showing the location of Test Units 3 and 3A within the boundaries of Node-1, 8VO215.

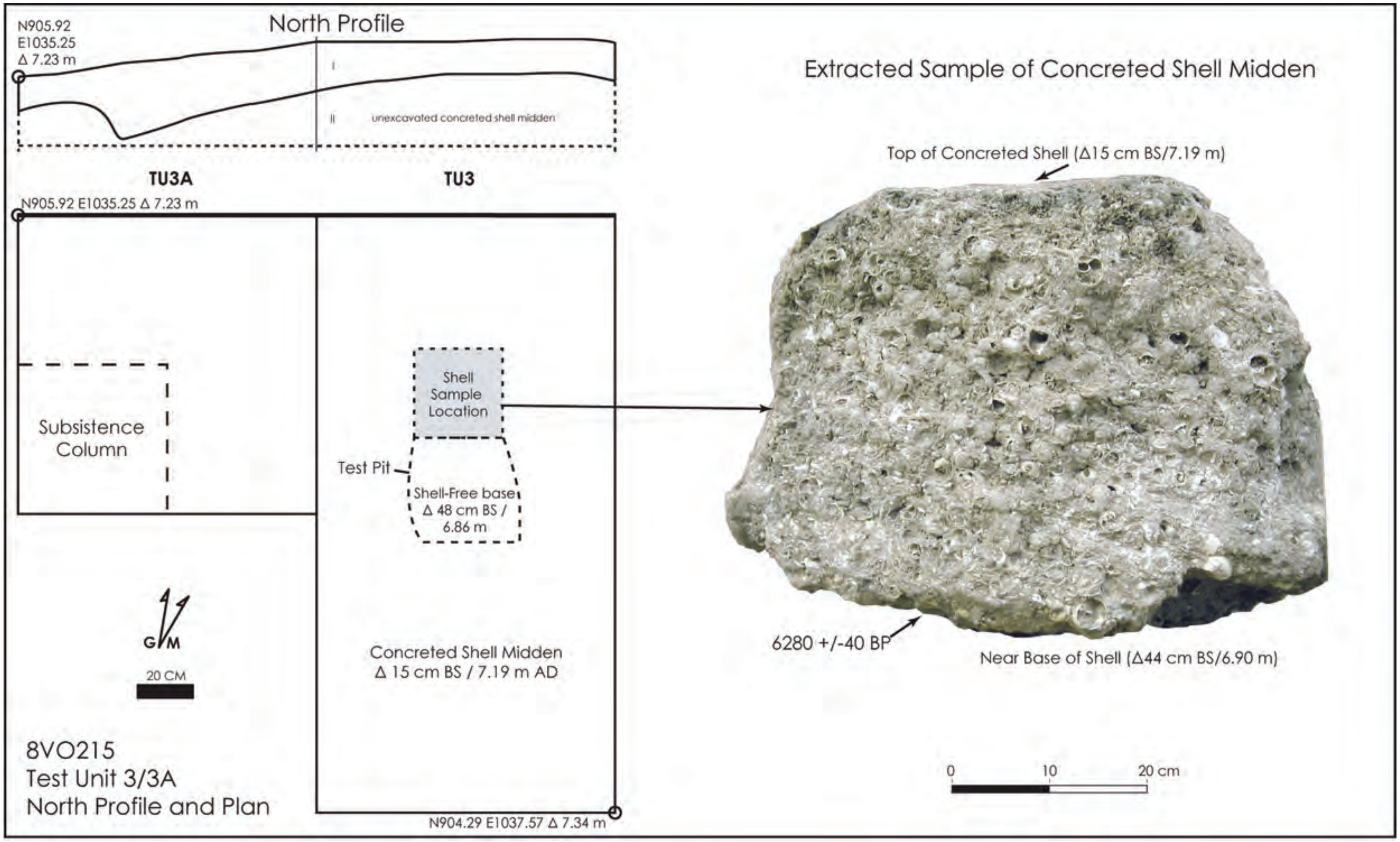

Figure 3-7. Plan map and composite profile of Test Units 3 and 3A, with close-up photograph of extracted sample of concreted shell, 8VO215.

Table 3-1. Stratigraphic Units of Test Units 3 and 3A, 8VO215.

Stratum	Max. Depth (cm BS)[1]	Munsell Color	Description
I	15	10YR2/1	Organically enriched very silty fine sand; abundant palm roots throughout; large and small charcoal clasts throughout; increasing amount of vertebrate fauna with depth, some degraded shell fragments at undulating contact with Stratum II
II	45	10YR6/2	Concreted whole and crushed *Viviparus* and bivalve, with very ashy fine sand; charcoal flecks and pea-sized clasts are apparent throughout; increasing bivalve with depth; base is situated above unconsolidated terrace sands (not encountered in profile)
III	45+	n/a	Fine sand; culturally sterile

[1]maximum depth in east profile below surface at southeast corner (N904.29 E1037.57 Δ7.36)

because concreted shell midden was encountered, approximately 15 to 20 cm BS. Subsequently TU3A, a 1 x 1-m unit, was placed to the west of TU3.

Three distinct stratigraphic units are collectively revealed in TUs 3 and 3A. Stratum I is a black/dark brown silty fine sand encountered immediately in Level A across both test units. Initially this layer appeared to be a culturally sterile A horizon, similar to others witnessed across the site. It is possible that the upper 5 cm are non-anthropogenic, as few cultural materials were encountered in this upper matrix. However, as excavation proceeded towards the base of Level A, increasing quantities of vertebrate fauna and large clasts of charred wood were recovered. Similarly, the soil became darker and moister, with a distinct "greasy" texture indicative of organic enrichment. This is a unique stratum, the characteristics of which were not encountered anywhere else during excavations. The trend of increased particulate organic matter coupled with abundant vertebrate fauna and large charred wood clasts continued with the excavation Stratum I in Level B. In fact, this 10-cm thick level was only eclipsed in vertebrate abundance by levels within TU8. Stratum I rapidly gave way to Stratum II, a concreted shell matrix, across the entire base of Level B within TU3. The contact between Strata I and II was found to undulate, with pockets of disaggregated concreted shell occurring across the units.

Test Unit 3A was placed downslope to the west of TU3 to intersect the boundary of the concreted shell, and to maximize the potential for recovering diagnostic artifacts. Stratum I in TU3A was similarly characterized as organically enriched, although relatively fewer vertebrate faunal remains were encountered. As in TU3, concreted shell was encountered at the base of the unit in Level C. As seen in the northern profile, the base of Stratum I dips down to the west, generally mimicking the surface topography. Material culture recovered from Stratum I included three lithic waste flakes and four fragments of modified bone. This total includes two small fragments of what may be a bone awl, and fragments of a grooved-and-snapped deer metapodial.

Table 3-2. Cultural Materials Recovered from Test Units 3 and 3A, 8VO215.

Level	Lithic Flake	Modified Bone	Vertebrate Fauna (g)
Test Unit 3			
A	1	1	176.4
B - Zone A	2	1	849.2
B - Zone B			7.8
Test Unit 3A			
B		2	125.8
C			245.7

Lying unconformably below Stratum I is concreted shell midden, designated Stratum II. Based on the subsurface survey results, this dome-like midden forms the core of Node-1. Excluding a few pockets of partially disaggregated shell at the contact with Stratum I, the midden was too concreted to excavate with trowels or shovels. In order to determine the thickness and composition of the midden a test pit measuring approximately 30 x 30-cm was excavated in the center of TU3 with the aid of chisels, hammers, and a large pick-axe. This test pit encountered approximately 30-cm of fully concreted shell midden lying on top of culturally sterile sand (Stratum III). In order to further characterize the structure of the midden, and collect materials for a radiocarbon assay, a large block of material was removed from the profile of the test-pit and returned to the lab (Figure 3-7).

Closer examination of the midden sample reveals it is composed of tightly packed crushed and whole *Viviparus* and bivalve shell in an ashy fine sand matrix. Small fragments of vertebrate fauna and charred material are evident throughout. There is also a trend towards increasing bivalve shell with depth, evident in the photograph as the lighter lower half of the block. The base of the block is dominated by mostly whole bivalve with abundant clasts of charred material distributed throughout. Whether or not this represents a discrete lens or feature cannot be determined from the available data. In its diverse composition, this midden is reminiscent of other domestic habitation middens documented on Hontoon Island.

A sample of charred material from the base of the block (ca. 44 cm BS) was submitted for AMS radiocarbon assay, and returned a corrected age estimate of 6280 ± 40 BP (2-sigma calibrated range of 7270 to 7160 Cal BP and 7110 to 7100 Cal BP [Beta-219933]). This age estimate is the earliest published assay for freshwater shell midden within the St. Johns region, indicating midden deposition was initiated at the onset of the Preceramic Archaic. However, this assay falls within the 2-sigma range of dates derived from the submerged midden to the west of the adjacent Hontoon Dead Creek Mound, as well as the base of the nearby Live Oak Mound (8VO41) on the eastern terrace of the St. Johns (Sassaman 2003a). The relationship between this deposit and the Hontoon Dead Creek Mound will be more fully explored in the concluding section of this chapter.

Summary

Excavations of TU3 and TU3A revealed a sequence composed of dense concreted shell midden capped with an organically-enriched shell-free midden. These deposits suggest at least two different depositional processes are responsible for their formation. In many respects Stratum II shares commonalities with deposits of similar age at nearby shell mounds, characterized by concreted and fragmented shell associated with ash and other materials. Varying hypothesis have been offered on the origins of concreted shell midden, although it is generally thought that a combination of burnt shell, ash, and fluctuating water levels are needed for concretion to form (Wheeler et al. 2000). Regardless, concreted midden is typically restricted to the base of shell mounds, although it can also occur as lenses within sites. Stratum II is unique in that it is lying relatively unprotected on the surface. It is currently impossible to determine if there was once an overlying shell deposit that was removed or mined from the top of the concreted shell during antiquity. Equally unclear is the temporal relationship between Stratum II and the overlying Stratum I. The disconformity between the two suggests that Stratum II had already concreted prior to the deposition of Stratum I. Moreover, deposition of Stratum I included the deposition of significant amounts of vertebrate fauna and charcoal, and did not involve freshwater shellfish. Whether burning occurred in place is presently unclear, but large thermal events are implicated in this stratum's formation. Trench excavations at 8VO214 identified numerous lenses of burned shell, typically bivalve and *Viviparus*. A hypothesis in need of evaluation is that the processing of shell for ceremonial mound-top depositional events was executed in the vicinity of Node-1. Future research will be needed to assess this possibility.

RESULTS OF TESTING NODE-2

Node-2 is evident on the surface as an elongated ridge that rises 40 cm above the surrounding terrain (Figure 3-8, 3-9). It measures 25-m long and 8-m wide along a north/south axis, and is situated 20 m south of Node-1. The ridge has a generally flat summit, excluding an apex above 7.7 m on the northern aspect. Based on surface survey, this point likely reflects upheaval of underlying matrix from a large tree positioned on the ridge, and not the prehistoric differential deposition of midden across the surface. The downslope edge west of the ridge is evident only as a subtle bulge topographically. Coring indicated the central ridge is composed of dense shell that terminates abruptly to the east in non-shell terrace sands, and trails off to lower elevations in the west as low density shell.

Test Unit 2

Test Unit 2 was positioned on the eastern edge of the central ridge with the goal of penetrating thick shell deposits and documenting the relationship between shell and non-shell matrices. Eight stratigraphic units were identified during excavation. One preceramic Archaic ethnostratigraphic unit is present, based on a radiocarbon assay and recovered artifacts. Composite profile drawings and photographs of TU2 are presented in

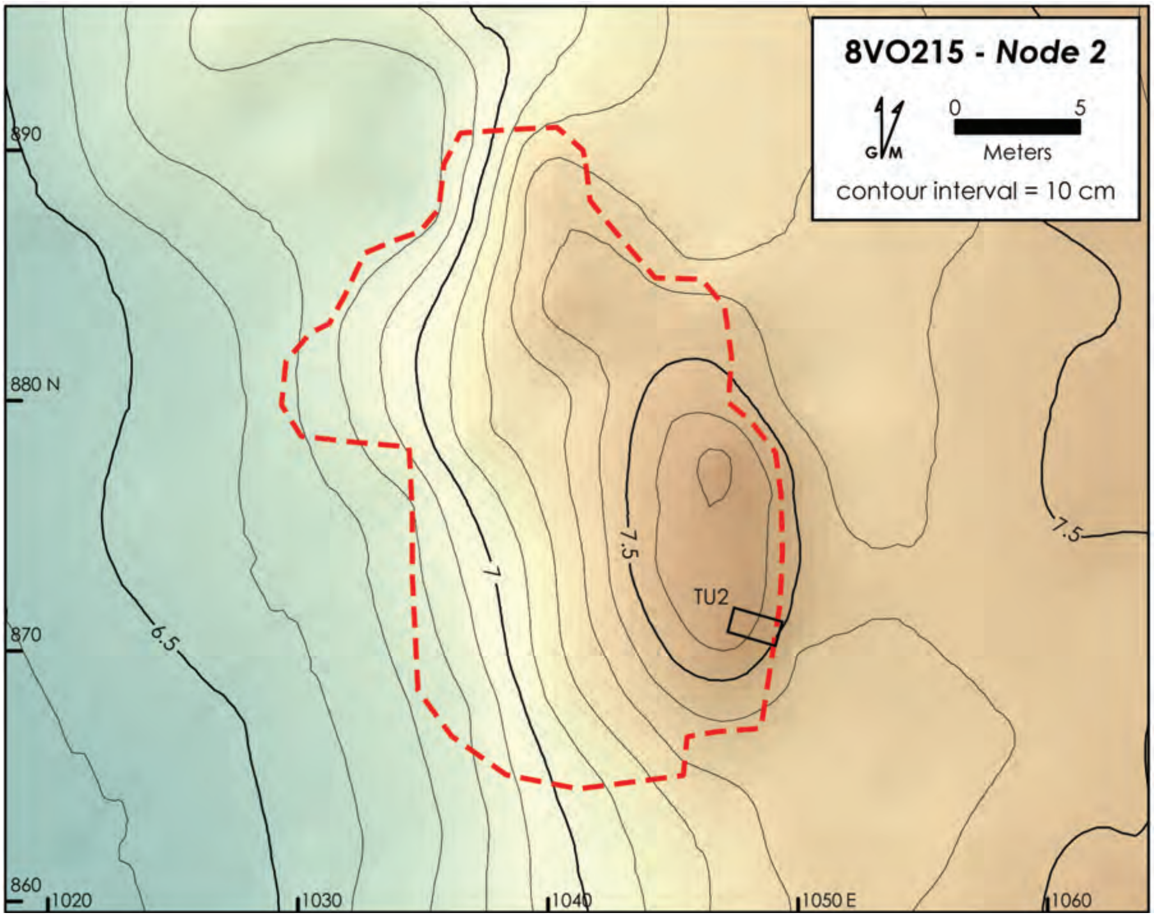

Figure 3-8. False color topographic map showing the location of Test Unit 2 within the boundaries of Node-2, 8VO215.

Figure 3-10, and descriptions of identified stratigraphic units are provided in Table 3-3. Tabulation of recovered material culture is presented in Table 3-4, and photographs of selected artifacts are presented in Figure 3-11.

The most significant result of TU2 excavations was the identification of a stacked sequence of shell midden situated adjacent to unconsolidated shell-free midden above culturally-sterile basement sands. Overlying the entire unit was Stratum I, a relatively thin root mat. During excavation Stratum I was initially designated Zone A. As excavation progressed this zone designation was retained for all non-shell matrix. Lying below Stratum I in the western 180 cm of TU2 is a stacked sequence of shell midden lenses lying more or less horizontal, excluding the basal Strata V and VI. Shell midden was designated Zone B after Level D and excavated separately from Zone A when possible. This shell midden is consistent with primary midden, and is composed of densely packed *Viviparus* shell, with varying frequencies of bivalve and *Pomacea* shell. Non-shell matrix was primarily a fine sand that was ashy in texture. Charcoal was not routinely encountered.

Figure 3-9. Photograph of Node-2, facing southwest. Test Unit 2 excavations are visible in the background, while orange flags denote the location of soil cores.

In profile, no less than five ca. 10-cm thick shell midden strata are discernable based on the relative abundance of whole and crushed shell. These strata can be grouped as couplets alternating between primarily whole and primarily crushed shell. The mechanical taphonomic process responsible for crushed shell lenses is not known. We have traditionally considered crushed shell the result of post-depositional trampling, and indicative of heavily used activity areas (Randall and Sassaman 2005; Sassaman 2003a). Others have suggested that they result mostly from bioturbation (Beaton 1985). While we cannot currently rule out either of these factors, both are fundamentally indicative of a hiatus between depositional events and post-depositional mechanical alteration. In the case of TU2, at least three such events are present. Stratum II is a tapered, flat lying deposit that increases in thickness to the west. It is characterized by abundant crushed and some whole *Viviparus* shell, with some bivalve and *Pomacea* shell, and very little non-shell matrix. Shell appears more crushed at the contact with the overlying root mat. The underlying Stratum III is differentiated from Stratum II by the increased frequency of whole *Viviparus* shell. Throughout this stratum we encountered isolated clasts of partially concreted midden. A second occupational event is suggested by Strata IV and V. Stratum IV is a flat-lying crushed shell lens with occasional concreted midden occurring throughout. This lens is superimposed on the flat surface of Stratum V, composed primarily of whole *Viviparus* and some crushed and burned bivalve shell. Unlike later strata, the base of Stratum IV dips to the west, apparently mirroring the slope of the underlying basal sand deposit (Stratum VII). A third occupational event is suggested by Stratum VI, a crushed bivalve lens that was restricted to the northwestern edge of the unit.

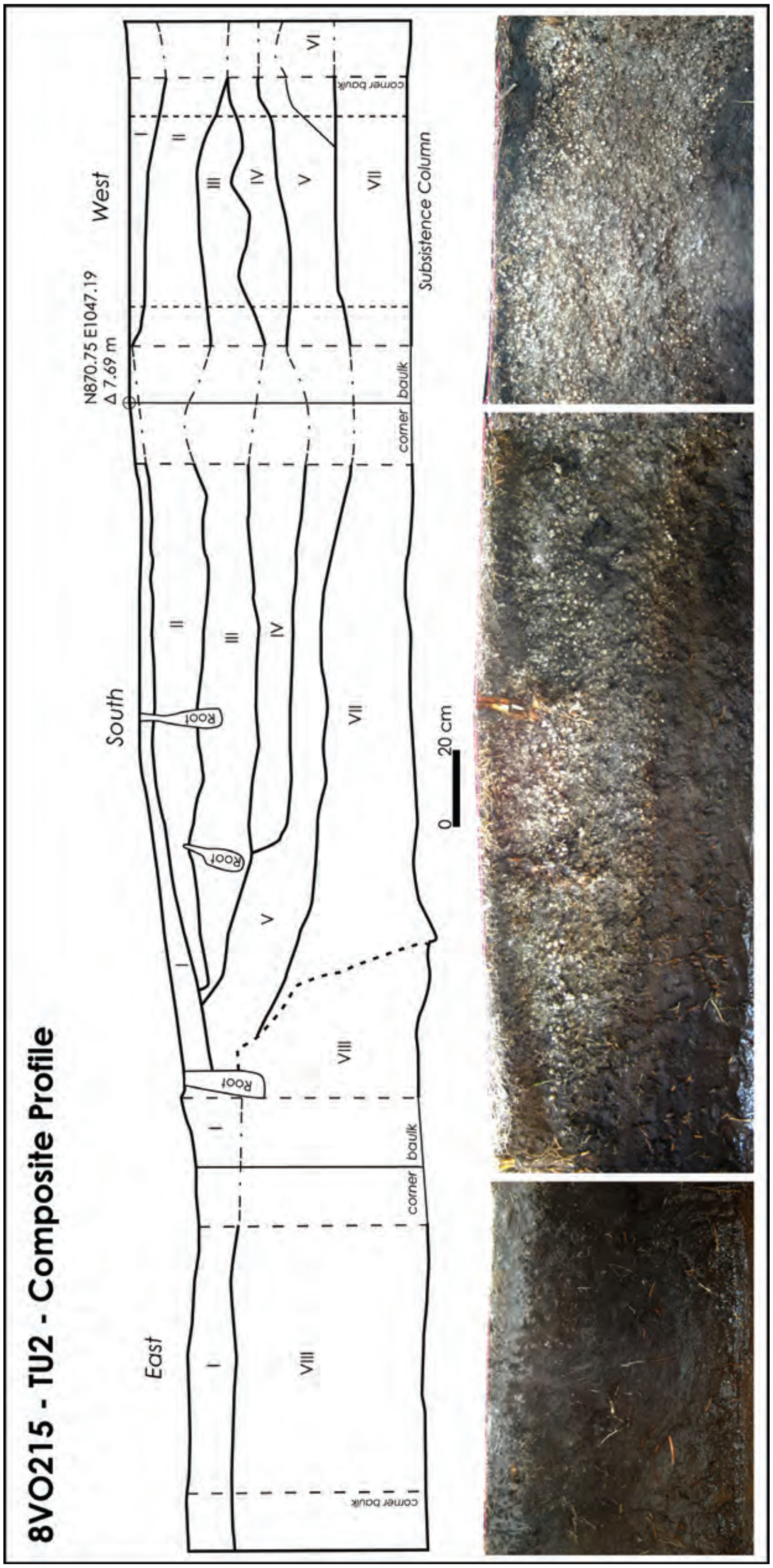

Figure 3-10. Composite profile drawing and photographs of Test Unit 2, 8VO215. Note: photographs are not to scale.

Table 3-3. Stratigraphic Units of Test Unit 2, 8VO215.

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
I	4	10YR2/1	Organically enriched loamy fine sand with abundant palm roots; trace amounts of crushed shell.
II	16	10YR3/1	Very abundant crushed and some whole *Viviparus* and bivalve, occasional *Pomacea*; crushed at contact with Stratum I; limited non-shell ashy very fine sand in shell matrix
III	35	10YR3/1	Abundant whole and crushed *Viviparus* and *Pomacea* with some crushed bivalve; notable concentrations of whole *Pomacea* and other areas of crushed bivalve; slightly more sand in matrix than overlying Stratum II; zones of concreted shell throughout
IV	48	10YR4/1	Very abundant crushed and whole *Viviparus*, bivalve and some *Pomacea*; more crushed shell and very fine sand than Stratum III; some concretion in horizontal layers
V	61	10YR3/2	Abundant whole and crushed *Viviparus* and bivalve; some crushed *Pomacea*; some bivalve appears to be burned; increasing sand in matrix with depth; concreted in some portions
VI	55	10YR3/1	Very abundant crushed and whole bivalve, in addition to abundant whole and crushed *Viviparus*; some *Pomacea*
VII	75+	10YR4/2	Fine silty sand; occasional palm toots throughout; shell only occurs in trace amounts
VIII	75+	7.5YR3/2	Loamy fine sand, some roots throughout, shell free

[1]maximum depth in west profile below surface at southwest corner (N870.757 E1047.19 Δ7.69 m)

Table 3-4. Cultural Materials Recovered from Test Unit 2, 8VO215.

Level	Lithic		Marine Shell		Modified Bone	Paleo-feces	Vertebrate Fauna (g)
	Flake	Biface	Fragment	Modified			
A							15.9
A - Zone A		1					120.0
B	1		3				288.2
C					1		461.2
D			2		1	2	294.6
E - Zone A							31.8
E - Zone B	1				1		46.9
F				1			
F - Zone A							30.7
F - Zone B				1			3.4
G							20.4
H - Zone C							2.6

Figure 3-11. Selected bone and marine shell artifacts recovered from Test Unit 2, 8VO215. a. bone tool fragment, b. modified columella fragment, c. modified *Oliva* sp. shell, d. fragmented *Busycon* sp. apex.

A fragment of marine shell (Figure 3-11d) recovered at ca. 9 cm BS submitted for a radiometric assay returned a conventional age estimate of 5570 ± 60 BP (6480-6260 Cal BP [Beta-217769]). This age estimate falls well within the accepted range of the preceramic Archaic Mount Taylor period, and provides a useful *terminus ante quem* for preexisting deposits.

Shell midden tapers out into a shell-free midden to the east. In the eastern edge of the unit, approximately 15 cm BS, Stratum I grades into VIII, a dark grayish brown fine silty sand. This stratum appears to be an organically enriched pedon lacking any clear vertical divisions in profile. Stratum VIII was virtually shell free, excluding with adjacent shell deposits, and contained occasional vertebrate fauna that decreased in abundance with depth. At approximately 40 cm BS Stratum VIII grades into Stratum VII, a dark brown loamy fine sand with occasional mottling and mineral concretions throughout. This was excavated as Zone C. Excluding the contact between the overlying shell midden in Strata V and VI, this basal sand deposit is free of shell and vertebrate fauna. Excavation ceased at the base of Level H (80 cm BS) due to water.

