

City of DeBary Archaeological Survey

City of DeBary, Florida



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Chapter 1. Introduction

A reconnaissance-level archaeological survey for the City of DeBary, funded in part by Historic Preservation Grant-in-Aid No. S9045 from the Florida Division of Historical Resources, was conducted by Panamerican Consultants, Inc., between August 9, 1999, and September 14, 1999. The survey included the identification, documentation and evaluation of known archaeological sites within the city limits. The archaeological resources within the context of this project included both prehistoric and historic period sites. From the information collected, an archaeological site predictive model was developed within the land and water municipal boundaries of the city.

To meet the objectives of the survey, PCI staff completed:

- Informant interviews. Professional archaeologists, local amateur archaeologists and historians, collectors, and residents of DeBary were interviewed to gather information about the location of archaeological sites and artifacts found around the DeBary area.
- A background and literature review. A review was completed of documents at the PCI research library, the University of South Florida Library and Special Collections, the Florida Master Site File, the State Library of Florida, Florida State Photographic Archives, geologic, prehistoric and historic archaeological publications and scholarly reports, maps and manuscripts of northeast Florida, Volusia County, and the City of DeBary.
- Archaeological field investigations. Priority was given to documenting new sites. Previously unrecorded sites within the city limits were located with the help of City of DeBary Historian Jesse Beall, working in cooperation with DeBary residents and property owners. Selected sites already recorded in the Florida Master Site Files were revisited, particularly those along the St. Johns River. Sites were photographed and mapped, and the locations of the sites were recorded in the field with a Garmin GPS 12.



- Site evaluations. Florida Master Site File forms were completed for previously unrecorded sites and updated forms were completed for previously recorded sites. A list of known and newly recorded sites was developed, and a preliminary evaluation of their local and regional significance was completed.
- Development of a site location predictive model and sensitivity maps. An archaeological sensitivity map was produced for the City of DeBary to use as a planning tool. This predictive model identifies areas with high, moderate and low potential for site locations within the city limits of DeBary.
- A report. PCI staff prepared this report of the background information, field investigations, methodology, predictive model and recommendations.
- A public archaeology day. PCI staff worked with City of DeBary Historian Jesse Beall in the publication, promotion, and attendance at DeBary Archaeology Day for interested residents of the area.

Chapter 2. Environmental Setting

Environmental and ecological factors have had a direct influence on the sites chosen by prehistoric and early historic settlers in the DeBary area. The geologic, hydrologic, and meteorological processes that have effected the environment of DeBary and the resources available to human populations are an important part of the formulation of a settlement model. Although the environment has changed over the past 12,000 years, knowledge of the present-day environment can provide clues to past ecological conditions that influenced early human settlement, particularly after 3000 B.C. when the environment began to take on modern characteristics.

PHYSICAL ENVIRONMENT

DeBary lies in Volusia County, which extends inland from the Atlantic Coast near the middle of the Florida peninsula. DeBary is bounded by the St. Johns River to the west and by Lake Monroe to the south. The city is situated on the karst topography of the DeLand Ridge, which is characteristically altered by erosion and collapsed caverns in the underlying limestone. The approximately 43 small water table lakes, sinks, and wet depressions within the municipal boundaries of DeBary are a result of these processes. The St. Johns River flows northward along the western and southern boundaries of the city and is poorly drained, merging into creeks and strands. The river is the third largest drainage basin in the state of Florida and receives slightly more than 60 percent of the runoff from Volusia County (Baldwin et al. 1980; Myers and Ewel 1990).

The Central Lake District physiographic region of Florida includes the karst terrain of DeBary and is the principal recharge area of the Floridan Aquifer. A large section of DeBary lies within the St. Johns River Offset portion of the Central Lake District. The semi-permeable limestone substructure of the area has contributed to the formation of the river basin and the numerous springs located near the river (Myers and Ewel 1990). In the areas east of Lake Monroe and areas adjacent to the St. Johns River, the elevations are less than



five feet above sea level. Soils in these low-lying areas are sandy and poorly to very poorly drained.

The lowland vegetation consists of a pine flatwoods community, primarily longleaf and slash pine with occasional oak trees and an understory of saw palmetto and wiregrass. The freshwater swamps and pond environments support cypress, elm, gum, water oak, and aquatic plants (Baldwin et al. 1980). The St. Johns River and Lake Monroe sustain aquatic fauna including shellfish, fish, reptiles, and amphibians. The adjacent wetlands support a variety of animals including birds, ducks, turkeys, raccoons, opossums, squirrels, beavers, rodents, otters, bears, and panthers (Myers and Ewel 1990). The fresh water also attracts upland species to the shores. The upland areas along the St. Johns River and its wetlands provided a good resource base for native peoples beginning around 6500 B.C., although the environment only began to change to modern conditions after 3000 B.C. (Bellomo 1994). The floral community was probably stable after that time and Konomac Lake would have served as another resource base (Figure 1). The lowlands surrounding Konomac Lake were dredged and the lake enlarged to its current size in the 1970s.

The flatwoods habitat of DeBary provided only limited resources for prehistoric peoples. Rodents, amphibians, birds, and snakes were the

FLORAL AND FAUNAL RESOURCES

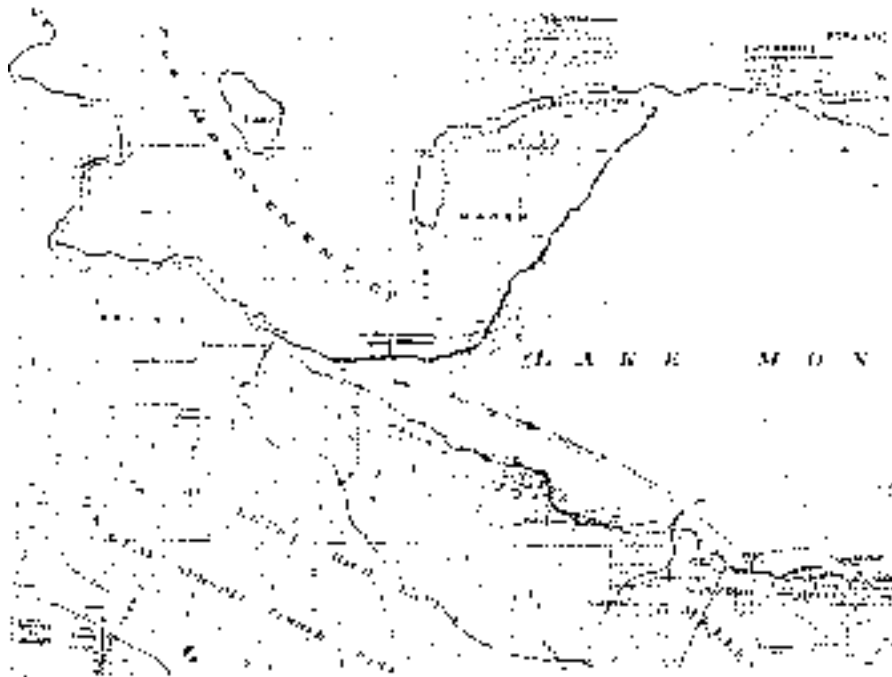


Figure 1. 1871 map of Merritt and vicinity, Orange County, Florida
(Published by the Florida Improvement Company, Jacksonville).

majority of faunal species utilizing the habitat, although deer, bear, and panthers were present on a limited basis (Myers and Ewel 1990). The utilization of timber for naval stores has impacted this habitat in historic times.