Diverse, if low density, artifact assemblages suggest a wide range of activities occurred onsite. Relatively abundant faunal remains were recovered from throughout the sequence, although there is a trend of decreasing faunal remains by depth, particularly below 40 cm BS (Level D). Paleofeces were also recovered, although it is unknown if these are of human origin. Excluding a biface fragment from Stratum I (Level A/Zone A), all material culture was recovered from the shell deposits. The lithic assemblage includes two chert flakes and a small medial fragment of a biface. Three modified bone fragments were recovered throughout the strata. These all appear to be portions of cut and ground bone awls (Figure 3-11a). A fair amount of marine shell was also recovered, including both fragments and modified tools. Modified fragments in the assemblage include a columella with a bitted siphonal canal (Figure 3-11b), an *Oliva* sp. shell with a fractured apex (Figure 3-11c) and a battered fragmented apex of a *Busycon* sp. (Figure 3-11d). This latter fragment was the marine shell submitted for radiometric assay from Stratum II.

Summary

Excavations of TU2 identified a preceramic Archaic Mount Taylor sequence of shell midden deposits in primary context, associated with a shell-free, organically enriched midden. Judging on stratigraphic superposition, Stratum VII is the original, sloping terrace surface upon which shell midden was initially deposited. Over the course of at least three depositional events, shell midden was successively added to this surface in ca. 20-cm thick lenses, the surfaces of which were either trampled or bioturbated resulting in crushed shell. A separate prepared area to the east of the shell midden is implied by the presence of vertebrate faunal remains in a shell-free, organically enriched matrix. The sharp contact between shell and non-shell matrices suggests the eastern edge of the midden was routinely kept clean of shell debris. Further testing would be necessary to determine whether there are domestic features such as posts or hearths associated with the shell. Finally, limited sediment deposition is implied by the lack of interstitial sand within the shell, and the relative elevation of eastern non-shell deposits.

RESULTS OF TESTING NODE-3

The center of Node-3 is located approximately 50-m south of Node-2. Evident as a sub-triangular dome on the surface, Node-3 measures 25-m long and 20-m wide, and is centered between 7.5 and 7.9 m in elevation (Figure 3-12). Coring within this central dome encountered both dense and low-density shell midden on the terrace. Coring also identified a low-density midden extending along the western slope, above 6.6 m in elevation. As described above, bucket augering along the southern edge of Node-3 encountered a 10 to 20-cm thick low-density shell midden at lower elevations.

Test Unit 1

Test Unit 1 was situated on a noticeable ridge that extended out from the southern edge of Node-3. As the first test unit of the 2005 season, placement was guided by the presence of shell midden on the surface, derived from a nearby uprooted palm. The unit was oriented parallel to the slope of the ridge. A total of seven shell and non-shell stratigraphic units were identified. Based on the distribution of diagnostic ceramic sherds, one ethnostratigraphic unit dating to the ceramic Archaic Orange period is present.

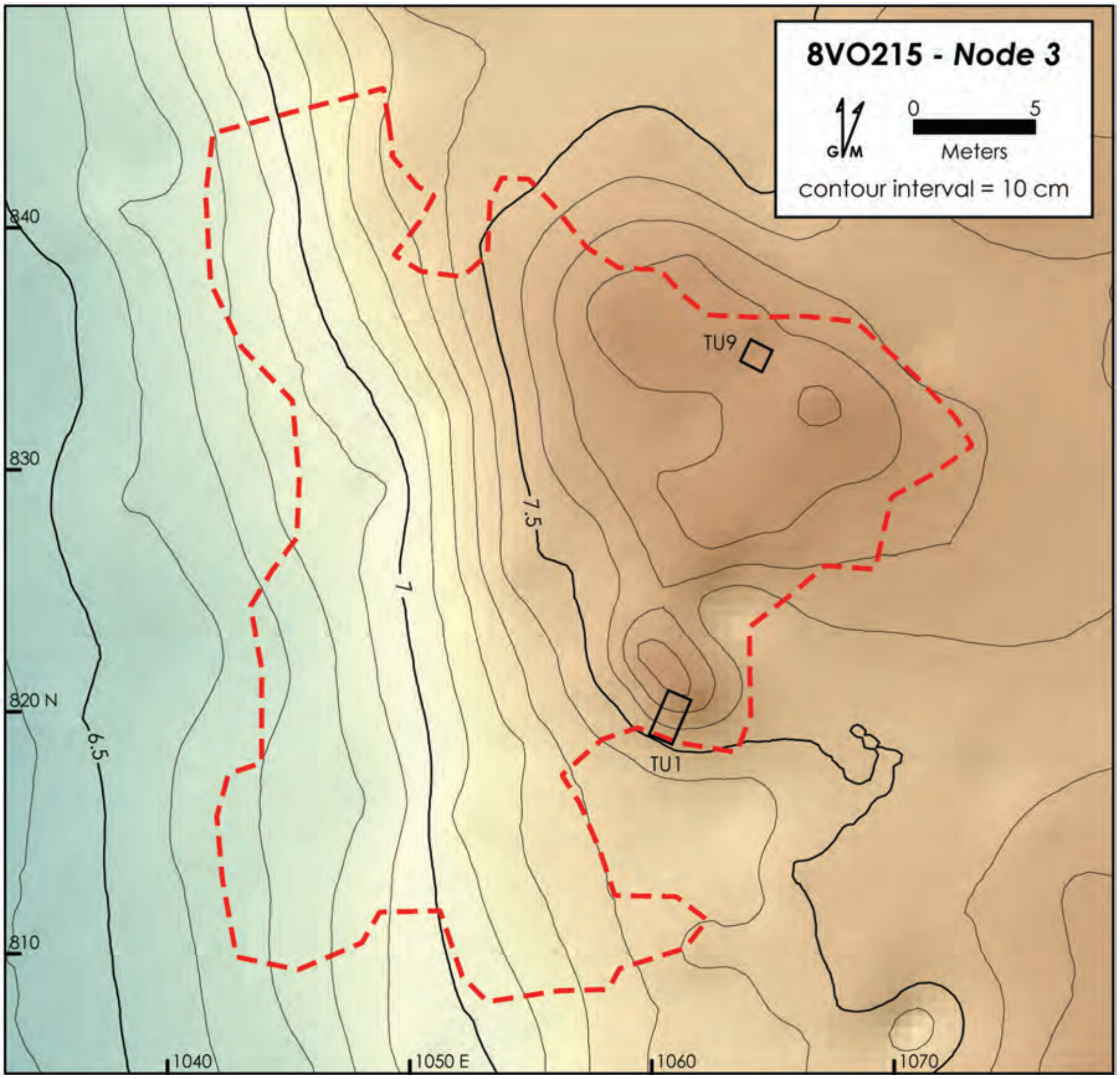

Figure 3-12. False color topographic map showing the location of Test Units 1 and 9 within the boundaries of Node-3, 8VO215.

Profile drawings and photographs are presented in Figure 3-13, with stratigraphic descriptions presented in Table 3-5. Tabulations of recovered material culture by level are presented in Table 3-6, while photographs of selected artifacts are presented in Figure 3-14.

Test Unit 1 revealed a sequence reminiscent of TU2. The northern, higher half of the unit is characterized by dense shell midden which decreases in thickness to the west, and terminates in an organically enriched shell-free sand. Despite general similarities with TU2, there are a number of important differences. Most notable is that Orange period fiber-tempered sherds were recovered throughout the shell and non-shell midden

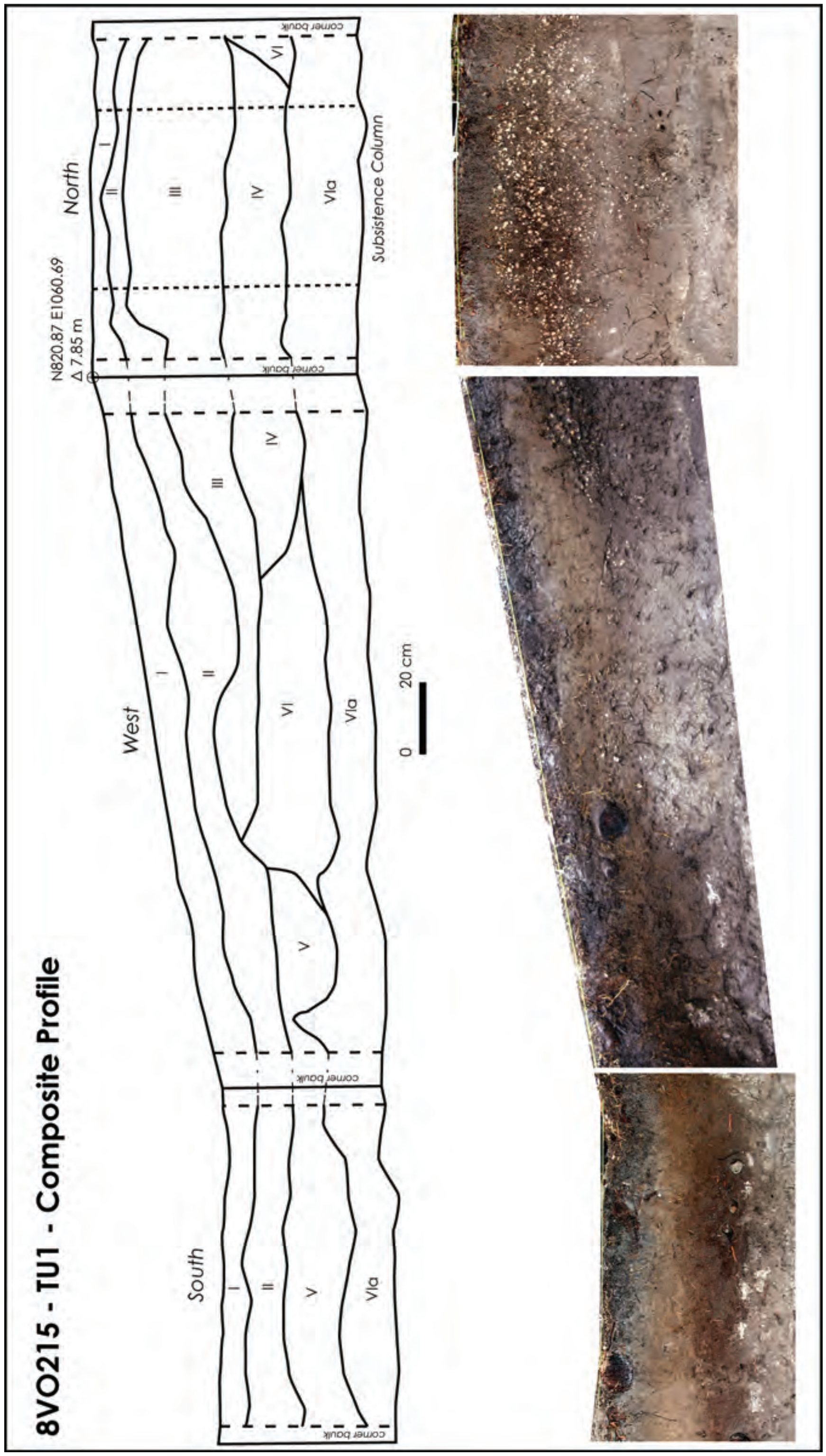

Figure 3-13. Composite profile drawing and photographs of Test Unit 1, 8VO215. Note: photographs are not to scale.

Table 3-5. Stratigraphic Units of Test Unit 1, 8VO215.

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
I	10	10YR5/1 - 10YR2/1	Organically enriched fine loamy sand with abundant palm roots and detritus
II	21	10YR5/3	Fine silty sand with moderate amount of palm roots; small flecks of charcoal throughout
III	38	10YR3/1	Fine silty sand with abundant whole and crushed *Viviparus*, moderate whole and crushed bivalve, occasional *Pomacea*
IV	57	10YR5/1	Fine silty/gritty sand with moderate amount of whole and crushed *Viviparus*, occasional bivalve and *Pomacea*; shell appears to decrease with depth, no lenses of crushed shell apparent
V	62	10YR2/2	Organic very fine silty sand with occasional roots throughout; buried Organic A horizon associated with Stratum III/IV deposits
VI	62	10YR4/2	Sterile gritty silty fine sand; very rare shell fragments throughout
VIa	75+	10YR4/2	Sterile concreted silty fine sand with occasional calcreted root casts and gleying throughout basal depths; contact with parent Stratum VI undulates

[1]maximum depth in west profile below surface at northwest corner (N820.87 E1060.69 Δ7.85 m)

Table 3-6. Cultural Materials Recovered from Test Unit 1, 8VO215.

Level	Orange Sherd Plain	Orange Sherd Crumb	Lithic Flake	Lithic Hafted Biface	Marine Shell Frag.	Mod. Bone	Paleo-feces	Vertebrate Fauna (g)
A - Zone B	1	11				1		77.1
B - Zone A								20.9
B - Zone B	1	26		2*	1			178.4
C - Zone A		1						24.4
C - Zone B	7	22			1			290.1
D - Zone A	7	33		1				195.9
D - Zone B		26			1		2	376.2
D - Zone C								6.5
E - Zone A	1	11	3			2		251.1
E - Zone C								22.7
F - Zone C								5.2

*recovered in adjacent subsistence column (Stratum III) matrices. Secondly, only one or two depositional events are suggested by the sequence in TU1.

Because of the significant slope of the surface, Level A was a 20-cm deep cut. Initially encountered was Stratum I, a 5 to 10-cm thick organic root mat in a fine loamy sand, present across the entire unit. In the field non-shell strata were designated Zone A, and excavated separately from the Zone B shell midden. No cultural materials were recovered from Stratum I, including shell. This root mat is underlain by Stratum II, a culturally sterile tan/brown fine silty sand that becomes thicker downslope from north to south. Although a small amount of vertebrate fauna and one Orange crumb[2] sherd were recovered, these were derived from the contact with the underlying Stratum III shell midden. Below this sterile overburden the unit is characterized by shell midden in the north half of the unit, and shell-free midden in the south.

In the northern half of the unit at approximately 20 cm BS we encountered Stratum III, a 20-cm thick shell midden excavated in Levels A, B, and C. This is a very dense shell midden in an organic dark brown fine sand matrix. The midden is composed primarily of whole and crushed *Viviparus* shell, with bivalve and *Pomacea* shell occurring in small quantities throughout. The midden is relatively homogeneous, although slightly more crushed shell was evident at the contact with the overlying Stratum II. The base of the Stratum III is essentially lying flat above shell midden (Stratum IV) to the north and culturally sand to the south (Stratum VI). At approximately 42 cm BS the shell trails off at the contact with shell-free Strata V and VI.

Beneath Stratum III in the north half of the unit is Stratum IV, a fine gritty sand with moderate amounts of whole and crushed *Viviparus*, bivalve, and *Pomacea* shell. Shell abundance is considerably lower than the overlying midden. In profile this stratum has pit-like truncated margins, and the base of the deposit tends to slope down to the north. Whether this stratum is actually a sand- and midden-filled pit or a localized biogenic disturbance cannot be determined from the excavations in TU1. The cultural contents of this stratum (excavated as Level D) were similar to Stratum III. In addition to 26 fiber-tempered crumb sherds, the deposit also contained a marine shell fragment, along with two fragments of paleofeces.

In the southern half of TU1, Stratum II graded into Stratum III between 40 and 45 cm BS (Level D). Stratum V is a very dark brown organically-enriched very fine silty sand. This stratum appears to be a buried A horizon contemporaneous with the Strata III/IV shell deposits in the northern half of the unit. Finally, the cultural matrices are underlain by sand, designated Zone C. Underlying Stratum III in the center of the unit we encountered Stratum VI, a gritty fine sand with abundant calcreted root casts and gleying throughout. Below Strata IV and V, below 60 cm BS, Stratum VI became fully concreted. Designated Stratum VIa, this concreted sand forms the base of the unit, and is the original terrace surface upon which midden debris was deposited. Except for the contact with overlying shell and shell-free midden, it appears to be culturally sterile. Using picks and

[2] Sherds that could be passed through a .5” square screen were designated “crumb” sherds.

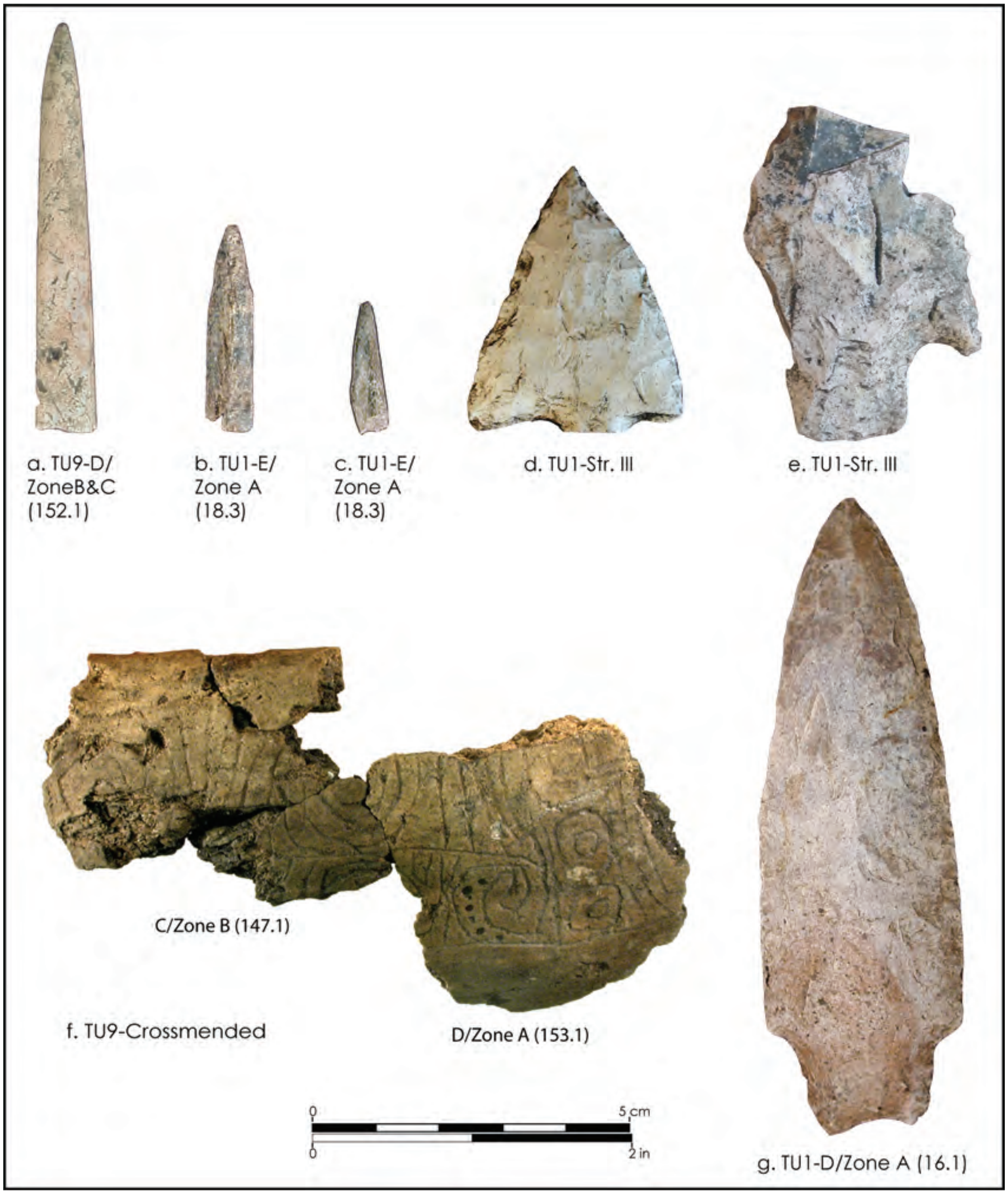

Figure 3-14. Selected bone, ceramic, and lithic artifacts recovered from Test Units 1 and 9, 8VO215. a-c. modified bone, d-e, g. hafted bifaces, f. Orange Engraved crossmended rim sherd.

chisels, we excavated into this sand to a maximum depth of 75 cm BS. This material was not screened.

The recovered cultural assemblages were diverse and consistent with Late Archaic Orange period habitation debris. Within shell matrices (Zone B), vertebrate fauna was found in moderate abundance, with density increasing with depth. Two small fragments of unidentified marine gastropod shell were also recovered. Orange plain sherds were present throughout the deposit, but were found in greatest abundance towards to base of the shell strata. Two fragmentary hafted bifaces manufactured from chert were recovered within the subsistence column, lying adjacent to each other at a depth of 20 cm BS. Both are consistent with Late Archaic stemmed varieties. One is represented by a distal blade element, and was snapped at the junction between the haft and blade (Figure 3-14d). The other hafted biface is reminiscent of the Culbreath type (Figure 3-14e). Although the base is intact, the distal edge and a medial blade margin have numerous fractures.

Vertebrate fauna was recovered in abundance throughout the non-shell midden at lower elevations. A total of 8 fiber-tempered sherds and 44 crumb sherds were present. In addition, a large Archaic stemmed hafted biface manufactured out of chert was recovered at 41 cm BS (Figure 3-14g). The biface is narrow-shouldered and characterized by a short stem with an incurvate base. The blade is biconvex in cross-section, and is in remarkably “pristine” condition with a sharp edge intact. The distal end of the biface has evidence of double-patination, suggesting it may have been scavenged from a preexisting deposit and subsequently resharpened. Also recovered from the shell-free midden were two distal bone tool tips (Figure 3-14b-c).

Test Unit 9

Test Unit 9, a 1 x 1-m unit, was placed on the northern edge of Node-3. Coring in this upslope component encountered an uneven pattern of low- and high-density shell deposits interspersed with the occasional core lacking shell altogether (Figure 3-5). The unit was oriented roughly 45-degrees from grid-north, and was positioned less than a meter south of core 50-13 which yielded dense shell midden between 10 and 40 cm BS. The goal of testing in this location was to characterize upslope dense shell deposits.

Contrary to our expectations based on coring, excavation of TU9 exposed a complex sequence characterized by a dichotomy between flat-lying shell and non-shell deposits in the northern half of the unit, and dense shell in the southern half of the unit. In contrast, the east and west profiles contain discontinuous and interbedded lenses of shell and non-shell matrices. The structure of this unit registers at least one shell-filled pit associated with a non-shell midden. An Orange period ethnostratigraphic unit is indicated by the presence of plain and engraved fiber-tempered pottery. A lower preceramic Archaic component may also be present. Profile drawings and photographs are presented in Figure 3-15, with stratigraphic descriptions presented in Table 3-7. A plan map and photographs of features 2 and 3 are presented in Figure 3-16. Tabulations of recovered material culture by level are presented in Table 3-8.

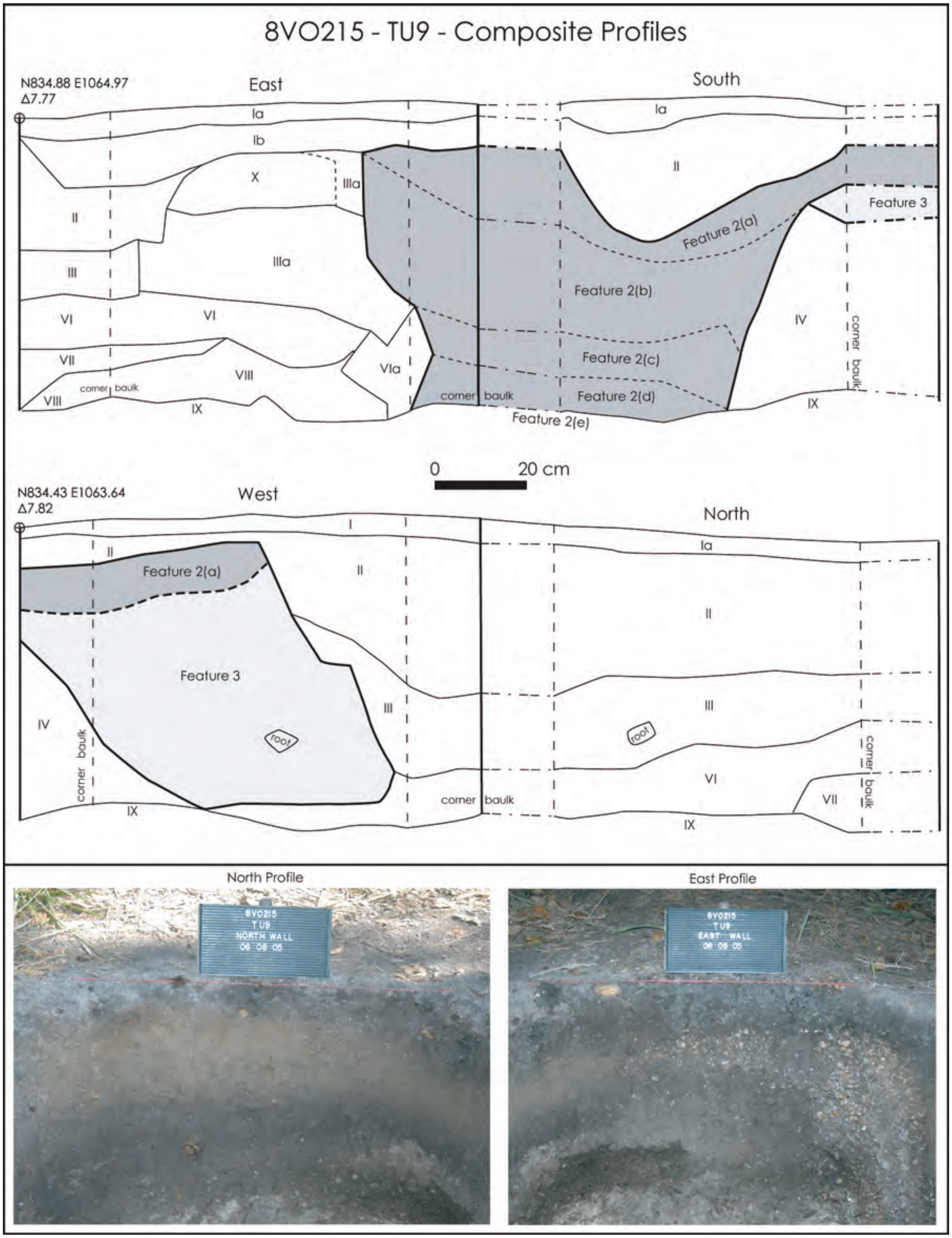

Figure 3-15. Composite profile drawings of Test Unit 9, 8VO215. Features 2 and 3 are highlighted. Photographs of north (left) and east (right) profiles included for comparison.

Table 3-7. Stratigraphic Units of Test Unit 9, 8VO215.

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
I	8	10YR2/1	Organic Root mat
Ia	8	10YR2/1	Organic Root mat
Ib	15	10YR2/2	Organically enriched fine silty sand; some roots
II	39	10YR4/2	Silty fine sand, some palm roots
III	56	10YR3/2	Silty medium sand; no shell
IIIa	52	10YR3/2	Silty fine sand; moderate amounts of whole and crushed *Viviparus* and *Pomacea*; may be a mixture of Feature 2, Strata III and VI
IV	66	10YR4/2	Silty fine sand with some whole and crushed *Viviparus*, bivalve in trace amounts
VI	52	10YR4/2	Gritty, silty fine sand with occasional whole and crushed *Viviparus* and *Pomacea*
VIa	68	10YR4/2	Silty fine sand with a moderate amount of crushed shell; likely mixture of Strata VI and Feature 2
VII	65	10YR3/2	Loamy, very fine sand with rare shell fragments
VIII	68	10YR4/2	Fine silty sand with some grit; trace amounts of shell fragments
IX	70	10YR6/2 - 10YR8/3	Concreted fine sand
X	23	10YR3/2	Silty fine sand with abundant whole and crushed *Viviparus*; may be related to Feature 2

[1]maximum depth below surface (Δ7.83 m)

Table 3-8. Cultural Materials Recovered From Test Unit 9, 8VO215.

Level	Orange Sherds Plain	Orange Sherds Engraved	Orange Sherds Crumb	Modified Bone	Paleo-feces	Vertebrate Fauna (g)
A	1					55.2
B	26		26			253.5
C - Zone A	1		1			83.4
C - Zone B	11	5	6			43.2
C - Zone C	4		7			49.0
D - Zone A		1	6		1	57.4
D - Zone B/C				1		37.0
E			1			34.8
F						19.0
G						3.4

Excavations initially encountered Stratum I, a culturally-sterile A horizon within Level A. Subdivisions of this stratum (Ia, Ib) were made on the basis of varying amounts of organic detritus and root abundance within each profile. Shell midden was encountered in the southwest corner at the base of Level A. Continued excavation of Level B exposed another patch of shell midden in the southeast corner. These semi-circular areas were not contiguous, and were truncated by the profiles. Field notes suggest that all of the Orange sherds were derived from the shell midden. Before excavating Level C these different matrices were given separate zone designations. The non-shell matrix was designated Zone A, and corresponds to Stratum II, a tan/brown silty fine sand. The eastern shell midden was denoted Zone B and the western area was designated Zone C. Zones B and C correspond with the locations of features 2 and 3, respectively. All fiber-tempered sherds were recovered from Zones B and C with the exception of one sherd from Zone A. Also recovered from Zone B were five fragments of one Orange Engraved sherd. Four of these sherds refit, and all are likely a portion of the same vessel (Figure 3-14f).

At the base of Level C, Zones B and C merged in the southern half of TU9 and were subsequently excavated as Zone B/C in Level D. While no sherds were recovered from the shell midden, one large Orange Engraved body sherd was piece plotted within Zone A at a depth of 35 cm BS. This sherd was refitted to the Engraved sherds recovered from Zone B in Level C (Figure 3-14f), suggesting that the shell and non-shell matrices are coeval.

Features 2 and 3 were delineated at the base of Level D when it became apparent that Zones B and C reflected two different shell pits connected by a lens of shell midden. These features were mapped in plan view and then excavated separately. At the same time, the Zone A shell free northern half of the unit became significantly darker with depth. This approximates the transition to Stratum III, a silty medium fine sand with out shell. This stratum is consistent with other buried A horizons identified elsewhere on Hontoon Island, and is particularly reminiscent of the southern, downslope component of TU1.

In order to expose a clean plan view to further discriminate the features at depth, Level E was excavated with a shovel. Although most of the matrix from this zone was from the shell free midden, some admixture of feature matrix is likely due to the diffuse interface between the features and Zone A matrix. Within Level F we encountered Stratum VI, VII, and VIII. Stratum VI is a dark brown gritty sand with occasional fragments of *Viviparus*, *Pomacea*, and bivalve throughout. Strata VII and VIII are similarly composed of fine to gritty sand with occasional shell fragments. No sherds were recovered in this level, and faunal remains were sparse. Excavation of TU9 ceased between 60 and 67 cm BS within Level G due to concreted shell-free hardpan (Stratum IX). No attempt was made to dig through this stratum.

Although limited in scale and volume, TU9 yielded a remarkable artifact assemblage. Orange Plain sherds dominated the pottery assemblage, particularly at higher elevations. However, within the context of Feature 2 and the associated shell-free Stratum II we recovered two objects of particular note. One is the reconstructed decorated fiber-tempered rim sherd (Figure 3-14f). Superficially, this sherd appears consistent with the Tick Island variety of the Orange Incised type. The surface is characterized by zonal decorations composed of circular motifs, radiating lines, and curvilinear punctations. All of these design elements can occur on Orange Incised vessels. On closer inspection, however, the surface treatment was apparently conducted after the vessel was fired. That is, this is an engraved design. Not only is the core exposed at the base of the design, but there are visible chatter marks on the edges of the design. In addition to the sherd, a large and well made distal bone pin fragment was recovered from Zones B and C (Figure 3-14a). Although not decorated, it is highly polished and reminiscent of larger bone pins typical of personal adornment.

Features of TU9

Two features were recognized during the excavation of TU9 (Figure 3-16). Only Feature 2 is a legitimate pit. Feature 3, in contrast, appears to be a later non-anthropogenic intrusion. In association with these features are discontinuous shell, sand, and grit lenses reflecting the mixture of matrices during the prehistoric pit excavation (Strata IIIa, VIa, X) or the later post-depositional disturbance (Stratum IV).

<u>Feature 2</u>

A ca. 65-cm wide semi-circular shell midden concentration was first noted in the southeaster corner of TU9 between 10 to 20 cm BS (Level B). In Level C it was treated as Zone B, where the shell matrix contracted slightly to the southern edge of the unit. In Level D the matrix merged with Zone C to the west and both were excavated as Zone B/C. Except for Level D, fiber-tempered sherds were recovered throughout these zones. This assemblage is dominated by plain and eroded sherds, excluding the six Orange Incised rim sherds. As previously discussed, these incised sherds were recovered from both the shell and non-shell matrices, and are part of one vessel. At the base of Level D (40 cm BS) the shell concentration was designated Feature 2 (Figure 3-16). The western half of the feature was excavated and matrix was bagged and later processed through 1/8-inch screen. A one gallon sample of matrix was removed from east half of the unit for flotation, and the remainder bagged and then screened with 1/8-inch screen. Excavation of the feature ceased at 67 cm BS because the basal layer, composed of shell and ash, was concreted. Additionally, at 54 cm BS a large root was encountered running through the base of the feature. Although initially thought to be a charred log, continued exposure demonstrated that the wood was an old, heavily stained root fragment cross-cutting Feature 2 and Stratum VI.

As revealed in profile (Figures 3-15, 3-16), Feature 2 is a 65-cm deep pit that originates at the top of Stratum II. The feature has tapered margins and is composed of at least 5 lenses of shell midden. The upper portion of the feature (lens 2a) is a post-depositional disturbance that intrudes over Feature 3 to the west. In the field this lens was reminiscent of an animal burrow, where matrix from Feature 3 was mobilized to the west. Below that, lenses can be seen superimposed and slightly dipping down towards the

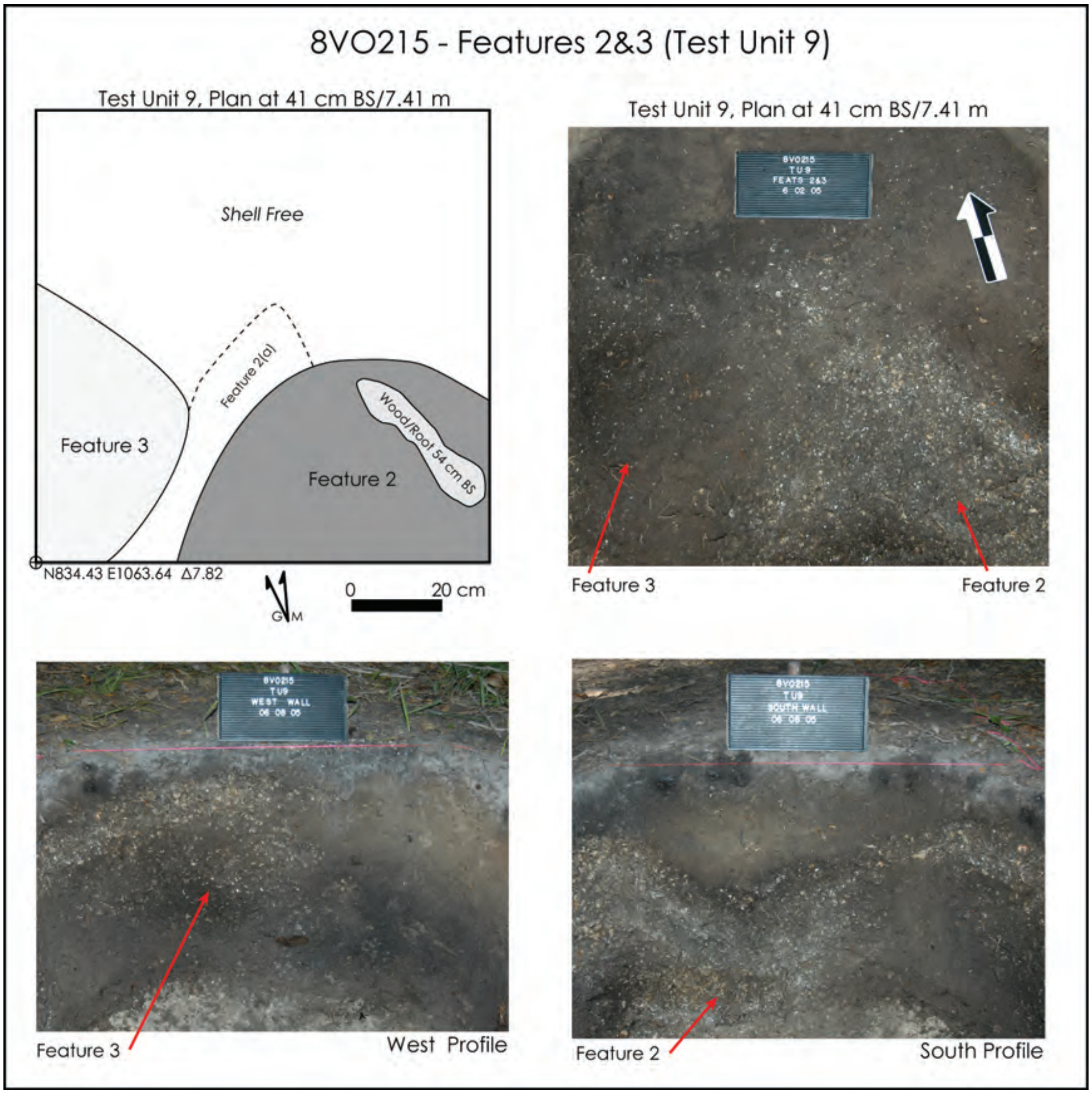

Figure 3-16. Plan map and photographs of Features 2 and 3 in Test Unit 9, 8VO215.

center, typical of a pit that has been filled in successive depositional events. Lenses b-d vary in the midden content and the amount of crushing (Table 3-9). The overlying lens (b) is composed of both whole and crushed *Pomacea* and *Viviparus*. Below that, the fill alternates between diverse concentrations of shell species, and lenses almost exclusively containing bivalve shell. The underlying lens (e) appears to have the same matrix as the overlying fill, but is concreted.

<u>Feature 3</u>

A semi-circular patch of dark organic sand and low-density shell was first noted at the base of Level A in the southwest corner of TU9. This concentration expanded to an area approximately 60-cm wide within Level B and was subsequently designated Zone C.

Table 3-9. Stratigraphic Units of Feature 2, 8VO215.

Lens	Max. Depth (cm BS) [1]	Munsell Color	Description
a	37	10YR3/1	Loamy fine sand with abundant crushed and whole *Viviparus*; possible animal burrow
b	55	10YR4/1	Abundant crushed and whole *Pomacea* and whole *Viviparus*
c	70	10YR4/2	Abundant whole and crushed *Viviparus*, *Pomacea*, and bivalve; fine silty sand within shell matrix
d	73	10YR6/2	Abundant crushed and whole bivalve, occasional whole and crushed *Pomacea* and *Viviparus*
e	73+	10YR6/2	Concreted crushed and whole bivalve, occasional whole and crushed *Pomacea* and *Viviparus*

[1]maximum depth in south profile below surface (Δ7.85 m)

In Level D the matrix merged with Zone B to the east and both were excavated as Zone B/C. At the base of Level D (40 cm BS) the shell concentration was designated Feature 3 (Figure 3-16). The feature was excavated to a depth of 61 cm BS. The matrix was a dark brown fine sand with moderate whole *Viviparus* shell scattered throughout. One eroded fiber-tempered sherd was recovered during excavation. As seen in profile, the feature has an irregular outline and dips significantly to the north. Based on this configuration it is likely that the feature is a relatively more recent disturbance resulting from animal burrowing activity. Lens 2a within Feature 2 is likely associated with this event.

Summary

Inhabitation of Node-3 occurred principally during the Orange period. Excavations of TU1, TU9, and associated coring suggest that the Node is composed of discrete activity areas associated with domestic activities. Two depositional events and a possible living surface were exposed along the western, swamp-facing shell midden escarpment in TU1. The shell midden contained two macrostratigraphic deposits of shell midden likely representing two periods of deposition. The lower shell-free surface of TU1 appeared to contain a buried A horizon that contained both lithics and Orange sherds. Whether this horizon represents an occupational surface is unclear. Coring identified a flat surface with low-density shell a few meters to the southwest. This extension of shell may represent yet another activity surface, but this cannot be verified with the current data. Upslope on the terrace edge TU9 encountered at least one large shell pit truncating a shell and shell-free midden sequence. The lower strata may actually date to the Mount Taylor period. Like TU1 the upper shell midden was situated immediately adjacent an organically enriched horizon that contain vertebrate fauna in addition to Orange pottery. Other features in the vicinity are suggested by the generally hit-or-miss results of coring in this upslope component of Node-3. It is likely that other features are present on this landform, and may provide evidence for an organized domestic structure.

RESULTS OF TESTING NODE-4

Node-4 is a diffuse shell deposit located immediately south of Node-3. Coring in this locality identified widespread high and low-density shell across the terrace. In maximum dimensions the midden is 48-m long and 20-m wide (Figure 3-17). Like other shell nodes it is characterized by a centralized dome of midden. Within Node-4 this dome is relatively small at 15-m long and 6-m wide, and rises 20 cm above the surrounding terrace surface.

Test Unit 4

Test Unit 4 was positioned to the west of Node-4's central dome with the goal of documenting the structure of downslope deposits (Figure 3-17). The unit was oriented roughly parallel to the slope of the terrace, and rotated 45 degrees off grid north. A sequence composed of developed soil horizons superimposed on shell midden was documented. One Orange period ethnostratigraphic unit is represented by several fiber-tempered crumb sherds. Profile drawings and photographs are presented in Figure 3-18, with stratigraphic descriptions presented in Table 3-10. Tabulations of recovered material culture by level are presented in Table 3-1l.

Shell-free matrices were encountered in all levels. Stratum I, a dark gray A horizon containing abundant organic matter, was initially encountered in Level A. At the base of the level we also encountered underlying Stratum III shell midden. Although vertebrate faunal bone was recovered in Level A, field notes suggest that they were derived from this stratum. Beginning with Level B, shell-free matrices were designated as Zone A, while shell midden was designated Zone B. Within this level the shell free matrix graded into Stratum II, a tan/brown fine sand with small charcoal clasts throughout. Stratum II disappeared within the eastern half of the unit by the end of the level, and finally disappeared at ca. 25 cm BS within Level C. Small pockets of shell-free soil continued within Level D, mostly within the western half of the unit. These may represent animal burrows, as they were slightly darker in color indicating a higher organic content. Vertebrate faunal remains were encountered in relatively low numbers throughout these levels, although there is an increase in bone density with depth. Moreover, fiber-tempered crumb sherds were recovered throughout, albeit as isolated occurrences within each level.

As seen in profile, Stratum III is a moderately dense shell midden that decreases in thickness, from 24 cm to 10 cm towards the western, downslope edge of the unit. This stratum is characterized by whole and crushed *Viviparus* shell, with bivalve and *Pomacea* occurring in lower frequencies throughout a tan/brown fine sand. Throughout this stratum we routinely encountered small and large clasts of concreted shell midden. These clasts occurred as thin lenses and large globular masses, and were oriented in a variety of ways. The impression was that these concretions had been broken up and mobilized post-depositionally. Several possible animal burrows were noted during excavation, and are

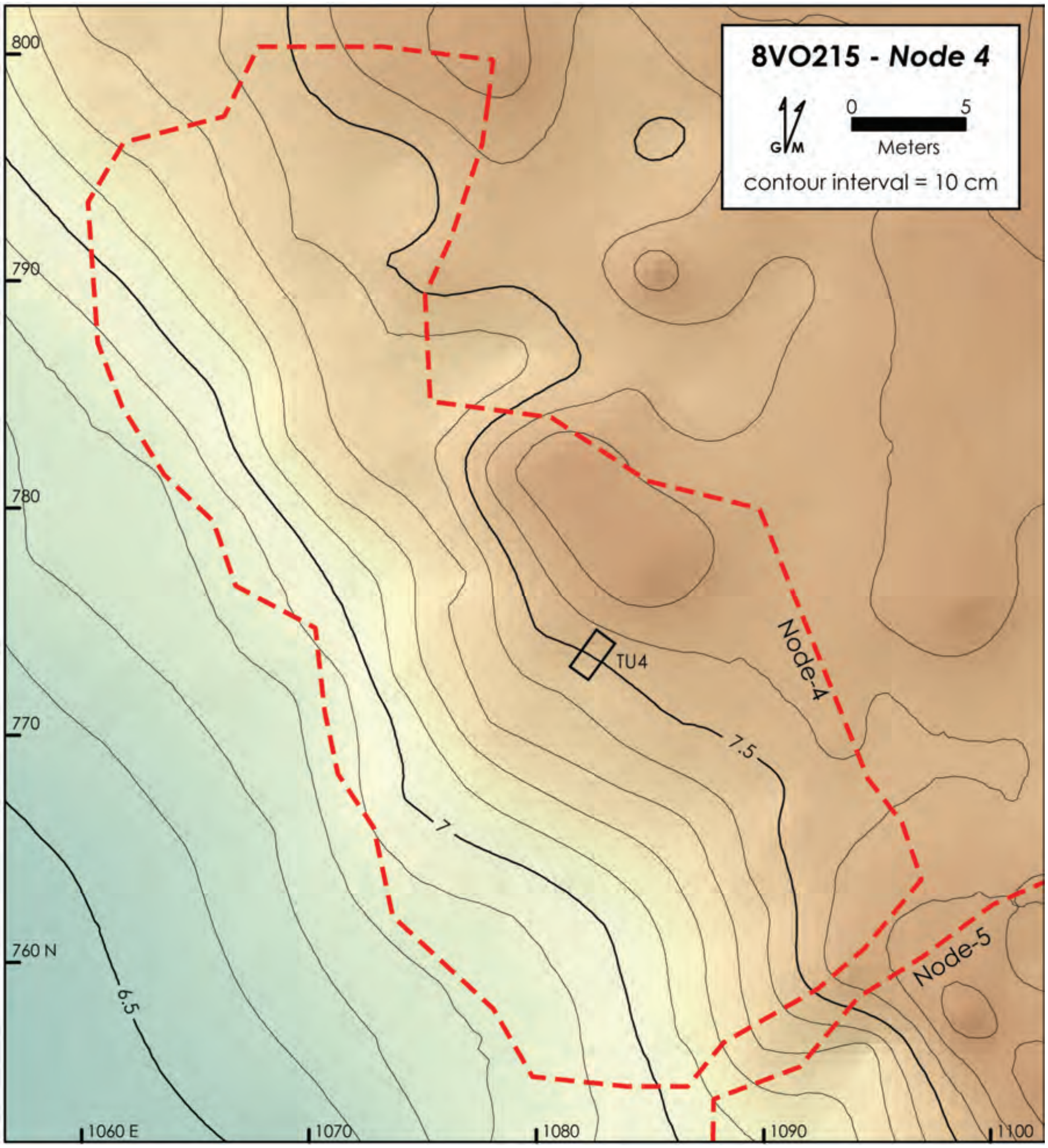

Figure 3-17. False color topographic map showing the location of Test Unit 4 within the boundaries of Node-4, 8VO215.

the likely source of midden movement. Moderately dense vertebrate faunal bone was recovered throughout this stratum, in addition to two fiber-tempered crumb sherds and one non-diagnostic biface fragment. Towards the base of Level C, we also noted Stratum IIIa, a dark organic sand matrix with low-density shell occurring throughout. This stratum is only visible in the southern profile (not shown in Figure 3-18), as a 10-cm thick flat lying deposit. In terms of content, Stratum IIIa appears to be derived from Stratum III.

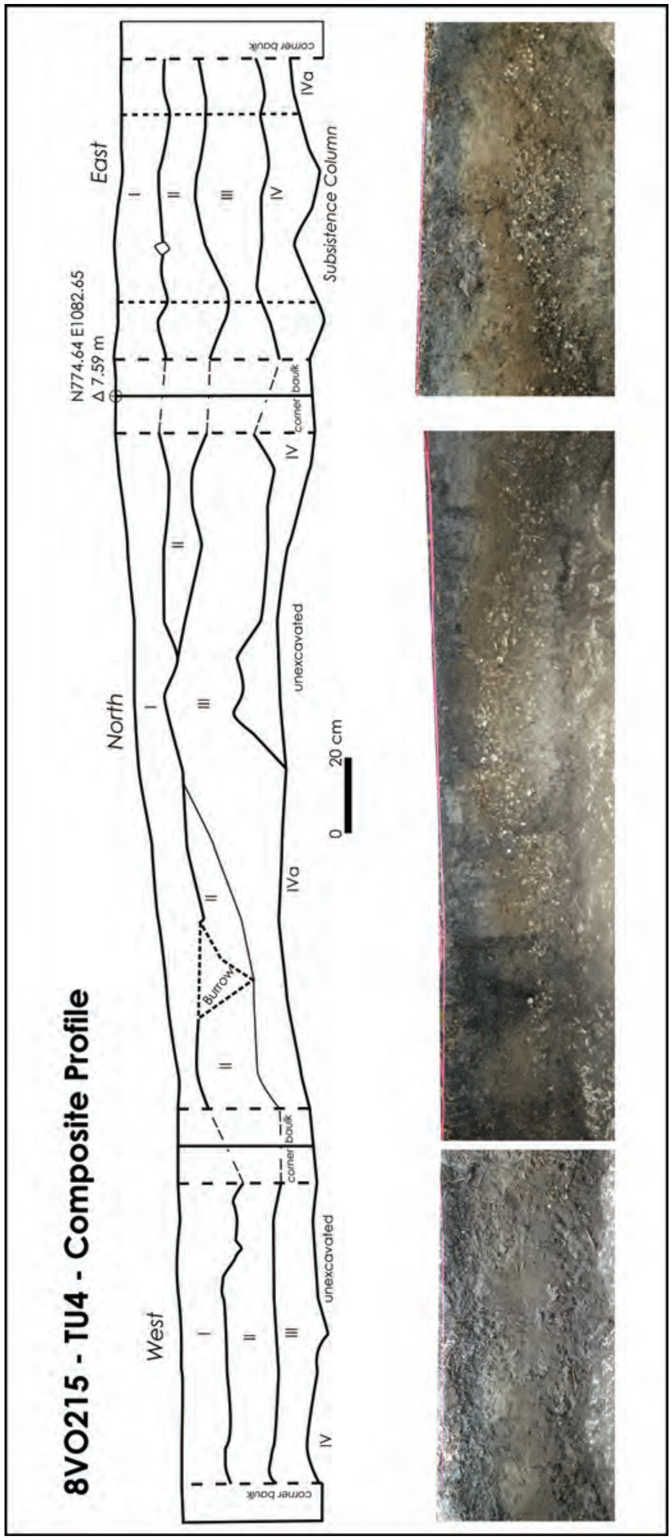

Figure 3-18. Composite profile drawing and photographs of Test Unit 4, 8VO215. Note: photographs are not to scale.

Table 3-10. Stratigraphic Units of Test Unit 4, 8VO215.

Stratum	Max. Depth (cm BS)[1]	Munsell Color	Description
I	14	10YR5/1	Organically enriched fine sand; abundant palm roots and detritus
II	25	10YR5/3	Fine sand; occasional palm roots and charcoal flecks; contact with Stratum III undulates
III	40	10YR4/2	Abundant whole and crushed *Viviparus*, some crushed bivalve and *Pomacea*; shell appears more crushed at the contact with Stratum II; matrix is a fine ashy sand
IIIa	48	10YR3/2	Fine loamy moist sand with moderate amounts of whole and crushed *Viviparus*, occasional crushed bivalve and *Pomacea*; appears to be organically enriched low shell density zone associated with Stratum III, possibly a buried A horizon; only present in south wall
IV	54	10YR5/3 - 10YR7/3	Moist gritty fine sand with occasional shell fragment; occurs as either unconsolidated matrix or as small clasts
IVa	54+	10YR5/3 - 10YR7/3	Concreted gritty sand; surface undulates with Stratum IV; concreted terrace sands
Root/Animal Disturbance	54+	10YR2/1	Loamy very fine organic sand; occurs in pockets throughout

[1]maximum depth in north profile below surface at northeast corner (N774.64 E1082.65 Δ7.59 m)

Table 3-11. Cultural Materials Recovered from Test Unit 4, 8VO215.

Level	Orange Crumb Sherd	Biface Fragment	Vertebrate Fauna (g)
A			65.6
B - Zone A	1		59.1
B - Zone B	1		288.2
C - Zone A	1		116.5
C - Zone B			187.6
D - Zone A			52.1
D - Zone B	1	1	106.4
D - Zone C			7.6
D - Zone D			2.5
E - Zone C			0.2

However, Stratum IIIa's origins remain unclear. At least three animal burrows were noted in the field, and these likely contributed the organic content to the stratum. A similar pocket of material was identified within Level D in the eastern end of the TU4 and designated Zone D.

Underlying all shell deposits is a gritty fine sand (Stratum IV) that graded into a concreted sand (Stratum IVa). These strata represent the original, pre-habitation terrace surface. Stratum IV was first encountered in Level D, where it was treated as Zone C. The contact between this gritty sand and the overlying shell midden undulated, and pockets of concreted gritty sand were found within the shell midden. Except for a few pockets, TU4 was concreted at elevations between 34 and 40 cm BS. Excavation in Level E was restricted to a pocket of non-concreted Stratum IV sand in the northwest component of the unit, as seen in profile. As was the case with Stratum III, it appears that there has been significant biogenic reworking of these deposits.

Summary

Excavation of Test Unit 4 yielded a largely convoluted picture of midden deposition. One ethnostratigraphic zone dating to the Orange period was present, based solely on a few Orange crumb sherds. This shell midden was generally thin and without clear internal structure. Moreover, widespread evidence for post-depositional disturbances, including animal burrows and possible tree-throws in antiquity were evident. However, the characteristics of this component of Node-4 provide some perspective on thin and diffuse downslope deposits elsewhere at 8VO215. Test Unit 4 documented that at least in this vicinity, western edges of shell nodes do not appear to have been high-use areas. This is suggested by the lack of well-defined crushed shell lenses.

RESULTS OF TESTING NODE-5

Node-5 is coterminous with the shallow southern deposits of Node-4, as defined through coring. At a maximum the node measures 50-m long and 40-m wide. Like other locales within 8VO215, the eastern margin is marked by an abrupt shift between topographic relief and non-shell deposits. The southern margin is characterized by a steep escarpment, reflecting bank-erosion from Snake Creek. The western margin is characterized by low-density shell deposits that are diffused within the swamp.

Sub-areas differentiated by micro-topographic variations are evident within the boundaries of this node. These are labeled areas "A" for the north and "B" for the south in Figure 3-19. The division between areas is the 7.9 m contour interval. Locus A is the center of Node-5, composed of a central dome 20-m in diameter that rises 50 cm above the terrace. A semi-circular depression is also evident on the northern aspect of Area A. This depression is bordered on the east and west by arcuate extensions of shell midden. Area B to the south is a more typical central dome of shell midden, measuring 15 m in diameter, and separated from Area A by a slight depression.

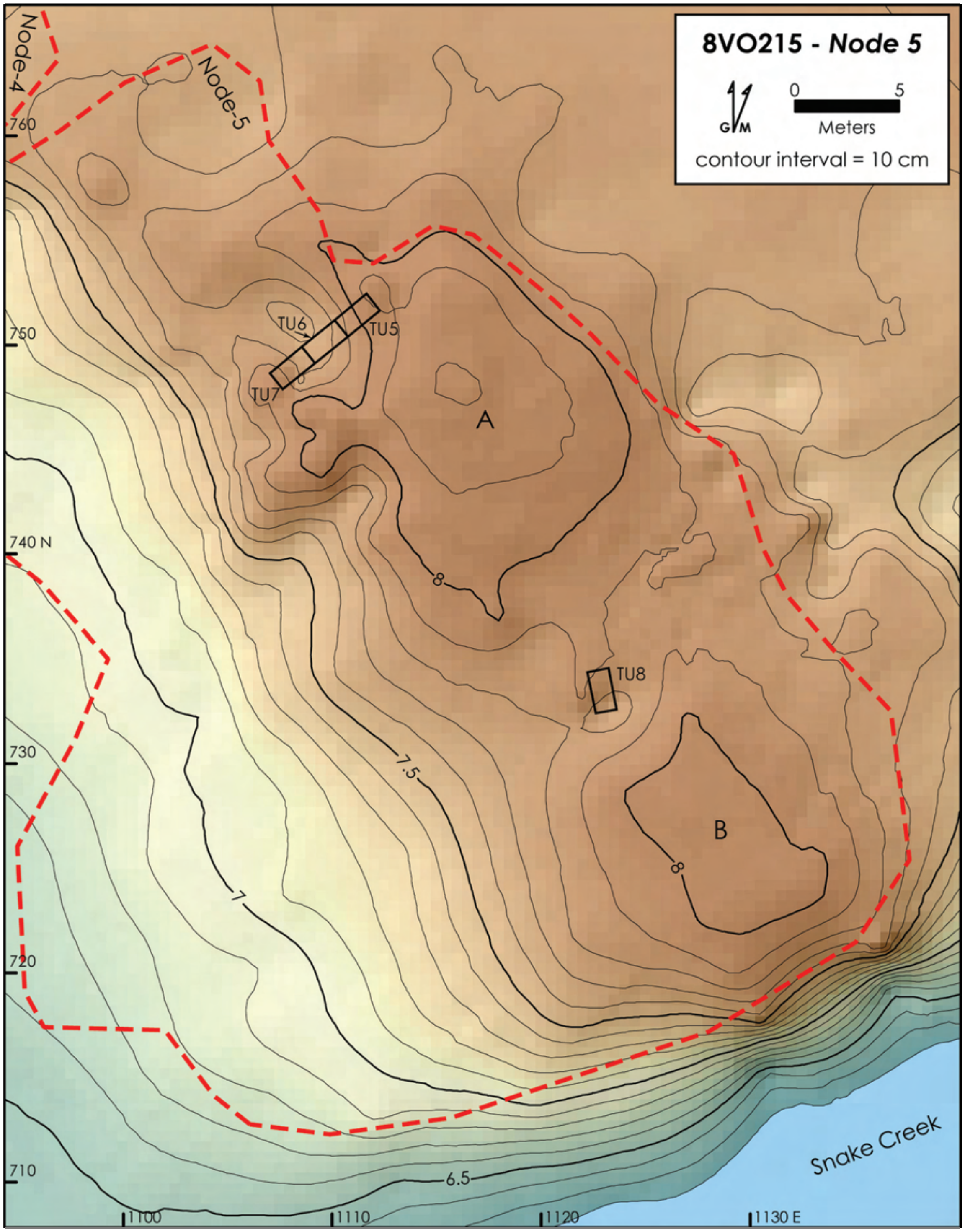

Figure 3-19. False color topographic map showing the location of Test Units 5-8 within the boundaries of Node-5, 8VO215.

Trench: Test Units 5, 6, 7

Coring in the depression between the arcuate extensions of shell along the northwestern margin of Area A encountered a low-density shell deposit with organic enrichment. As seen in Node-2, the close-interval dichotomy between shell and non-shell middens is suggestive of activity or residential areas adjacent shell deposits. At Node-5, however, concreted shell midden was also present on the surface 5 m north of this locality, suggesting a recent disturbance. Three adjoining 1 x 2-m test units (TUs 5-7) were excavated as a linear trench along the northwestern margin of Area A to determine whether the structure of the shell deposit reflects organized prehistoric midden deposition or modern land alteration. This trench was positioned to bisect the two arcuate lobes and associated depression (Figure 3-19). After establishing the boundaries of each test unit, we first excavated TU5 and TU7 by 10-cm arbitrary levels. TU6 was initially left intact to provide intact witness profiles. After completion of TU5 and TU7, the intact profiles guided excavation of TU6 by natural stratigraphy.

Collectively, excavation of the trench revealed a sequence of shell midden lenses, upwards of 80-cm thick, overlying concreted terrace sands. A composite profile and photographs are presented in Figure 3-20, and the correlated stratigraphic units across the trench are presented in Table 3-12. As will be detailed, Strata II and IV reflect a largely intact depositional sequence dating to the St. Johns I period. Some localized disturbances are present (Strata III, V, VI), but appear to have occurred in antiquity. While an Orange period occupation is also suggested by diagnostic artifacts, these were recovered at the top of the sequence implying they were moved from their original context.

<u>Test Unit 5</u>

Test Unit 5 was positioned on the shell midden extension to the east of the central depression (Figure 3-19). The surface slopes to the west from the top of the midden extension to near the base of the depression (Figure 3-20). Because of this slope, the first three levels were wedge-shaped. A summary of artifacts recovered by level is presented in Table 3-13, and photographs of selected artifacts are in Figure 3-21.

Excavations first encountered a very thin root mat (Stratum Ia) across the entire unit. After 5-cm, this stratum gave way to Stratum II, a dense shell midden composed primarily of whole and crushed *Viviparus*, with some crushed *Pomacea* and bivalve occurring sporadically throughout. Throughout Stratum II small flecks of charcoal were noted in each level, as were occasional isolated, flat-lying concreted midden clasts, typically 1-2 cm thick. As seen in profile, Stratum II is approximately 40-cm thick in the east, and becomes gradually thinner to the west. This stratum was present in all levels. Starting in Level D it was designated Zone A. Underlying Stratum II are Strata VII and VIII, culturally sterile sand. Stratum VII is a transitional lens composed of mixed matrices derived from the overlying Stratum II and underlying Stratum VIII. It is characterized by gritty, partially concreted sand that contained occasional fragments of shell. Vertebrate fauna was recovered in low-density in the vicinity of this Stratum (Level

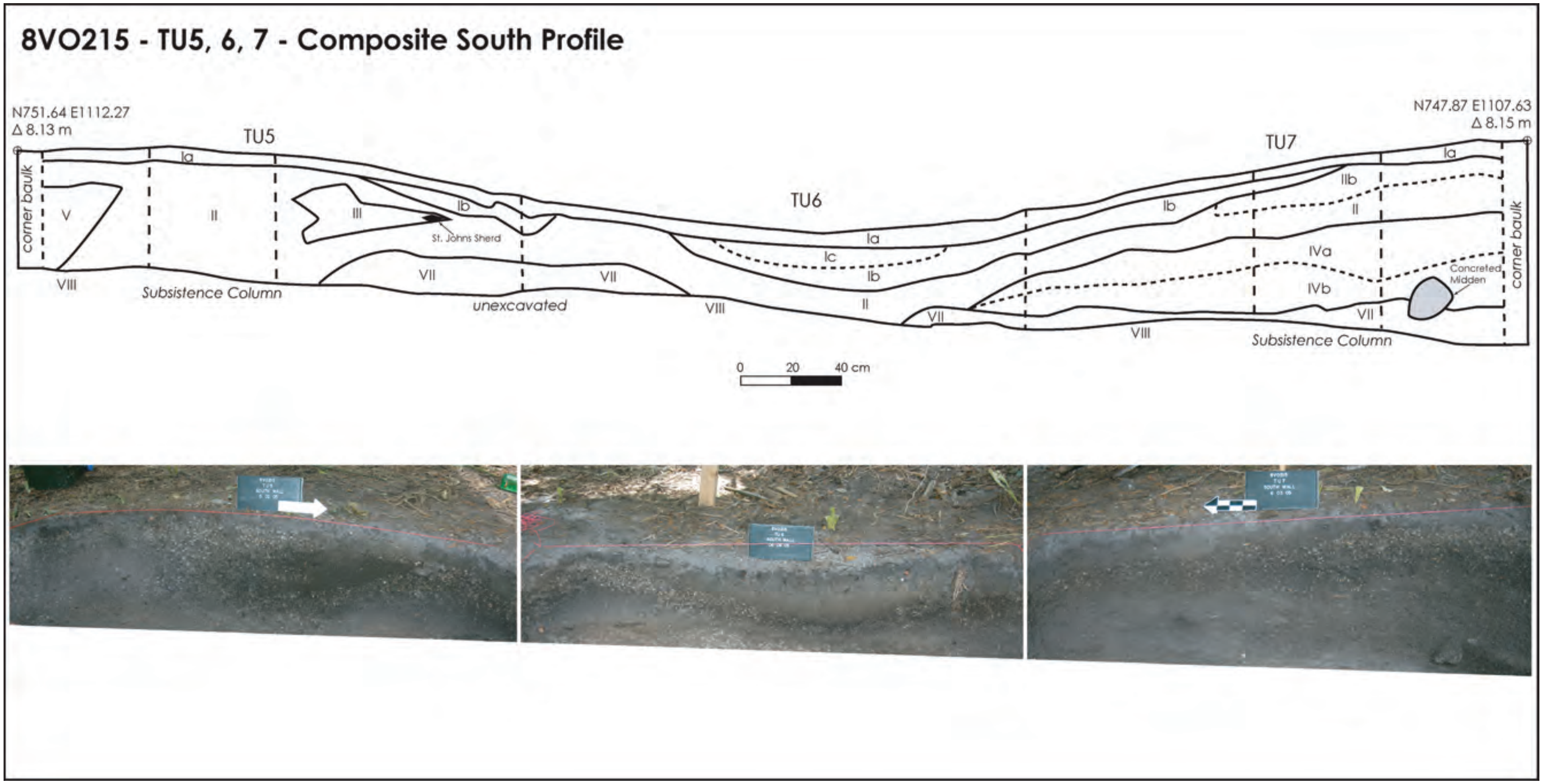

Figure 3-20. Composite profile drawing and photographs of the South wall of Test Units 5, 6, and 7, 8VO215. Note: photographs are not to scale.

Table 3-12. Stratigraphic Units of Test Units 5, 6, and 7, 8VO215.

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
Ia	42	10YR6/1 - 10YR2/2	Organically enriched fine sand; abundant palm roots and organic detritus
Ib	60	10YR4/2	Organically enriched fine sand; moderate palm roots
Ic	52	10YR3/2	Organically enriched fine sand with few roots
II	78	10YR2/2	Abundant whole and crushed *Viviparus*, some bivalve and *Pomacea* in greasy fine sand
IIa	30	10YR4/1	Abundant whole and crushed *Viviparus*; some *Pomacea* and bivalve; in TU7 west profile only
IIb	16	10YR4/2	Abundant crushed *Viviparus*; occasional crushed bivalve; significantly less sand in matrix than Stratum II; localized lens in TU7 south profile.
III	40	10YR4/2	Silty fine sand with some shell fragments and occasional fauna; appears intrusive in east, west, and south profiles in TU5; likely animal burrow
IV	78	10YR4/1	Moderate amount of whole and crushed *Viviparus*, bivalve and *Pomacea* in silty/loamy fine sandy matrix; significantly more sand in matrix than Stratum II
IVa	58	10YR3/2	Moderate amount of crushed and whole *Viviparus*, some bivalve and *Pomacea*, in fine ashy sand; occasional concreted clasts
IVb	68	10YR2/2	Moderate amount of crushed and whole *Viviparus*, some bivalve and *Pomacea*, in fine ashy sand; occasional concreted clasts
IVc	78	10YR3/2	Moderate amount of crushed and whole *Viviparus*, some bivalve and *Pomacea*, in fine ashy sand; occasional concreted clasts; more silt than Strata IVa and IVb; present only in north profile.
V	55	10YR4/2	Gritty fine sand, grit consistent with Stratum VIIII (concreted sand); appears mostly devoid of shell and fauna; likely disturbance
VI	50	10YR3/1	Loamy fine sand; no shell; localized zone below Stratum I in north profile of TU6
VII	82	10YR5/2 - 10YR5/3	Gritty fine sand; concreted and mottled; upper contact with Strata II and IV contains occasional shell fragments; increasingly concreted with depth
VIII	82+	10YR7/1, 10YR5/1, 10YR5/4	Concreted gritty fine sand, highly mottled; root casts present throughout; contact with overlying shell strata contains cemented shell

Table 3-13. Cultural Materials Recovered from Test Unit 5, 8VO215.

Level	Ceramic Sherds		Lithic			Marine Shell			
	St. Johns	Crumb	Flake	Uni-face	Hafted Biface	Frag.	Tool	Bone Tool	Vertebrate Fauna (g)
A									85.6
B			2		1		1		281.7
C	5		1	1				2	519.8
D									20.3
D - Zone A	5	2	3					1	462.6
D - Zone B									26.3
E - Zone A			2			1			222.2
E - Zone B									26.8
E - Zone C									96.6
F - Zone A			1						116.6
F - Zone C									16.9
G - Zone A									45.4

F – Zone A). The base of the unit was composed of Stratum VIII, a fully concreted gritty fine sand with extensive mottling throughout. In profile Stratum VIII can be seen dipping from the east to west across the entire trench, and appears to be the original pre-inhabitation surface.

In addition to intact stratigraphy, two disturbed zones were also evident. Stratum V is an amorphous, pit-like stratum encountered in the eastern half of the unit. The stratum was initially recognized at the base of Level C as a semi-circular patch of shell-free matrix below the shell midden. In successive layers it was treated as Zone B. The matrix was a gritty fine sand devoid of shell, and is consistent with the underlying Stratum VIII sand. Given the stratigraphic superiority of shell, it would appear that this disturbance occurred in antiquity. Stratum III represents another disturbance. It was first recognized as a black organic mostly shell-free matrix emerging from the southern profile at the base of Level C. In successive levels it was treated as Zone B. In profile it is evident as a biconvex lens. Pottery sherds were recovered adjacent two, but not within this stratum. Similarly, vertebrate fauna was encountered only in low densities. This stratum is likely an animal burrow, given the amorphous shape, the lack of artifacts, and the highly organic matrix.

Excluding occasional finds, all material culture was restricted to Stratum II. Diagnostic St. Johns Plain sherds were recovered in Levels C and D (Table 3-13). Also recovered was a basally notched hafted biface, consistent with the Woodland period Hernando type (Figure 3-21g). Non-diagnostic materials were recovered throughout. Vertebrate fauna occurred in moderate abundance throughout Stratum II, although there is a general trend towards decreasing vertebrate fauna with depth. Fragments of modified bone were found at higher elevations in the stratum. This assemblage includes two polished medial fragments (Figure 3-21b, d), as well as a long-bone fragment with a circumferential incision at one end (Figure 3-21c). The marine shell assemblage

Figure 3-21. Selected artifacts from Node-5, 8VO215. a-d, f. modified bone; e, k. modified marine shell; g-h. hafted biface; i. hammerstone; j. St. Johns Check Stamped sherd.

contained a small fragment of unmodified shell as well as a mostly intact portion a celt, likely manufactured from the lip of a *Strombus* sp. shell (Figure 3-21k). While fragmented, the base appears to be laterally notched, likely for hafting purposes. The lithic assemblage consists of nine lithic waste flakes recovered in low densities, and a marginally modified flake.

Test Unit 6

Test Unit 6 was situated within the depression between the two shell midden extensions. Three primary stratigraphic units were recognized during excavation, as guided by the profiles of previously excavated TU5 and TU7 profiles. Stratum I was present across the unit surface. As seen in Profile, this stratum dips towards the center of the test unit where it is the thickest. Sub-divisions (Strata Ia, Ib, Ic) were evident after excavation. These represent moderately well-developed shell-free soil horizons situated above the Stratum II shell midden. A related soil horizon (Stratum VI) of organically enriched shell-free sand was observed in the north profile of TU6. Stratum II within TU6 was slightly darker and appeared to contain higher amounts of organic matter. The surface of this stratum had the appearance of a buried A horizon situated below the Stratum I sand. Excavation of TU6 also encountered Stratum VI, similarly situated above concreted basal sand.

A relatively high density of material culture was recovered from TU6 despite the thin deposits (Table 3-14). St. Johns Plain body and crumb sherds were recovered from all recognized strata. The highest density were recovered in the non-shell Stratum I, with occasional sherds recovered in Strata II and VII. Three Orange fiber-tempered sherds were also recovered from Stratum II. Small marine shell fragments were similarly recovered throughout all strata. Vertebrate faunal remains peaked in density within Stratum II, but they were recovered in moderate density within Stratum I as well.

Table 3-14. Cultural Materials Recovered from Test Unit 6, 8VO215.

Stratum	Ceramic Sherds			Marine Shell Fragment	Vertebrate Fauna (g)
	St. Johns Plain	St. Johns Crumb	Orange Plain		
I	6	16		2	170
II	2	7	3	2	302.7
VII	2	4		1	42.3

Test Unit 7

Test Unit 7 was situated on the western arm of the shell extension from Node-5. Strata I and II continue unabated from the eastern component of the trench, and are superimposed over a lower sequence of shell midden designated Stratum IV. As seen in the west profile Test Unit 7 provided the deepest sequence within the trench, due in part to the original sloping terrace surface (Figure 3-22).

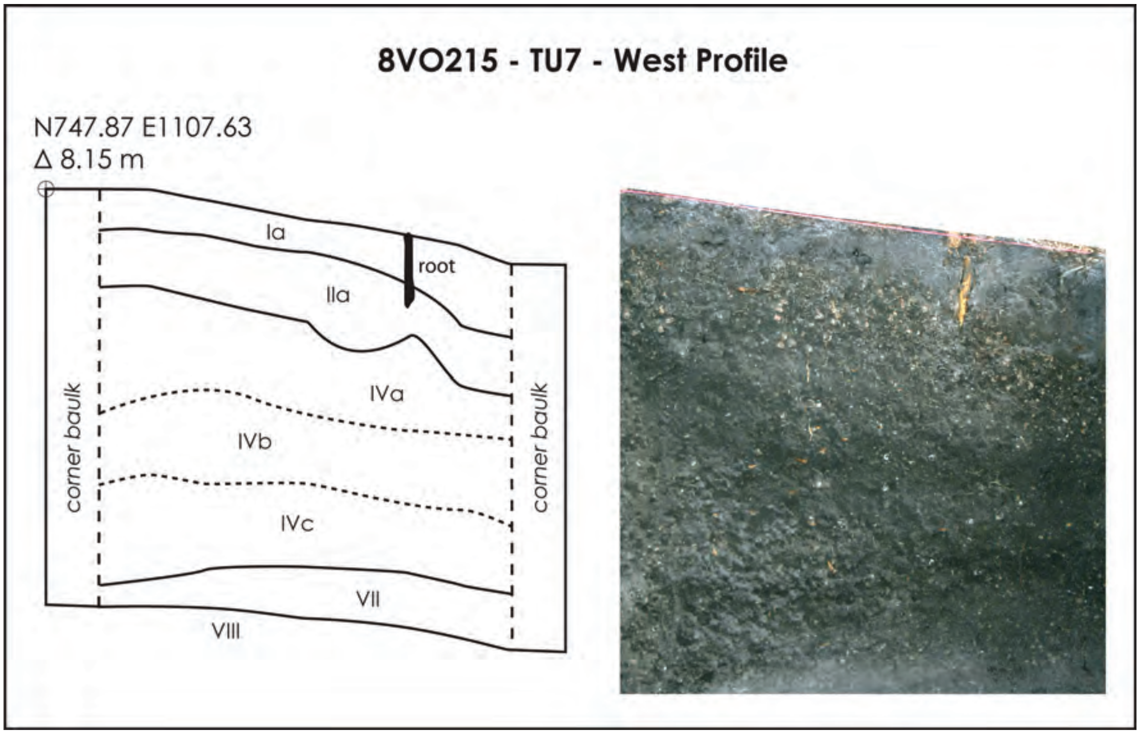

Figure 3-22. Profile drawing and photograph of the West wall of Test Unit 7, 8VO215. Note: photograph is not to scale.

As in TU5, excavations first encountered a thin root mat that gave way to Stratum II shell midden within Level A. Because of the significant slope of the surface deposits Stratum I was encountered as deep as Level D. Although not treated separately from Stratum II in the field, notes indicate that no material culture was derived from Stratum I. As excavation progressed, shell midden eventually expanded across the entire unit. Several sub-units of Stratum II were recognized at the contact of Stratum I and II. Stratum IIa is a localized lens in the west profile of TU7 composed primarily of whole and crush *Viviparus* with some *Pomacea* and bivalve throughout. In the southern half of the unit we also documented Stratum IIb, a ca. 10-cm thick lens dominated by crushed *Viviparus* shell and notably less sand in the matrix than Stratum II. This lens is reminiscent of other near-surface shell deposits encountered, particularly Stratum II in TU2.

Beginning in Level D, excavators noticed an increase in sand as well as a darkening of the matrix. This transition approximates the division between Stratum II and Stratum IV. As a major stratigraphic unit, Stratum IV is characterized by moderate density shell midden composed of crushed and whole *Viviparus* with bivalve and *Pomacea* occurring throughout. This midden is within a gray/brown ashy fine sand. Throughout these zones, small and large clasts of concreted midden, between 5 and 10-cm thick, were encountered (one is depicted within the southern profile in Figure 3-20). After excavation of the trench was completed subtle divisions based on sand abundance

Table 3-15. Cultural Materials Recovered from Test Unit 7, 8VO215.

Level	Ceramic Sherds			Lithic		Marine Shell		Vertebrate Fauna (g)
	St. Johns Plain	Orange Incised	Crumb	Flake	Hafted Biface	Frag.	Tool	
A							1	73.8
B		1			1			182.0
C	2		3*			1		272.4
D	8							428.9
E	1			1		2		148.7
F								140.2
G - Zone A				1		1		82.8
G - Zone B								34.2

*1 crumb Orange Plain, 2 St. Johns Plain

and color were noted within Stratum IV. These zones dip to both the south and west. Stratum IVa is the uppermost lens, and is characterized by a dark grayish brown sand matrix approximately 10-cm thick. In profile the surface of this stratum dips to the east, but it otherwise is lying flat. Between 50 and 60 cm BS, the matrix graded into the very dark brown Stratum IVb. In the west profile we also recognized Stratum IVc, which is wholly contiguous with Stratum IVb. It is characterized by an increase in silt within the matrix, and is a slightly lighter dark grayish brown in color. Towards the base of TU7 in Level G (70 cm BS), excavators designated two zones of shell midden. Zone A was described as a gray/brown shell midden and was located in the eastern two-thirds of the unit. Zone B was described as a shell midden with dark brown matrix, restricted to near the western profile. This division approximates the division between Stratum IVb (Zone A) and Stratum IVc (Zone B) noted in profile.

Level G was excavated as a 20-cm cut, due to the presence of concreted basal sands at higher elevations in the east half of the unit. As seen in profile, the concreted basal Stratum VIII dips down to the west, a maximum of 82 cm BS. As in the rest of the trench, non-concreted mostly shell free sand (Stratum VII) was noted above concreted sand.

Material culture was present throughout the TU7 shell strata. A total of 11 St. Johns Plain sherds were recovered, between depths of 20 and 60 cm BS. These were all noted to be lying flat within the matrix. One St. Johns Plain sherd was also noted within the each of the Strata IVa and IVb column samples. Two Orange fiber-tempered sherds were also recovered, apparently out of their original stratigraphic context. A portion of a heavily eroded Orange Incised rim sherd was recovered at the base of Level B, and one fiber-tempered crumb sherd was recovered from the shell matrix within Level C. Both were likely derived from Stratum IIa. The lithic assemblage from TU7 included one hafted biface found at 24 cm BS, in addition to two flakes found in lower levels. The hafted biface is characterized by high-angle corner-notching and a slightly incurvate basal stem. The form is reminiscent of Bullen’s Ocala type, thought to date to the St. Johns period.

Test Unit 8

Approximately 20 m to the southeast of the trench is a slight depression that forms the boundary between areas A and B within Node-5. Test Unit 8 was situated partially within this depression, and roughly aligned with grid-north (Figure 3-19). The goal of testing TU8 was to document thick deposits in the interior of the shell node. Although there are higher deposits to the south and north these were covered with impenetrable vegetation. The surface of TU8 ranged between 7.92 m in the north and 7.65 m resulting in a significant slope trending down to the south.

Test Unit 8 was excavated to a maximum depth of 136 cm BS. The unit exposed a bipartite sequence composed of mostly intact, ca. 70 cm-thick shell midden above 60 cm of low density shell and shell-free midden. While the relationship between shell and sand dominated matrices is convoluted in the north and west profiles, a relatively uncomplicated sequence is apparent in the east and south profiles (Figure 3-23). The complexity apparent in the north/west portion of the unit represents a localized disturbance in the unit. Otherwise, at least one largely intact ethnostratigraphic unit dating to the St. Johns period was identified based on diagnostic sherds. A preceramic Archaic component may also be present. A composite profile drawing and photograph are presented in Figure 3-23, with stratigraphic descriptions presented in Table 3-16. Tabulations of recovered material culture by level are presented in Table 3-17, and photos of select material culture are presented in Figure 3-21.

The first three levels within TU8 were wedge-shaped, and did not expose the entire unit because of the slope of the surface. These levels cross cut an overlying root mat (Stratum I) and lower shell midden (Stratum II) that can be seen dipping to the south in profile. Stratum I is a shallow A horizon characterized by gray organically enriched fine sand with abundant roots and organic detritus. Subdivisions between upper (Stratum Ia) and lower (Stratum Ib) components of this stratigraphic unit were based largely on color and not composition. Although both shell and non-shell matrices were excavated in Levels A-C, they were not treated separately as zones. Excavation notes, including piece-plot data, indicate that all prehistoric artifacts were recovered from within shell midden. However, one metal fitted pipe fragment was recovered near the surface from Stratum I in Level C. By 35 cm BS within Level D, excavation had gone below Stratum I. A total of 25 metal fragments, including tin, wire nails, and a .22 caliber bullet casing were recovered from Stratum I at this depth.

Shell midden associated with Stratum II was initially encountered within Level A. As seen in profile, the surface of this deposit dips down to the south. Excluding a disturbance in the north end of TU8, the base of Stratum II lies relatively flat above a mostly shell-free sand matrix (Stratum IIIa). Beginning with Level D, Stratum II was treated as Zone A. As a major stratigraphic unit, Stratum II is characterized by abundant whole *Viviparus* with trace amounts of *Pomacea* and bivalve shell in a sand matrix. The upper Stratum IIa contains a small amount of sand, while the lower Stratum IIb midden is characterized by a higher frequency of minority shell species and a sand matrix that is

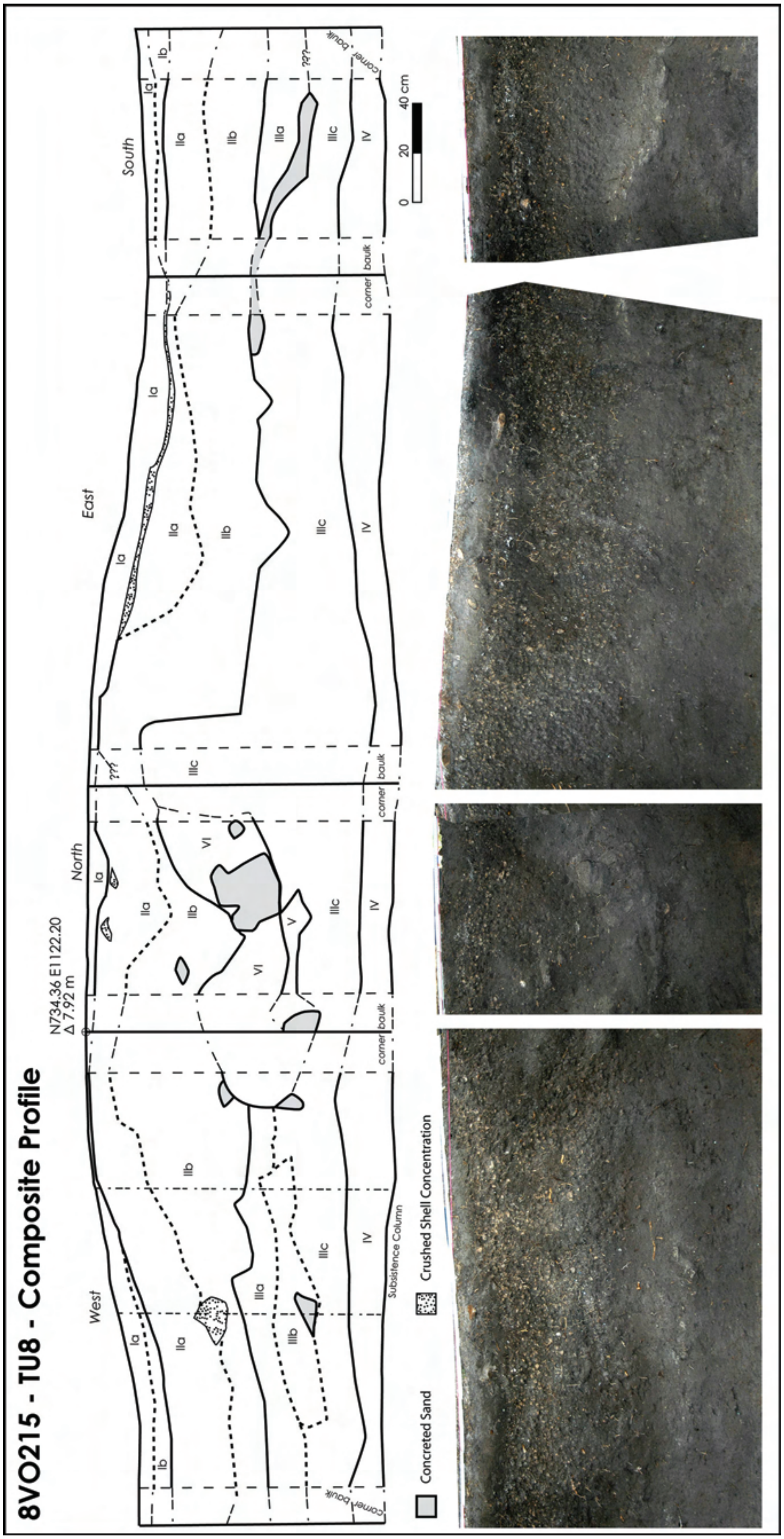

Figure 3-23. Composite profile drawing and photographs of Test Unit 8, 8VO215. Note: photographs are not to scale.

Table 3-16. Stratigraphic Units of Test Unit 8, 8VO215.

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
I	35	10YR4/1	Organically enriched fine sand; abundant roots and detritus
Ia	30	10YR4/1	Organically enriched fine sand; abundant roots and detritus
Ib	35	10YR3/1	Organically enriched fine sand; abundant roots and detritus
IIa	60	10YR2/1	Abundant mostly whole *Viviparus*, trace amounts of *Pomacea* and bivalve; fine loamy sand in matrix
IIb	70	10YR3/1	Whole and *Viviparus* and a lesser amount of whole *Pomacea* and bivalve; ashy gray fine sand in matrix
IIIa	90	10YR4/1	Fine loamy sand; trace amounts of shell
IIIb	98	10YR4/2	Partially concreted gritty sand; trace amounts of crushed shell
IIIc	105	10YR5/1	Coarse sand, rare shell
IV	136+	10YR5/2	Partially concreted gritty sand; no shell
V	88	10YR3/1	Crushed and whole *Viviparus* and *Pomacea* in fine loamy sand; possible intrusive disturbance in north profile
VI	75	10YR5/1	Silty fine sand; trace amounts of crushed shell; possible intrusive disturbance in north profile

[1]maximum depth in west profile below surface at northwest corner (N734.36 E1122.20 Δ7.92 m)

Table 3-17. Cultural Materials Recovered from Test Unit 8, 8VO215.

Level	St. Johns Sherds			Lithics		Marine Shell		Bone tool	Vertebrate Fauna (g)	Metal
	Plain	Check Stamped	Crumb	Flake	Ground-Stone	Frag.	Tool			
A	10	1	4	1					284.4	
B	3		9						314.0	
C	4		17	1					782.8	1
D	3				1					
D - Zone A	37	1	45	1				5	1115.1	25
D - Zone B									5.8	
E - Zone A	48		18			3			1231.0	
E - Zone B									42.2	
F- Zone A	2		1					1	228.2	
F - Zone B						1			31.3	
G - Zone A							1		153.3	
G - Zone B									24.3	
H - Zone C									231.9	
I - Zone C									53.7	
L - Zone C									10.6	
M - Zone C									3.6	

darker and more abundant. St. Johns pottery was recovered throughout Stratum II, typically lying flat in clusters of two or three sherds. Vertebrate fauna was recovered in very high densities.

No macrostratigraphic divisions within Stratum II were observed during excavation. However, excavators noted occasional discontinuous lenses composed either of crushed shell or charcoal matter. Lenses of crushed shell are almost entirely restricted to the contact between Stratum IIa and the near-surface Stratum I (Figure 3-23). The tendency for crushed shell to be present near surface is consistent with other test units at 8VO215. Charcoal lenses were seen throughout Stratum II. One of the more discrete charcoal concentrations was designated Feature 1 at a depth of 54 cm BS. In plan, this feature was an elongated oval, approximately 49-cm long and 38-cm wide (Figure 3-24). In cross-section the feature is a 7-cm deep depression. The core of the feature is composed of highly organic sediment with clasts of charcoal throughout. Underneath the feature there are darker shell and sand matrices, likely resulting from the downward movement of particulate organics. There was no evidence for thermal alteration, and this features appears to be a localized lens possibly relating to refuse disposal.

Excavators also encountered a coarse and gritty gray sand matrix with rare shell fragments in the north half of the unit in Level D. This was designated Zone B and excavated separately from the shell midden. As excavation proceeded, this section of TU8 remained largely shell free. At times large clasts of concreted and semi-concreted gray sand was also encountered. In comparison with the Zone A shell midden, Zone B yielded considerably low densities of vertebrate fauna, and no material culture was recovered (Table 3-17). Dense shell midden disappeared near the base of Level G, thereafter all matrix was treated as Zone C, a gray/brown sand containing low densities of shell, and which was occasionally concreted in lenses. Vertebrate fauna was most dense within Level H, and dropped off to only a few fragments after that.

At elevations between 30 and 70 cm BS, Zone B represents a number of related strata that are likely disturbed. As seen in the northwest corner of TU8, this elevation range corresponds with Strata IIIc, V, and VI (Figure 3-23). Stratum IIIc is a coarse gray sand lacking shell. Excluding a plume that extended upwards in the north profile, Stratum IIIc is primarily restricted to lower elevations. In contrast, both Strata V and VI are fine loamy sand with variable amounts of *Viviparus* and *Pomacea* present. These appear to be derived from higher elevation, as they are found intercalated with Stratum IIIa, a fine loamy sand with trace amounts of shell, as well as small and large clasts of concreted gray sand apparently derived from Stratum IIIb, a partially concreted gritty sand.

Below 70 cm BS, the profiles of TU8 appear to be largely intact. Stratum IIIa, present in the west profile, is a low-density shell midden situated below the dense Stratum II midden and above concreted and partially concreted gritty sand. Based on the lack of ceramics, and the different midden composition, this may represent an earlier aceramic component. Below this stratum, shell and bone density dropped off significantly although not entirely. Excavation was ceased in Level G due to the near-complete cementation of Stratum IV.

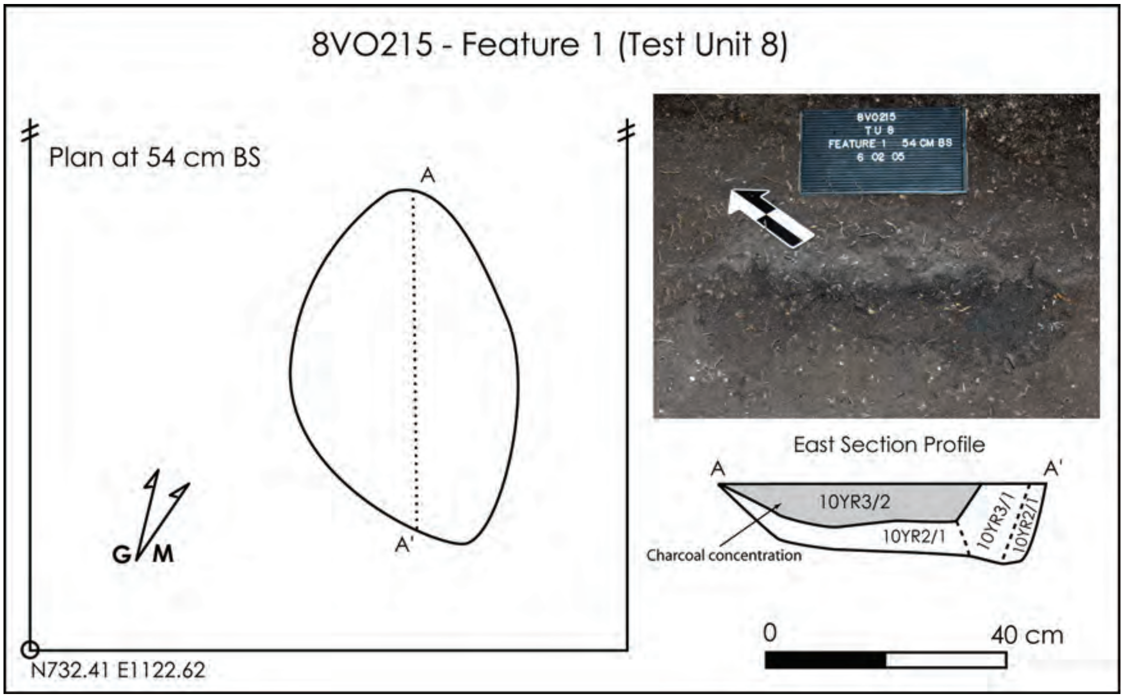

Figure 3-24. Plan map, cross-section drawing and photograph of Feature 1 in Test Unit 8, 8VO215.

Out of all test units excavated in 2005, TU8 yielded the highest density of material culture. Diagnostic St. Johns Plain sherds dominated the pottery assemblage, with a total of 107 sherds recovered from Levels A through F. Additionally, two St. Johns Check Stamped sherds were recovered at higher elevations (Figure 3-21j). Together these indicate at least a St. Johns II culture-historical association for the Stratum II shell midden. The lack of St. Johns Check Stamped sherds at lower depths suggests a St. Johns I affiliation, although without radiocarbon assays this can not presently be determined. Non-pottery objects were recovered throughout this ethnostratigraphic zone. The lithic assemblage included three lithic waste flakes in addition to a sandstone hammerstone that may have been burned (Figure 3-21i). Marine shell was recovered at lower depths, including four fragments of whelk shell as well as a bitted siphonal canal fragment (Figure 3-21e). The bone tool assemblage contains four distal and medial elongated polished bone fragments, as well as a bone tool that may be socketed (Figure 3-21f). Finally, vertebrate fauna was recovered in very high densities throughout levels that intersected Stratum II. Level D and E yielded the highest density by weight, with lower densities occurring throughout. As noted before, the presence of moderate bone density in association with shell midden lacking pottery in Levels G through I suggest the presence of an earlier, aceramic component. There is currently not enough information to verify this possibility.

Summary

Four test units emplaced within Areas A and B in Node-5 demonstrate that it is principally shell midden deposited during the St. Johns I period. Excavation of the trench failed to find clear evidence for either extensive disturbances or, alternatively, domestic architecture associated with the shell midden extensions and depression. Localized disturbances along the northern margin of the depression are evidenced by animal burrows and Orange pottery at the top of the sequence. However, the presence of well-developed soil horizons above the pottery suggests that the disturbances occurred well before Hontoon Island was cleared for Orange groves. Profiles exposed in the western component of the trench are likely the most telling of the depositional activities involved. Here shell midden was emplaced, apparently in several depositional episodes, to extend the upslope midden. In profile shell midden dips both down to the west and north, suggesting deposition occurred from near the top of Area A. This sequence is different from other nodes in that Node-5 is has a wide summit. It may be that any residential structures were emplaced on top of the apex, and not adjacent to the node as is likely the case in Nodes 1, 2, and possibly 3. Alternatively, such features, if they exist at all, may be present in the non-shell upslope component of the terrace where shovel testing during 2001 recovered St. Johns sherds. Testing between the apexes in TU8 failed to identify any clear evidence for habitation features such as differentiated shell strata, post holes or pit features. Those features identified were apparently small discontinuous lenses of charcoal or crushed shell. Finally, a preceramic component may be present at the base of Node-5 as suggested by low density shell below the concreted sand zone. Radiocarbon determinations may help resolve this issue in the future.

DISCUSSION AND CONCLUSIONS

The collective methods employed during the 2005 field season demonstrated that the Hontoon Dead Creek Village site is composed of discrete shell deposits registering nearly 7000 years of repeated inhabitation, spanning the Mount Taylor, Orange, and St. Johns periods. In terms of size and apparent significance, the Hontoon Dead Creek Village is at first glance dwarfed by the adjacent mound (Table 3-18). The seemingly mundane character of deposits within the confines of 8VO215 are overshadowed by the sheer cumulative quantity of shell and implied ceremonial significance of large scale activities at the Hontoon Dead Creek Mound. However, the field school's investigations of 8VO215 brought to light numerous data on the long-term history of domestic activities proximate the mound. In tandem with geomorphic and hydrological data, these details provide an opportunity to examine the social and ecological contexts surrounding the origins, construction, and subsequent abandonment of Mount Taylor ceremonial spaces that have heretofore gone uninvestigated within the region. While a full treatment of the significance of such patterning will have to wait for another monograph, a few key patterns evident at 8VO215 will be discussed.

Disregarding intrasite temporal patterning, the shell nodes at 8VO215 share several characteristics in structure and placement. Comparative metric data on shell nodes

Table 3-18. Comparison of the Size, Spacing, and Culture-Historical Associations of Discrete Shell Deposits at 8VO214 and 8VO215.

	8VO214	Shell Node				
		1	2	3	4	5
Minimum Elevation (m)[a]	6.17	6.87	6.80	6.65	6.86	6.67
Maximum Elevation (m)[a]	12.21	7.37	7.78	7.96	7.82	8.25
Thickness (m)[b]	7.34	0.40	0.60	0.50	0.20	1.0
Length (m)	155	14	25	38	46	50
Width (m)	60	8	18	30	22	41
Area (m^2)	6607	90	342	669	883	1594
Volume (m^3)[c]	12495.60	9.46	74.92	74.30	264.65	484.71
Distance to Previous (m)[d]	N/A	50	27	50	57	45
Distance from Mound (m)	N/A	16	43	93	150	195
Culture-Historical Association[e]	MT/O?/SJ?	MT	MT	O/MT?	O	MT?/O/SJI/SJII

[a] measured surface elevation
[b] based on test unit data
[c] minimum estimate based on core and test unit data
[d] distance to nearest northern node center
[e] MT=Mount Taylor, O=Orange, SJ=St. Johns, SJI=St. Johns I, SJII=St. Johns II

are presented in Table 3-18. The western, swamp-facing aspects of nodes are characterized by low-density shell along the slope, indicative of disposal activities oriented preferentially towards the water, and away from other upslope components. Shell nodes all terminate on the western edge at elevations between 6.65 m and 6.8 m above datum, and there is only limited evidence for deposition within the swamp itself. In most cases, the northern and southern margins were diffuse, with little evidence for an organized use of space. The eastern, upslope components are defined by abrupt topographic relief and a discontinuation of shell-midden. Shell was routinely deposited on the gently sloping terrace edge which was visible at the base of most test units. In each case the net affect was to create a linear or dome-shaped ridge of higher ground, and in some cases may have provided a foundation for architectural features. Finally, shell nodes are roughly equally spaced at intervals between 27 and 57 m, measured between the geographic center (centroid) of each node. Taken together, the shell nodes likely represent discrete habitation localities differentiated into multiple, prepared activity areas. While no architectural features such as post-holes were forthcoming, the totality of the evidence points towards shell nodes representing organized residential compounds of unknown duration.

Despite similarities in structural elements, a much more complex perspective on the long-term history of inhabitation emerges when the shell nodes are considered in spatial and temporal contexts. Illustrated in Figure 3-25 are two cross-sectional profiles of sites 8VO214 and 8VO215 with the distribution of culture-historical components detailed at the bottom of the figure. The upper profile depicts the surface topography,

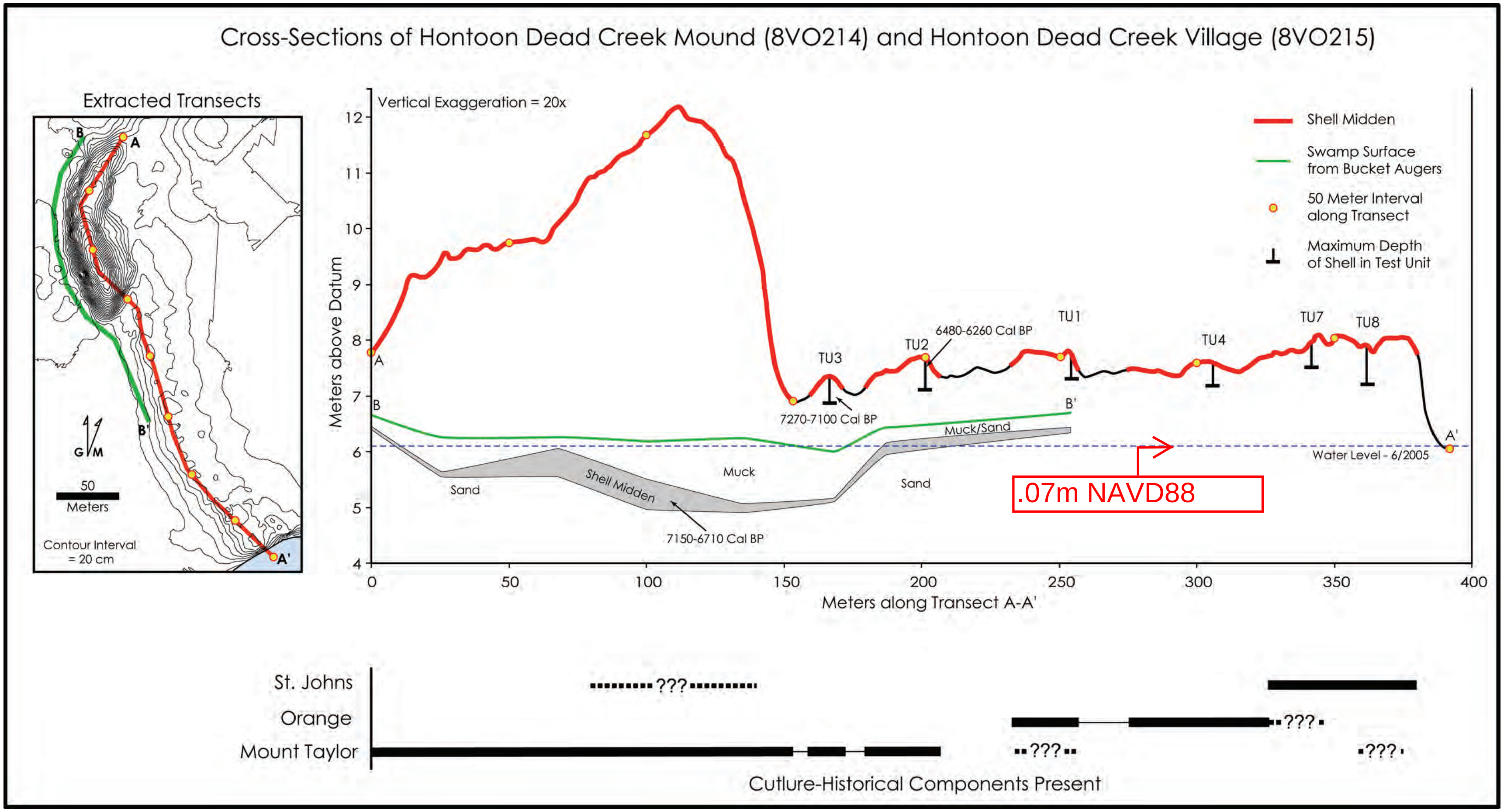

Figure 3-25. Cross-Sectional profiles of the Hontoon Dead Creek Mound (8VO214) and Hontoon Dead Creek Village (8VO215), showing the temporal and spatial relationship of terrestrial and saturated shell midden. Elevation data is derived from the topographic survey, while the distribution of subsurface midden is derived from bucket augers.

with the presence of near-surface shell deposits shown. As has been detailed in this report, elevated surface topography is the result of shell deposition. Also depicted in the lower profile are the swamp surface and subsurface stratigraphy. Most notable here is saturated shell midden fronting the Hontoon Dead Creek Mound and radiocarbon dated to 7150-6710 Cal BP. The midden is thickest in front of the mound, and trails off to the north and south. More importantly, the contact with the underlying sand can be seen dipping in front of the mound, and increasing in elevation to the north and south. Muck deposits are again thickest in front of the mound, and thinnest in the north and south. This pattern likely reflects an in-filled channel or lagoon. It is unknown if midden deposition was subaqueous. Regardless, this body of water appears to have been active only during the Mount Taylor period.

Several time-transgressive trends emerge when taking the positioning of shell nodes in association with the mound and now-inundated lagoon into consideration. In terms of surface shell deposits, from north to south (notably away from Hontoon Dead Creek Mound), shell nodes become greater in size and generally younger in age. Size differences through time are evident in both the aerial extent and total estimated volume of shell contained within each of the nodes (Table 3-18). These trends point to significant transformations in the scale and structure of inhabitation through time.

Mount Taylor period components were identified throughout 8VO214. Excluding saturated midden, all deposits documented by the field school in 2004 were likely ceremonial, deposited as relatively clean shell and lacking evidence for domestic activities. However, the field school did not penetrate the core of the mound. As identified at the Harris Creek site, domestic shell deposits were found beneath a later preceramic mortuary (Aten 1999). Similarly, at Hontoon Island North the field school identified preceramic Archaic domestic deposits at the base of the mound (Sassaman et al. 2005). It is thus highly likely that such domestic deposits remain beneath the Hontoon Dead Creek Mound. Exposed Mount Taylor deposits were documented in Node-1 and Node-2. These localities are the most spatially restricted, and contain the lowest total volume of shell. Radiocarbon dates currently place these deposits several centuries apart. However, samples were taken from the basal portion of Node-1 and the surface of Node-2. Suspected preceramic deposits may also be present in Node-3 and Node-5. The available data the earliest inhabitation occurred during the Mount Taylor period, coeval with the basal component of the mound and apparently predating the ceremonial construction of the mound. As suggested by the shell-free, charcoal and bone dominated superficial stratum at Node-1, this local may have been reused as an area for large thermal events associated with the mound. Despite this time-transgressive spatial trend towards later, larger deposits to the south, there is at least circumstantial evidence for Mount Taylor middens at the base of both Node-4 and Node-5. Future work is necessary to determine if these are truly preceramic deposits, and more importantly, if they were inhabited contemporaneously or serially.

In contrast with the preceding preceramic inhabitation, Orange and St. Johns occupations shifted southward away from the lagoon and mound. Orange period components were restricted to Node-3, Node-4, and Node-5. Successive depositional episodes during the later Orange occurred at least 100 m away from the mound, and appear reoriented towards the swamp and nearby Snake Creek, although where Snake Creek flowed over the course of several millennia is unknown. Regardless, like the preceding Mount Taylor use of space, Orange inhabitation was distributed across multiple locales. Notably, these nodes are spaced at roughly 50 m intervals. However, upslope shell pits may reflect a change in the way in which domestic locations were organized. Orange period activities apparently did not involve the mound, suggesting the preexisting monument was largely avoided or abandoned. This pattern is replicated at many, although not all, preceramic shell ridges elsewhere in the region.

In contrast to the widespread Archaic occupations, St. Johns inhabitation was largely restricted to the southern edge of the terrace in Node-5. From this perspective, the St. Johns period deposits within Node-5 are the most spatially restricted and isolated on the landform. What this pattern represents is poorly understood. As suggested earlier, the St. Johns focus on Snake Creek provides circumstantial evidence that the lagoon fronting the mound (in addition to Node-1 and Node-2) had either filled in or decreased in overall productivity. Alternatively, the large shell dome created by St. Johns inhabitants may reflect a fundamental shift in the way domestic spaces were organized. More comparative research from St. Johns middens elsewhere is necessary to verify this possibility. Finally, there is some limited evidence for a resurgence in mound-top ceremonies. Sassaman recovered three St. Johns sherds in surface contexts from site 8VO214 (2005:89). Additionally, Wyman (1875:27) noted the presence of human bone within near-surface deposits on top of the mound. Based on comparisons with other similarly configured shell ridges, notably Live Oak Mound (8VO41), the apex of the Hontoon Dead Creek Mound may be a St. Johns mortuary. The small body of evidence for St. Johns activities at the mound pales in comparison to the density of debris present within Node-5. While it may be that a St. Johns mortuary is present atop 8VO214, this has yet to be verified.

CHAPTER 4
RECONNAISSANCE SURVEY

Asa R. Randall and Neill J. Wallis

As in previous seasons, a shovel test reconnaissance survey was conducted on Hontoon Island by the 2005 field school. Methods were designed to identify archaeological sites, finalize the boundaries of sites tested during the 2004 field season, and provide training for students in reconnaissance techniques. The survey resulted in the final characterization of two sites, Indian Mound Trail (8VO7493) and Hontoon Hammock (8VO8312), and identified four isolated archaeological deposits. This chapter provides a summary of previous reconnaissance work on Hontoon Island, and details the survey methodology and results.

PREVIOUS INVESTIGATIONS

Prior to the 2005 field season, a total of 10 archaeological sites had been identified on Hontoon Island (Figure 4-1): sites 8VO202, 8VO214, 8VO215, 8VO216, 8VO7493, 8VO7494, 8VO8312, 8VO8313, 8VO8314, 8VO8315. Another two sites (8VO182, 8VO183) are listed in the Florida Master Site Files (FMSF), although they have never been located. Knowledge of sites on Hontoon Island is derived from three sources: Jeffries Wyman, Barbara Purdy and colleagues, and four field seasons of the St. Johns Archaeological Field School.

Jeffries Wyman (1875:26-31) described two “shell fields” in addition to two shell mounds. The shell fields, located on the southern and southwestern aspect of the island, were later designated sites 8VO215 and 8VO216 in the FMSF. The shell mound on the southwestern aspect of the Island is designated 8VO214, the Hontoon Dead Creek Mound, and the northern mound complex is designated 8VO202, Hontoon Island North. In addition, two sand and shell mounds (8VO182, 8VO183) are recorded in the FMSF. The 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, noted 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 the FMSF refers, and are no longer evident as surface features (Sassaman et al. 2005).

During the early 1980s, Bruce Nodine and Ray McGee performed a surface survey of the island concurrent with excavations at site 8VO202. They located 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). No FMSF survey log was filed, and no details of these investigations were published.

During the 2000 and 2001 St. Johns Archaeological Field School seasons, reconnaissance focused on testing site-discovery transects, relocating sites documented in

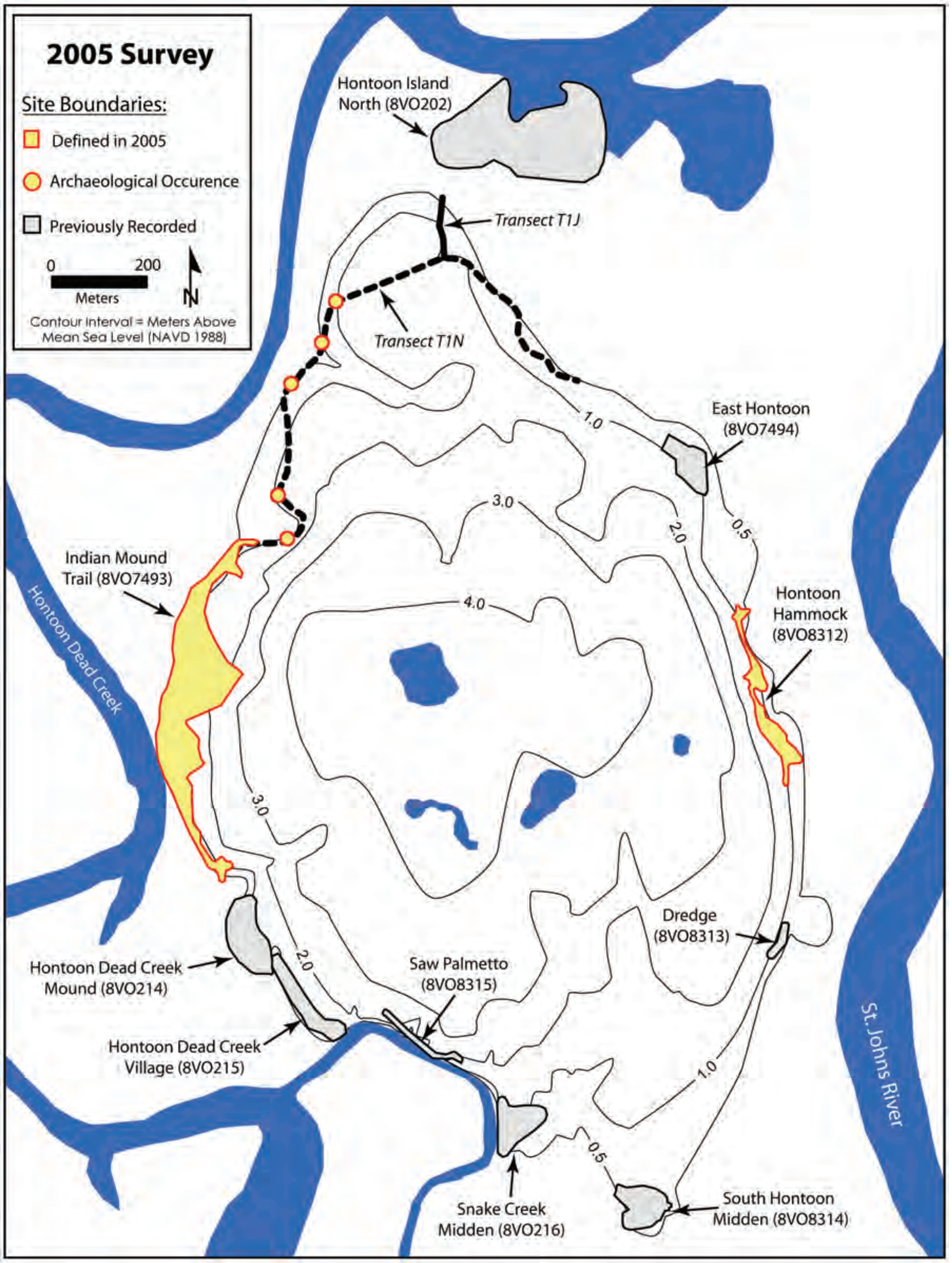

Figure 4-1. Results of 2005 shovel test reconnaissance survey on Hontoon Island State Park. Elevation data derived from Volusia County Public Works Department DEM.

the FMSF, and refining the boundaries of known sites (Endonino 2003b). Four site-discovery transects were tested across the interior of the island, with one intersecting an interior wetland. No sites were located in the interior of the island, and two sites were located on the west and east margins (sites 8VO7493 and 8VO7494, respectively). The field school also relocated two previously documented sites. The Hontoon Dead Creek Village site (8VO215) was provisionally bounded. Two transects were tested along the southern margin of site 8VO202, resulting in an expansion of known deposits.

The results of this prior work were the basis for a shift in survey strategies during the 2003-2004 St. Johns Archaeological Field School seasons (Randall and Hallman 2005). Based on the distribution of known archaeological sites and random transects, several patterns became evident. The four transects excavated across the island indicated that the probability of locating sites in the interior is low, although a full-coverage survey would be required to verify this pattern, particularly around interior wetlands. In contrast, all known sites were adjacent to wetlands around the perimeter of the island. Collectively, these surveys indicated that there was great potential for discovering archaeological deposits along the margins of the island. On this basis, the field school initiated a testing strategy that targeted the intersection of the wetlands and upland slopes along the periphery of the island. Survey along contiguous transects on the eastern, southern, and western aspects of Hontoon Island identified four sites (8VO8312, 8VO8313, 8VO314, 8VO8315), relocated site 8VO216, and expanded the boundaries of site 8VO7493. All terrestrial components of sites except for 8VO7493, 8VO8312, and 8VO8315 were bounded with negative shovel tests.

SURVEY SCOPE AND METHODS

For managerial and research purposes, the identification of new sites along the untested northern periphery of the island and the final characterization of previously recorded sites 8VO7493 and 8VO8312 were given priority during the 2005 season. Site 8VO8315 was excluded because of prohibitively dense ground cover. Following the research strategy established in the 2000-2001 Field School, 30 x 30-cm shovel test pits (hereafter STP) were excavated along transects at 30-m intervals. Positive STPs were cruciformed at 10-m intervals. That is, when a STP encountered archaeological deposits, at least four site definitional STPs were tested at 10-m intervals in cardinal directions until at least one negative STP was recorded. Excluded from testing were wetland areas that were saturated, leaving the interface between terrestrial and wetland components unbounded.

Site discovery transects targeted the northern periphery of the island, following protocols established during the 2003-4 field seasons. This region is approximately 0.5 to 1.5 m in elevation above mean sea level. In the field, the elevation interval is characterized by a mixed hardwood/hydric hammock. It is bounded on the landward side by pine, saw palmetto, and low lying shrub and grasses. To the west and north this interval is adjacent to cypress swamp and open water. STPs were located approximately half way between the upland and lowland vegetation. Two contiguous transects were executed: TIN and T1J (Figure 4-1). Transect T1N was an extension of transect T1W, surveyed along the western margin of the island during the 2004 field season. Transect T1N extended from north of site 8VO7493 to the start point of Transect T1E, approximately 220 meters north of site 8VO7494. Transect T1J was a judgmental transect tested in the northern aspect of the island, near the current campground. Field crews also bounded 8VO7493 and 8VO8312 with negative STPs.

Each four-person crew was split into two-person teams for digging and screening. Before an STP was started, the STP designation[3] 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. 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.

During excavation, all material was passed through 1/4-inch hardware cloth shaker screens. Excluding freshwater shellfish remains, all artifacts and vertebrate fauna were kept from each STP. In most cases, STPs were terminated at the depth of a meter. In some cases, STPs were terminated early due to obstructions such as concreted shell midden, water, clay, or roots. In the case of the latter, attempts were made to offset the test pit laterally. 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 2005 season, 215 STPs were completed, 60 of which were positive. The field school located four “isolated archaeological occurrences.” These were single positive shovel tests that yielded shell midden, but extended less than 20 m in maximum horizontal extent. The boundaries of sites 8VO7493 and 8VO8312 were finalized, excluding wetland deposits to the west or east respectively.

Indian Mound Trail (8VO7493)

The Indian Mound Trail site (8VO7493) is located immediately to the north of the Hontoon Dead Creek Mound (8VO214). It is situated within the hydric hammock

[3] Each STP was given a unique identifier, based on the transect and kind of STP it is. All STPs excavated within a primary transect were given a serial number starting with 1. Site-definitional STPs (hereafter SD) were given numbers in a sequence regardless of the transect, but 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, 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 because the numbering sequence restarted at the beginning for primary survey STPs. During the 2003 season site-definitional STPs were initially designated using 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 were 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.

adjacent to wetlands and Hontoon Dead Creek, and extends into the mixed hardwood hammock to the east. As the name suggests, the site lies in proximity to a maintained trail between park headquarters and the mound. 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 (Endonino 2003b). During the 2004 season, the site boundaries were expanded with a total of 44 STPs, 32 of which encountered anthropogenic deposits (Randall and Hallman 2005). These were excavated along the T1W site-discovery transect. The site boundaries were extended to 450-m long and 125-m wide. Shell midden was found to be distributed unevenly across the site, clustering in the then-defined southern and northern aspects. Material culture was found in both shell and non-shell midden deposits, suggesting the presence of multiple activities areas within the site's boundaries. Material culture also demonstrated that the site was multi-component. A Preceramic Archaic component was confirmed by the presence of hafted biface fragments consistent with the Newnan type, while Orange and St. Johns components were demonstrated by the presence of diagnostic ceramic sherds. Based on the distribution and ubiquity of diagnostic artifacts, however, the site was interpreted as primarily preceramic Archaic in age, with limited later occupation (Randall and Hallman 2005).

The results of the field school's 2005 season replicated many patterns identified in previous work (Figure 4-2). Field crews first bounded positive T1W STPs, and then continued testing north along the T1N site-discovery transect. A total of 101 STPs were tested within the vicinity of the site, and 50 encountered anthropogenic deposits. Crews also performed a limited surface survey, and investigated several tree-throws that resulted from the active 2004 hurricane season. Only one tree throw yielded shell midden (near T1N-SD175), which replicated the results of that STP. Surface survey failed to find any clear surface features like those documented at site 8VO215, implying much of the site's anthropogenic deposits are subsurface. Finally, a limited survey of the Hontoon Dead Creek shoreline suggests that the creek has partially eroded the central western edge of the site. Although shell deposits were rarely seen eroding out of this bank, the occasional small pottery sherd found within the creek bed suggests that some erosion has occurred in the past.

Based on these results, the site boundaries were expanded to 170-m wide in maximum east-west extent and 720-m long, covering 11.3 acres (4.6 hectares). Anthropogenic shell midden deposits were identified adjacent to the wetlands and Hontoon Dead Creek, extending between 50 and 80 meters to the east. Because of both high water levels and the presence of concreted shell midden, many of these STPs could not be excavated to maximum depth. Consequently, it is unknown whether there are significant differences in midden thickness across the site. Where STPs were excavated to maximum depths, shell midden deposits were generally 20-50 cm thick and variously composed of *Viviparus*, *Pomacea*, and bivalve shell. Some STPs encountered concreted shell midden below 70-80 cm BS, which suggests some burning of deposits occurred in the past. A typical STP in shell midden yielded the following stratigraphic profile: 0-10 cm below surface (hereafter cm BS) dark organic humus; 10-50 cm BS gray fine sand; 50-100 cm BS shell midden; 100+ cm BS gray/brown fine sand with mineral concretions.

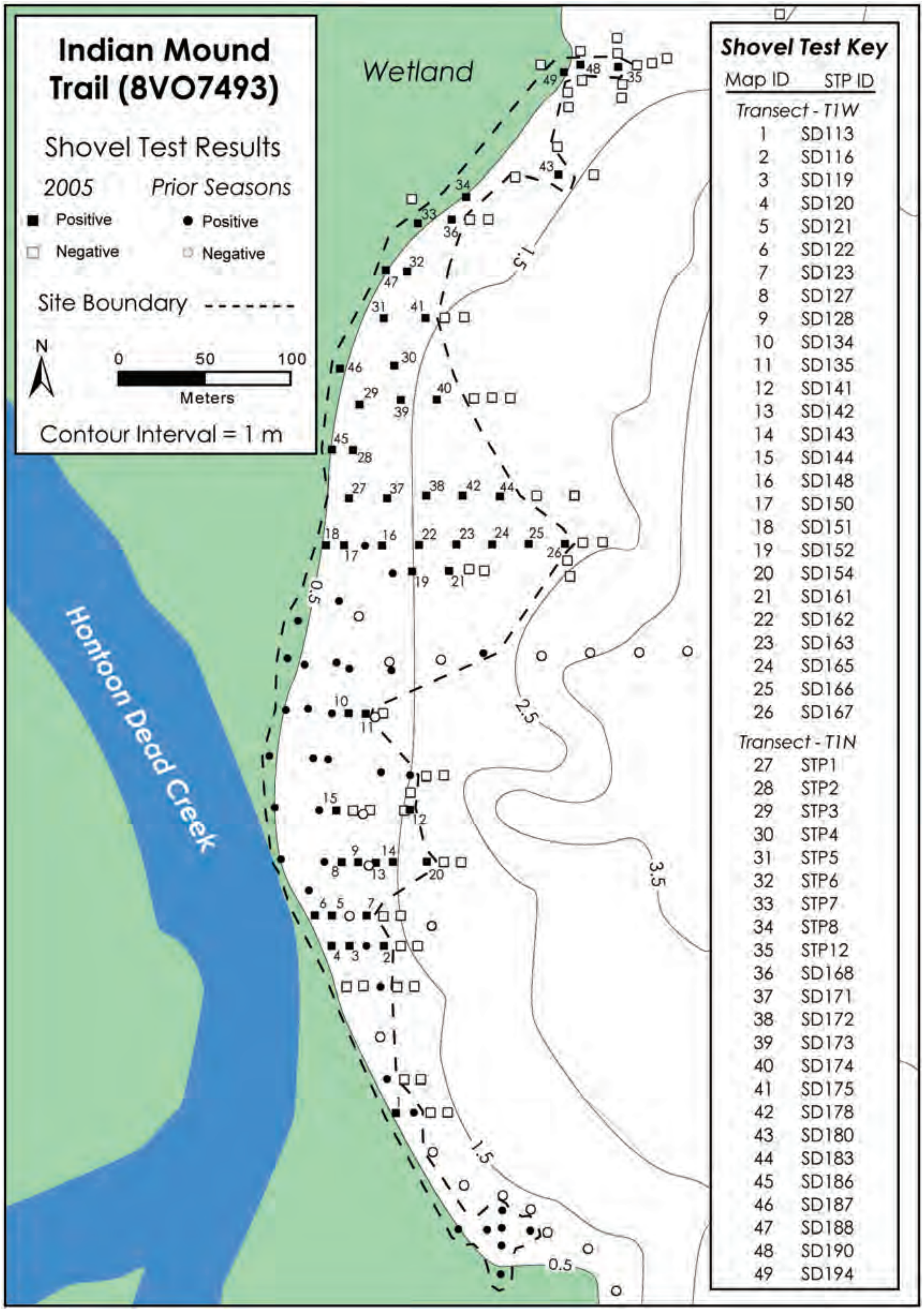

Figure 4-2. Results of shovel test reconnaissance survey at the Indian Mound Trail site, 8VO7493. Elevation data derived from Volusia County Public Works Department DEM.

Table 4-1: Cultural Materials Recovered from Shovel Test Pits at the Indian Mound Trail Site, 8VO7493.

		Ceramic Sherds							
Transect	STP #	Orange Plain	St. Johns Plain	Crumb	Lithic Tool	Lithic Flake	Paleo-feces	Modified Bone	Vertebrate Wt. (g)
T1W	SD-113								8.6
T1W	SD-116					1			
T1W	SD-119								4.2
T1W	SD-120								81.6
T1W	SD-121	1	4	3		3	3		83.3
T1W	SD-122					1			83.1
T1W	SD-123				1				
T1W	SD-127	1		3			3		3.4
T1W	SD-128					4			
T1W	SD-134					1			1.7
T1W	SD-141					1			
T1W	SD-142								0.3
T1W	SD-143					1			
T1W	SD-144							1	14.3
T1W	SD-148					7			98.2
T1W	SD-150								12.7
T1W	SD-151								13.4
T1W	SD-154					1			
T1W	SD-161								14.3
T1W	SD-162					1			
T1W	SD-163					6			
T1W	SD-165					5			
T1W	SD-167					1			
T1N	STP-1								21.5
T1N	STP-2								25.3
T1N	STP-3					3			144.9
T1N	STP-4								3.1
T1N	STP-5				1	2			81.9
T1N	STP-6								11.2
T1N	STP-7								33.6
T1N	STP-8								13.6
T1N	STP-9					2			8.7
T1N	STP-12								2.4
T1N	STP-13								0.2
T1N	STP-14					1			
T1N	STP-26								5.4
T1N	STP-30								0.4
T1N	STP-34					1			
T1N	SD-152								1.2
T1N	SD-168					1			
T1N	SD-171					4			108.6
T1N	SD-172					1			23.7
T1N	SD-174				1	1			148.0

Table 4-1: (continued).

Transect	STP #	Ceramic Sherds: Orange Plain	Ceramic Sherds: St. Johns Plain	Ceramic Sherds: Crumb	Lithic Tool	Lithic Flake	Paleo-feces	Modified Bone	Vertebrate Wt. (g)
T1N	SD-175								4.0
T1N	SD-178					1			
T1N	SD-180								0.1
T1N	SD-183					1			
T1N	SD-186								110.3
T1N	SD-187								58.7
T1N	SD-188								32.2
T1N	SD-190								35.5
T1N	SD-194								21.4

In addition to shell, such deposits frequently yielded vertebrate faunal bone, and the occasional artifact. Anthropogenic non-shell midden was also identified within the boundaries of the site. With few exceptions such deposits were restricted to higher elevations in the eastern aspect of the site. A typical STP in non-shell midden yielded the following stratigraphic profile: 0-15 cm BS dark organic humus; 15-40 cm BS light gray sand; 40-60 cm BS dark brown sand; 60-100 cm BS dark brown sand. Anthropogenic inclusions such as vertebrate faunal bone and artifacts appear to have come from the lower 50 cm of most STPs.

Isolated human cranial fragments were incidentally recovered from one location, T1N-SD174. These were not recognized during excavation, and were bagged with other materials recovered from the test pit. It was only during cataloging back in the lab that they were identified. The stratigraphic profile for this test unit was as follows: 0-40 cm BS light gray sand; 40-68 cm BS gray sand. No shell was encountered within this test pit. The base of a what is likely an Archaic hafted biface (Figure 4-3b) was recovered in addition to vertebrate faunal remains and a lithic waste flake.

Analysis of material culture from site 8VO7493 similarly replicated the 2004 season’s results, which yielded bone tools, lithic flakes and tools, prehistoric pottery, and vertebrate faunal bone fragments. The 2005 season results by shovel test are listed in Table 4-1. In general, the site is characterized by assemblages of diverse materials, suggesting of a wide range of activities occurred on-site. The most frequently recovered class of non-temporally diagnostic material was vertebrate faunal bone, followed by lithic debitage, paleofeces fragments, a modified flake, and modified bone. In total, 1100 grams of bone were recovered from 34 STPs. Most STPs were relatively low density, and yielded less than 30 grams of bone. Nine STPs were very dense, containing as much as 144 grams of bone. Six paleofeces fragments were recovered from two nearby shovel tests. Because these were fragmentary, it is unknown if these are human derived or from another mammal. A total of 51 lithic flakes was recovered from across the surveyed area, either as isolated finds or in low densities. A single modified flake was recovered (Figure

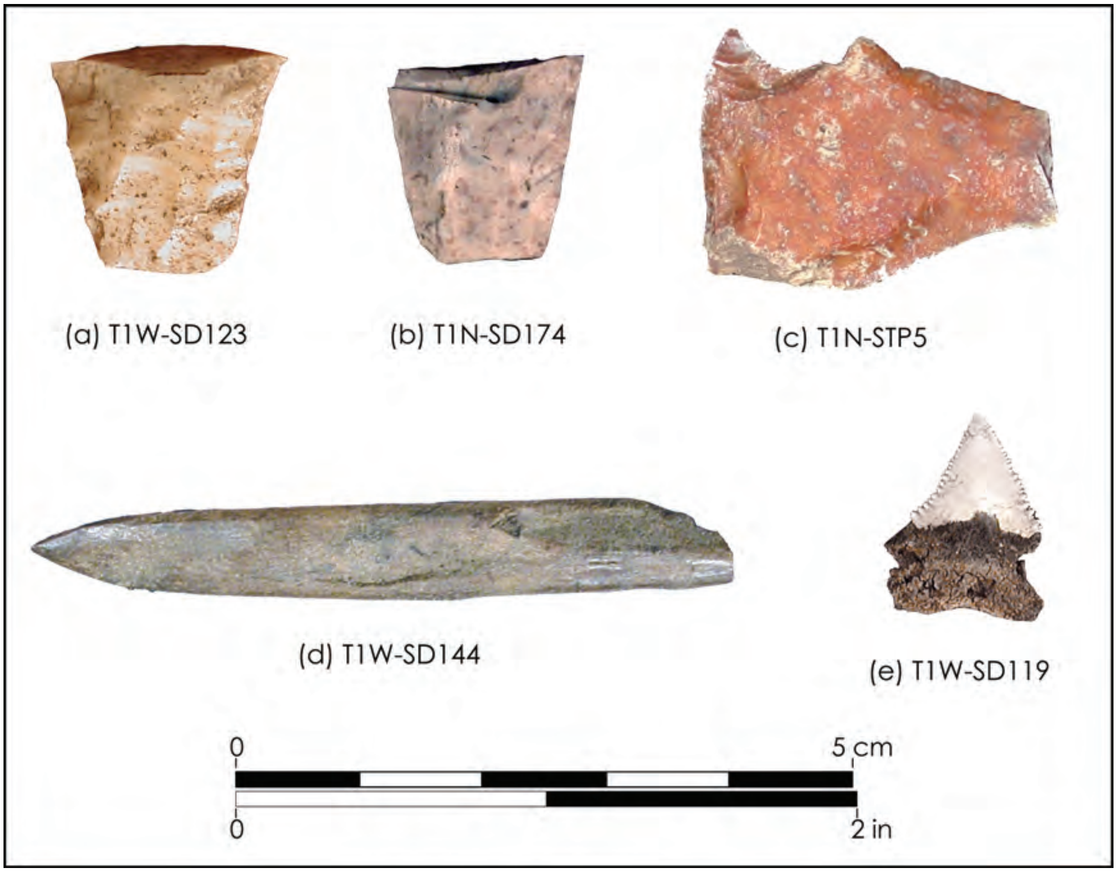

Figure 4-3. Artifacts recovered from the Indian Mound Trail site (8VO7493): (a-b) hafted biface base, (c) modified flake, (d) modified bone, (e) possibly modified shark tooth.

4-3c). This flake has at least two edges with numerous micro-scars, suggesting it served as a tool, likely for an expedient task. A single modified bone tool was recovered (Figure 4-3d). It was manufactured from a mammal bone, although the surface is too heavily altered to further identify the taxa. The surface of the bone has been smoothed through scraping and possibly grinding. The proximal end of the tool is characterized by an irregular fracture plane. The distal end of the tool is pointed, and appears to be polished. Also recovered were two shark teeth, which are traditionally thought to have been used as wood working tools (Wheeler et al. 2000:148). The basal portion of one tooth is heavily eroded, but may have been modified (Figure 4-3e).

Temporally diagnostic artifacts were relatively rare, but provide further evidence for multiple components at the site. Two hafted biface stemmed bases were recovered from different shovel tests (Figure 4-3a,b). These appear to have resulted from snapping at the intersection of the tool and the haft. It is difficult to determine which hafted biface type these represent. However, they are similar in shape and construction with Middle-Late Archaic stemmed varieties typical of the Preceramic Archaic period. Pottery sherds are equally rare. Two plain Orange fiber-tempered sherds were recovered from two STPs, in addition to highly fragmentary fiber-tempered "crumb" sherds recovered from the same STPs. St. Johns plain sherds were restricted to a single STP.

Taking the results of all seasons into consideration, some preliminary conclusions can be made about the structure and use of the Indian Mound Trail site. The distribution of select classes of material observed during testing are presented in Figure 4-4. The distribution of positive shovel tests reveals that the site generally follows the current shape of Hontoon Island's western terrace edge, and is largely restricted to elevations between 0.5 and 2.5 m. Excluding the central aspect of the site, anthropogenic deposits are restricted to elevations below 1.5 m. Shell midden deposits in particular tend to cluster adjacent to the low-lying wetlands. Because we could not test wet deposits, it is unknown how far shell midden extends to the west, although it is likely that similar to other shell-bearing sites in the region, shell midden is present into the wetlands. The distribution of temporally diagnostic material culture across the site suggests that temporal components are in part spatially separated. Archaic hafted bifaces are widespread across the site, and do not appear to cluster in any one area. In contrast, Orange and St. Johns pottery is clearly restricted to the southern half of the site.

A consideration of the density and association of non-diagnostic artifact classes shows that these temporal patterns are reflected in the differential organization of space at the site. The density of recovered vertebrate fauna suggests that the site is composed of varying activity areas (Figure 4-4c). Not surprisingly, vertebrate fauna density is spatially correlated with shell midden. However, interpolated weight values indicate the presence of at least four high-density clusters of vertebrate faunal remains. These include two smaller clusters created by isolated shovel tests in the central and southern portion of the site, in addition to two larger clusters. Comparing these larger clusters with artifact assemblages, two trends emerge. The large southern cluster is associated with pottery and waste flakes, with pottery being found within shell midden deposits. In contrast, the northern-most large cluster (and likely Preceramic Archaic in age) is mostly devoid of material culture within shell midden context. To the east of this cluster, however, STPs routinely produced lithic flakes. This implies that there were discrete activity zones in this context, involving both the deposition of shell midden at the edge of the terrace, as well as the maintenance of stone tools to the eastern, higher terrace. Similar differences in spatial organization in Preceramic Archaic habitation sites has been identified at the Lake Monroe Outlet Midden (Archaeological Consultants, Inc. and Janus Research 2001).

Taken together, the data suggest that the Indian Mound Trail site is a multi-component habitation site. The Preceramic Archaic component appears to be the largest and most widely distributed and spatially organized component, characterized by shell and non-shell midden deposits which yielded assemblages indicative of a diverse array of activities. Later ceramic-bearing deposits are more tightly clustered to the southern aspect of the site, and may reflect less intensive use. It should be noted again that this site lies just to the north of the Hontoon Dead Creek Mound (8VO214). Testing at that site demonstrated that it is principally a Preceramic Archaic ceremonial mound, and lacks significant evidence for use as a habitation site during either the Archaic or St. Johns

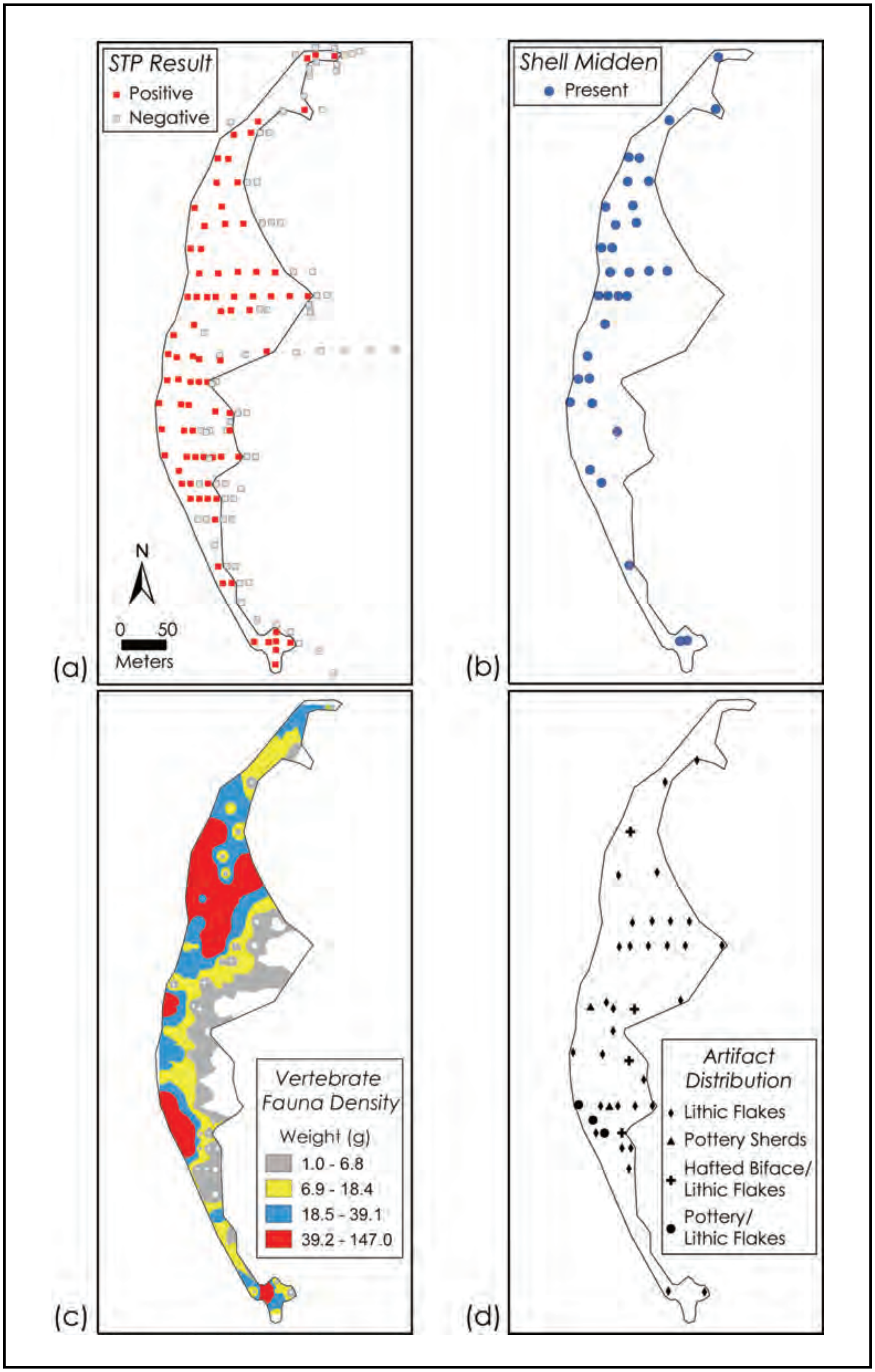

Figure 4-4. Distribution of select material classes recovered from all seasons of shovel testing at the Indian Mound Trail Site (8VO7493): (a) shovel test results; (b) shell midden presence, (c) interpolated vertebrate faunal bone density; (d) material culture distribution.

periods. As discussed in Chapter 3 of this report, analysis of the Hontoon Dead Creek Village site (8VO215) to the south of the mound suggests that both the earlier Preceramic Archaic component as well as later ceramic Archaic and St. Johns components were present, and may represent house mounds. In this context, the Indian Mound Trail site's Preceramic Archaic component is highly significant, as it may reflect additional domestic space associated with the ceremonial mound.

Hontoon Hammock (8VO8312)

The Hontoon Hammock site (8VO8312) is located on the eastern margin of Hontoon Island. The site is situated within the hydric hammock, adjacent to emergent vegetation fronting the main channel of the St. Johns river which lies some 200 m to the east. The site was first tested during the 2003 and 2004 field school seasons (Randall and Hallman 2005). At the time, the north-south extent of the site was determined to be 400-m long and 40-m wide, and restricted to elevations between 0.5 and 1.5 m AMSL. The site is characterized by irregular boundaries, due largely to the low-density and diffuse nature of deposits. Within site boundaries the field school identified three clusters of low-density anthropogenic deposits, typically characterized by a few vertebrate faunal bone fragments in a non-shell midden. Shallow shell midden was restricted to only three shovel tests. The field school also identified a low-lying surface feature measuring 20-m long, 10-m wide, and 0.5 m high in the southern aspect of the site. This feature was tested with a single STP that encountered ash and freshwater gastropods. Five Orange plain pottery sherds were the only diagnostic artifacts recovered, and the non-diagnostic artifact assemblage was limited to seven lithic waste flakes and a fragmented bone tool.

Testing during the 2005 field school season targeted unbounded positive shovel tests in the central and southern aspect of the site (Figure 4-5). A total of 38 site-definitional STPs were excavated, 7 of which encountered anthropogenic deposits (Table 4-2). No shell midden was encountered in any of these STPs. Typical positive 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 are more indicative of soil horizons than discrete anthropogenic strata. Artifacts from all shovel tests were non-diagnostic. With the exception of one modified lithic flake, all positive shovel tests yielded only vertebrate faunal bone fragments.

Testing did not result in a significant change to the site boundaries. The northern midden cluster was not expanded, and does not appear to be directly connected with more southerly deposits. Only one test pit (STP101) encountered limited midden in this interstial area. Given the overall diffuse nature of cultural deposits across the site, it may be the case that continued testing between the northern and central cluster would occasionally encounter sparse midden. Localized deposits were encountered within the central portion of the site, and do not extend into the wetland. Finally, the southern

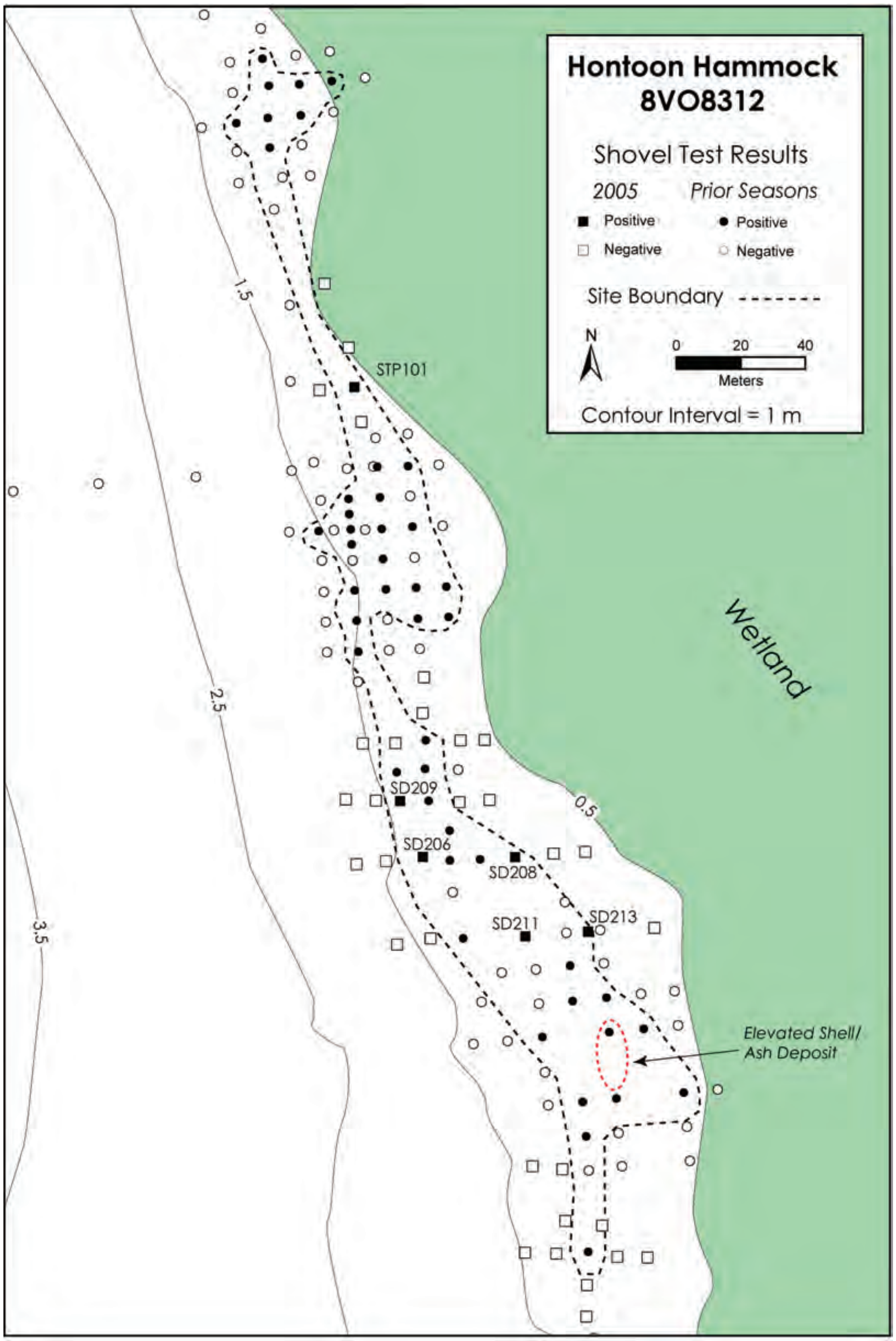

Figure 4-5. Results of shovel test reconnaissance survey at the Hontoon Hammock site, 8VO8312. Elevation data derived from Volusia County Public Works Department DEM.

Table 4-2: Cultural Materials Recovered from Shovel Test Pits at the Hontoon Hammock Site, 8VO8312.

Transect	STP #	Modified Flake	Vertebrate Fauna Wt (g)
T1N	SD-135		2.6
T1E	SD-213	1	0.3
T1E	SD-211		0.7
T1E	SD-209		5.6
T1E	SD-208		4.4
T1E	SD-206		0.3
T1E	SD-101		1.1

boundary was established through negative shovel tests, with no further archaeological deposits identified.

Some spatial patterning is evident when all classes of material culture are taken into consideration from all field seasons (Figure 4-6). Shell midden is present across the site, but was only located in four shovel tests, isolated as clusters. The southernmost shell-positive STP is located within a low-lying shell midden ridge. These three shell midden clusters also have the highest density of vertebrate fauna by weight. This is not unexpected, given that shell deposits are ideal preservation regimes for bone. However, interpolated density values for the site suggest the presence of four semi-discrete middens. One shell-free STP did yield denser-than-average vertebrate fauna. Finally, excluding the southernmost cluster, each cluster is associated with discrete assemblages of lithic waste-flakes, and in some cases pottery. It is currently unknown whether each of the clusters is contemporaneous. Sherds of the Orange period were recovered from only the central two clusters, and no other diagnostic materials were recovered elsewhere. Given the overall similarities in size, assemblage composition, and location, these clusters may represent either similar kinds of activities occurring in the same place repeatedly through time, or alternatively represent multiple co-resident encampments. Finally, the southernmost cluster is also associated with a small shell ridge, similar in shape and form to those elevated shell deposits identified at the Hontoon Dead Creek Village site (chapter 3, this volume), in addition to the central middens identified at the South Hontoon Midden (8VO8314) and the Snake Creek Midden (8VO216) (Randall and Hallman 2005). Like those other sites, the deposit at Hontoon Hammock is surrounded by non-shell midden deposits. This portion of the site may reflect a longer or more intensive occupation than the rest of the site.

Isolated Archaeological Occurrences

Testing of transect T1N and T1J failed to identify any new archaeological sites. However, five shovel tests along the T1N transect encountered either isolated artifacts or shell-bearing deposits that did not extend more than 10 m in any cardinal direction. Such deposits approximate the Bureau of Archaeological Research's (1999) definition of an *Isolated Archaeological Occurrence*: "At least three prehistoric artifacts (diagnostic or not) fit within a circle of thirty meters diameter, regardless of depth--that is, all the

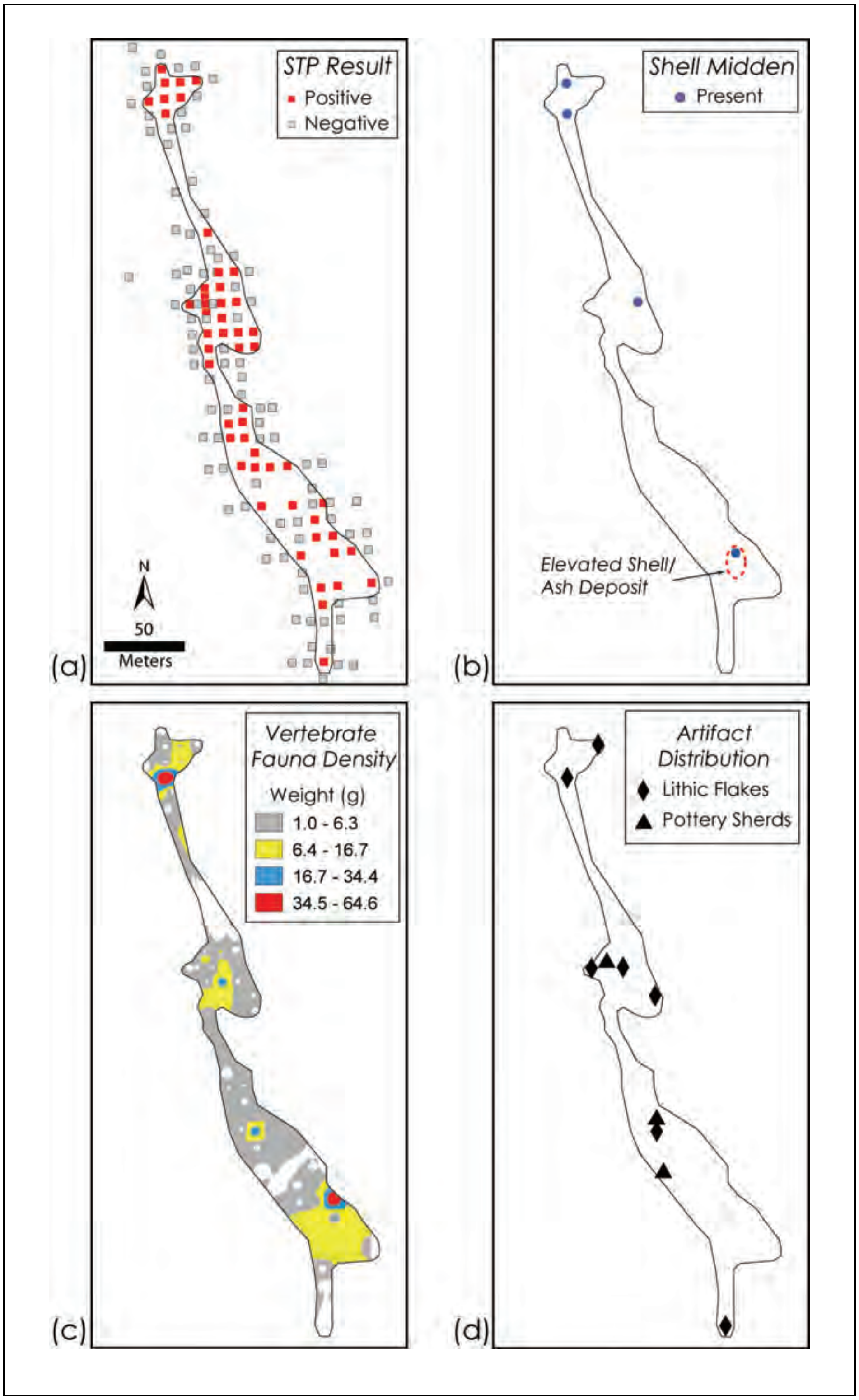

Figure 4-6. Distribution of select material classes recovered from all seasons of shovel testing at the Hontoon Hammock Site (8VO8312): (a) shovel test results; (b) shell midden presence, (c) interpolated vertebrate faunal bone density; (d) material culture distribution.

artifacts fit within a hypothetical vertical cylinder of thirty meters diameter, including both the ground surface and the subsurface." While the occurrences identified during the 2005 season are lower density that the BAR guidelines, they are worthy of note due to their location along the northwest terrace edge of Hontoon Island. These occurrences are denoted by their STP designation, plotted in Figure 4-7 and summarized in Table 4-3. Each occurrence is discussed separately below.

T1N-STP14. This occurrence is located 70 m west of STP T1N-STP12, and was not bounded to the north due to surface water. This shovel test yielded one lithic waste flake, and did not encounter any shell midden. The stratigraphic profile for the STP is as follows: 0-7 cm BS dark organic humus; 7-16 cm BS gray fine sand; 16-62 cm BS light gray fine sand. The STP was stopped at 62 cm BS due to water.

T1N-STP18. This occurrence is located approximately 90 m north of T1N-STP14. Faunal remains were noted in the field. Unfortunately the bag holding this material was lost prior to analysis. The stratigraphic profile for the STP is as follows: 0-14 cm BS dark organic humus; 14-70 cm BS gray fine sand; 70-96 cm BS light brown fine sand. The STP was stopped at 96 cm BS due to water.

T1N-STP26. This occurrence is located approximately 90 m north of T1N-STP14. A single fragment of vertebrate faunal bone was recovered. No shell was noted in the field. The stratigraphic profile for the STP is as follows: 0-20 cm BS dark organic humus; 20-46 cm BS light gray fine sand; 46-65 cm BS gray fine sand. The STP was stopped at 65 cm BS due to water.

T1N-STP30. This occurrence is located 110 m northeast of T1N-STP26. A single fragment of vertebrate faunal bone was recovered. Freshwater shell fragments were observed between 10-72 cm BS. The stratigraphic profile for the STP is as follows: 0-10 cm BS dark organic humus; 10-28 cm BS dark gray fine sand; 28-72 cm BS light gray fine sand; 72-82 cm BS orange clay; 82+ cm BS compact orange clay.

T1N-STP34. This occurrence is located 90 m northeast of T1N-STP30. A single lithic flake was recovered. No shell midden was observed during testing. The stratigraphic profile for the STP is as follows: 0-19 cm BS dark organic humus; 19-64 cm BS light gray fine sand; 64-92 cm BS dark brown fine sand. The STP was stopped at 92 cm BS due to water.

Table 4-3. Cultural Materials Recovered from Isolated Archaeological Occurrences Identified on Hontoon Island.

Transect	STP #	Lithic Flake	Vertebrate Fauna Wt (g)
T1N	STP-14	1	
T1N	STP-26		5.4
T1N	STP-30		0.4
T1N	STP-34	1	

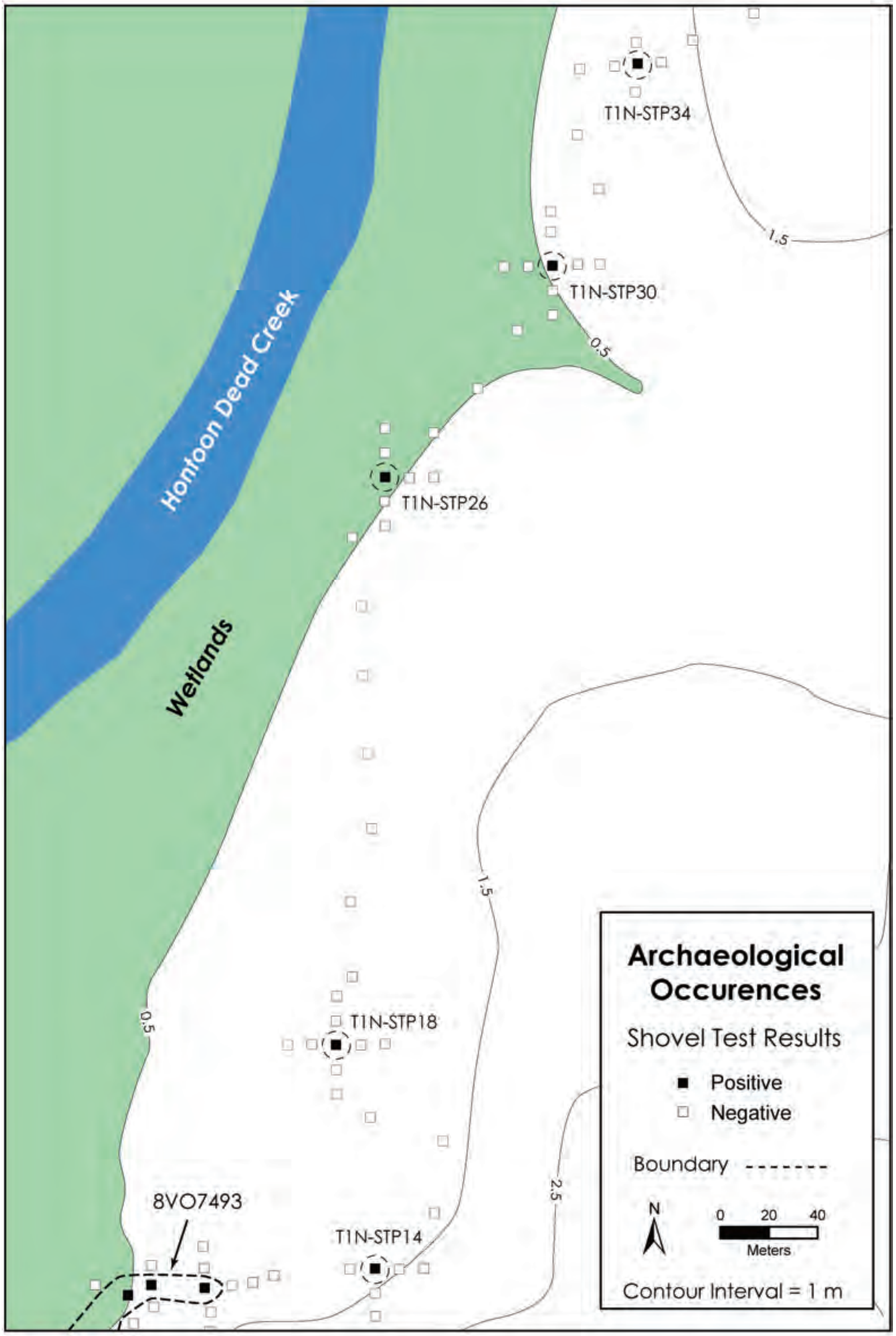

Figure 4-7. Location of isolated archaeological occurrences identified during the 2005 field school. Elevation data derived from Volusia County Public Works Department DEM.

Lacking temporally diagnostic materials, the culture-historical association of these isolated archaeological occurrences is unknown. In terms of location, these deposits share certain parallels with denser sites on Hontoon Island. None are directly associated with water, ranging between 50 and 250 m from Hontoon Dead Creek. However, all are restricted to elevations below 1.5 m amsl, and are situated near or within wetlands. In terms of spacing and density, these occurrences are similar to site 8VO8312 on the eastern margin of the island. Excluding one STP that yielded shell midden, all are characterized by non-shell anthropogenic matrices. Collectively these isolated archaeological occurrences suggest that the northwest corner of Hontoon Island was the locus of sporadic activities that were likely of short duration. Given that most other sites on Hontoon Island are multicomponent, it would not be surprising if these deposits register brief events separated by long periods of time.

CONCLUSIONS

The primary goals of the 2005 season's reconnaissance survey were successfully accomplished. The boundaries of known sites 8VO7493 and 8VO8312 were fully established for all terrestrial components. Additionally, the circumferential survey of Hontoon Island was completed. Although no new sites were discovered, isolated archaeological deposits were encountered in five loci on the northwestern margin of the island. As of the writing of this report, there is a total of 10 archaeological sites documented within the boundaries of Hontoon Island State Park (Figure 4-1). While additional site-discovery transects across the interior of the island will be necessary to conclusively rule out the presence of sites in the upland location (Endonino 2003b), the current inventory is arguably one of the most representative site distributions available for such a landform in the region.

After five seasons of reconnaissance survey, several patterns in the size, location, structure, and culture-historical components present at sites across Hontoon Island have emerged (Table 4-4). The one overarching similarity between sites is elevation above mean sea level. Today sites are generally restricted to elevations between 0 and 2.5 m amsl (0 to 10 ft amsl), and are situated on the margins of the island. Sites are as likely as not to be located immediately adjacent to water. Seasonally inundated wetlands are present next to those sites where channelized water is quite distant (between 100 and 400 m away). In antiquity it is likely that significant change in the location of the St. Johns, Hontoon Dead Creek, and Snake Creek channels occurred. Recent channel change is indicated by the active erosion of sites 8VO215 and 8VO7493. Similarly, the presence of saturated wetsite deposits at 8VO214 suggests that the mound once fronted a body of water. The implication is that most sites were likely near fresh water when inhabited. Another similarity between sites is the presence of multiple culture-historical components. St. Johns I components were most frequently identified, followed by the Orange period. While Mount Taylor components were only identified at five sites, they are suspected to be present at three others based on stratigraphic observations. In contrast, artifacts diagnostic of St. Johns II inhabitation were only recovered at three sites on the island.

Table 4-4. Comparison of Archaeological Sites Identified on Hontoon Island State Park.

Site	Name	Components Present				Wetsite Deposit[1]	Shell Midden Thick. (m)	Area (m^2)	Size (m)	Distance to Water (m)	Elevation (meters amsl)		
		Mount Taylor	Orange	St. Johns I	St. Johns II						*Min.*	*Max.*	*Range*
8VO202	Hontoon Island North	X	X	X	X	X	3.0 +	53373.8	375 x 220	0.0	0.0	2.9	2.9
8VO214	Hontoon Dead Creek Mound	X		X		X	5.9 +	10788.0	150 x 75	220.0	0.0	5.9	5.9
8VO215	Hontoon Dead Creek Village	X	X	X	X		1.0	7363.8	220 x 45	0.0	0.1	2.2	2.1
8VO216	Snake Creek Midden		X	X	X	?	0.2 +	7684.9	125 x 90	0.0	0.0	1.6	1.6
8VO7493	Indian Mound Trail	X	X	X		?	0.5	46086.1	725 x 150	0.0	0.0	2.7	2.7
8VO7494	East Hontoon	X	X	X			0.7	6460.5	150 x 75	300.0	0.2	1.5	1.3
8VO8312	Hontoon Hammock	?	X				0.8	8736.3	395 x 40	250.0	0.3	1.8	1.5
8VO8313	Dredge			X		?	0.0	1453.7	60 x 30	120.0	0.5	1.4	0.8
8VO8314	South Hontoon Midden	?	X	X			0.5 +	7731.8	120 x 90	260.0	0.4	1.5	1.1
8VO8315	Saw Palmetto	?		X			0.0	2565.8	200 x 30	0.0	0.0	3.0	3.0

[1]Reconnaissance survey methods were not designed to identify wetsite deposits

Differences in the size and organization of sites is also evident. At least two classes of sites are evident when considering the vertical scale of deposits. Not surprisingly, both of the shell mounds (8VO202 and 8VO214) have the thickest shell deposits, and eclipse all other sites by at least 2 m of intact shell midden. In contrast, other sites are characterized by shell midden between 0.2 and 1 m in maximum thickness. This difference is not readily explainable in terms of culture-historical associations or location. There is also significant diversity in the organization of deposits within non-mounded sites. Sites such as 8VO7493 and 8VO8312 are laterally extensive, while others are more circumscribed and frequently contain centralized middens. Analysis of the shovel test data indicates that the differences in internal organization reflects the differential deposition of shell and non-shell debris as well as changes in site location through time. For example, at 8VO7493 repeated occupations spanning the preceramic Archaic, Orange, and St. Johns periods were spatially segregated, similar to the Hontoon Dead Creek Village. However, multiple activities were also separated in space as well. Shell midden deposition preferentially occurred towards the water while activities not including shell were carried out on the upslope, landward edge of the terrace. In comparison, site 8VO8312 contained similar divisions in the density of shell midden and artifacts. Based on diagnostic artifacts, the site apparently dates only to the Orange period, although Mount Taylor deposits may be present in the elevated ash deposits. In this case, multiple small-scale occupations are inferred from the low-density middens. The possibility further exists that these register multiple, coeval occupations oriented along the terrace edge. Alternatively, such spatial divisions may simply reflect serial non-overlapping depositional activities.

The patterns identified through reconnaissance survey hint at important trends in the structure and organization of activities at non-mounded sites. Currently the interpretation of site distribution and organization identified on Hontoon Island is hampered by the coarse stratigraphic data available from the shovel tests. We would also add, however, that the lack of comparative data from elsewhere in the region is just as problematic. Future work will be necessary locally and regionally to detail how the differential distribution of shell- and non-shell midden, as well as artifacts, reflects domestic activities in time and space.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

Asa R. Randall and Kenneth E. Sassaman

Although only a five week season was conducted on Hontoon Island State Park in 2005, the field school efforts built upon four previous seasons of research (Randall and Sassaman 2005; Sassaman 2003a), and contributed significant results with relevance for Florida archaeology. As summarized below, the importance of detailing non-mounded localities for recovering data on domestic activities is underscored by the most recent work. In this context, numerous new questions regarding the scale of activities at shell mounds, their transformations through time, and the historical and spatial relationships between domestic space, ceremonial mounds, and ecological processes have been brought to light.

In the interest of advancing this research further, specifically with regard to the St. Johns region, we also offer a prospectus for additional field work in this closing chapter. The following recommendations are in keeping with the Unit Management Plan for the parks, which indicates that cultural resources should be protected, restored, and maintained as aided by archaeological research (Department of Environmental Protection 2005:15-16). 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.

SUMMARY OF RESULTS

During the 2005 field season, two interrelated projects were conducted within the boundaries of Hontoon Island State Park: (1) mapping, coring, and stratigraphic testing of the Hontoon Dead Creek Village site (8VO215); and (2) continued reconnaissance survey of terrestrial components along the perimeter of the island.

Hontoon Dead Creek Village

The Hontoon Dead Creek Village (8VO215) is a horizontally extensive but low-lying shell midden situated between the Hontoon Dead Creek Mound to the north and Snake Creek to the south. First identified by Jeffries Wyman (1875), the site was relocated by earlier campaigns of St. Johns Archaeological Field School. Shovel testing demonstrated that the site contains multiple components that span the preceramic Archaic Mount Taylor through St. Johns II periods. Casual surface inspection also suggested the site was composed of discrete shell deposits. Collectively, these prior observations indicated that site 8VO215 could provide significant information about the structure and organization of domestic practices associated with ceremonial mound construction.

The intensive investigations of 8VO215 during the 2005 season focused on delimiting the extent of shell midden and documenting the structure and culture-historical association of these deposits. Detailed topographic mapping of the site revealed a series of low-lying topographic anomalies, typically 20 to 50 cm high, oriented in a linear array along the terrace edge. These locations of higher elevation were of similar size and shape, and spaced at roughly 20 to 30 m intervals. A close-interval soil core survey confirmed that these areas of higher elevation are composed of dense shell midden, while areas between are characterized by culturally sterile terrace sand or low-density shell midden. These discrete shell middens are hereafter referred to as shell nodes. In general there was a distinct break between shell and non-shell midden on the upslope side of shell nodes, suggesting these areas were kept clean of shell debris. Conversely, shell midden trailed off on the downslope aspect. These results suggest that the shell nodes reflect highly structured living spaces. Additionally, a limited bucket auger survey demonstrated that there was no saturated shell midden in the swamp fronting the site. This is unlike the situation at the adjacent mound, where saturated shell midden was identified 30 m from the base of the mound under upwards of 1 m of muck and sand. This finding suggests that there was no lagoon immediately adjacent to 8VO215.

A total of 10 test units were stratigraphically excavated within shell deposits. In each case, test units documented stacked sequences of shell midden, arguably the result of multiple occupation episodes, lying above the sloping terrace surface. Similarly, non-shell midden was frequently identified in upslope areas, again suggesting shell node configurations reflect structured uses of space. On the basis of diagnostic artifacts and radiocarbon dates a time-transgressive trend was also identified. From north to south (notably away from Hontoon Dead Creek Mound), shell nodes become greater in size and generally younger in age. The earliest deposits are adjacent to the mound. A radiocarbon assay from Node-1 returned an age estimate of 6280 ± 40 BP (7270-7160 / 7110-7100 Cal BP), the earliest published date on freshwater shell midden in the region. Mount Taylor period deposits were also present in Node-2, where a radiocarbon assay on marine shell produced an age estimate of 5570 ± 60 BP (6480-6260 Cal BP). Mount Taylor basal shell middens are also suspected in shell nodes farther away from the mound. In contrast, plain, incised, and engraved fiber-tempered sherds diagnostic of an Orange period occupation were identified within the southerly three shell nodes. In addition, at least one large shell-filled pit associated with the Orange inhabitation was identified at Node-3. Later St. Johns I and II occupation was restricted to the southernmost aspect of the landform. Although no evidence for architecture, such as post-holes or thermal features, was recovered the organization of the deposits suggest that 8VO215 was the locus of multiple overlapping, and possibly contemporaneous, domestic spaces through time. In particular, circumstantial evidence indicates the site may have been occupied by as many as five distinct domestic units during the Mount Taylor period. More radiocarbon assays from both 8VO214 and 8VO215 will be needed to determine whether these domestic places were in use during periods of mound construction.

The 2005 investigations demonstrate that the Hontoon Dead Creek Village site is composed of discrete shell deposits registering nearly 7000 years of repeated inhabitation. In particular, the data suggest that the site was the locus of multiple domestic compounds, some of which may have been in use during periods of mound construction at the adjacent Hontoon Dead Creek Mound. These details provide an opportunity to examine the social and ecological contexts surrounding the origins, construction, and subsequent abandonment of Mount Taylor ceremonial spaces that have heretofore gone uninvestigated within the region. Continued analysis of subsistence data will contribute to a more comprehensive understanding of lifeways across this temporal interface. Moreover, future work on both Hontoon Island and throughout the region will be necessary to determine whether the patterns identified at 8VO215 are anomalous or part of larger social and ecological processes.

Shovel Test Reconnaissance

As in previous seasons, a shovel test reconnaissance survey was conducted on Hontoon Island during the 2005 season. Methods were designed to identify archaeological sites, finalize the boundaries of two sites tested during the 2004 field season, and provide training for students in reconnaissance techniques. The primary goals of the season’s reconnaissance survey were successfully accomplished. The boundaries of known sites 8VO7493 and 8VO8312 were fully established for all terrestrial components. Additionally, the circumferential survey of Hontoon Island was completed. Although no new sites were discovered, isolated archaeological deposits were encountered in five loci on the northwestern margin of the island.

The results of this survey expanded upon previously documented patterns on Hontoon Island. The perimeter of the island contains an almost unbroken chain of archaeological deposits containing both shell and non-shell middens. These 10 sites are largely restricted to elevations between 1.5 and 2.5 m amsl (5 to 10 ft amsl). Differences in the location of midden and diagnostic artifacts hint at the differential organization of domestic activities through time. For example, at 8VO7493 the distribution of diagnostic material culture hints at the horizontal spatial segregation of components, not unlike the Hontoon Dead Creek Village. However, multiple activities were also segregated in space, with shell midden deposition occurring towards the water, and activities not including shell carried out on the upslope landward edge of the terrace. Site 8VO8312 contained similar divisions in the density of shell midden and artifacts. Multiple small-scale occupations possibly all dating to the Orange period are inferred from the low-density middens. Future testing will be necessary to discriminate whether nearby middens register multiple, coeval occupations or serial non-overlapping depositional events.

RECOMMENDATIONS FOR ADDITIONAL WORK

The insights garnered from excavations on Hontoon Island have inevitably inspired many more questions. As stated in Chapter 1, answering these and other questions will require long term, multi-scalar research projects and cannot be accomplished through a single field season. In this section we provide recommendations for additional work that will aid in detailing the lifeways of earlier inhabitants of the St. Johns as well as further enable the management of archaeological resources on State Property.

Remote Sensing Survey of Sites on Hontoon Island

Excavation data from East Hontoon (8VO7494) and Hontoon Dead Creek Village (8VO215) indicate that large subsurface features could be present in upslope components. Additionally, sites such as South Hontoon Midden (8VO8314), Hontoon Hammock (8VO8312), and Snake Creek Midden (8VO216) have surface features suggestive subsurface architecture (e.g., house mounds), and well defined areas of secondary and primary deposition. Ground Penetrating Radar (GRP) 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. Alternative remote sensing strategies such as magnetometry or soil resistivity may also provide useful results. Bucket augering, shovel testing, and limited controlled excavation units (1 x 1 m or 1 x 2 m) may be employed to ground-truth remotely sensed anomalies.

Assess Airborne-identified Topographic Anomalies on State Property

High-resolution LiDAR elevation data was recently acquired for all of Volusia County, Florida (Volusia County Public Works Department and Woolpert, Inc. 2006). This dataset consists of a bare-earth digital terrain model with 1-foot elevation resolution. A preliminary assessment of its utility in remotely identifying anthropogenic surface features suggests that many known archaeological sites (both mounds and low-lying middens) can be quickly and accurately mapped using a desktop computer, obviating the need for cumbersome field mapping (Randall and Sassaman 2007b). Moreover, using the patterns identified on Hontoon Island as a baseline, many topographic anomalies reminiscent of shell-bearing sites can be resolved. An assessment targeting surface anomalies through on the ground visual inspection and limited subsurface testing would be necessary to confirm or falsify the results of the remote sensing.

Reconnaissance Survey of East Terrace of the St. Johns

The results of five seasons of reconnaissance survey 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. Shovel-test transects along the east terrace edge are needed to search for evidence of this site. If found, the site will be shovel tested and/or augered in a cruciform pattern to define its boundaries.

Subsurface Characterization of Small Shell-Bearing Sites on Hontoon Island

Work at both East Hontoon (8VO7494) and the Hontoon Dead Creek Village (8VO215) has demonstrated the significant research potential of small sites along the perimeter of Hontoon Island. We propose to examine other small sites using the same strategy: after delineating the horizontal and vertical extent of archaeological deposits at a given site through close interval coring and bucket-augering, 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), Snake Creek Midden (8VO216), South Hontoon Midden (8VO8314), Hontoon Hammock (8VO8313), Saw Palmetto (8VO8315), and Dredge (8VO8314).

Subsurface Characterization of 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.

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 needed 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 2002b). 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 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. Few extant mounds on public land have been 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.

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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
8VO215							
TU3-Block	Charred Wood	219933	6320 ± 40	-27.6	6280 ± 40	5320-5210 5160-5150	7270-7160 7110-7100
TU2-Lv-B	Marine Shell	217769	5950 ± 60	-7.9	5570 ± 60[1]	4530-4310	6480-6260

[1]Local marine reservoir correction of -380 years applied to measured age determination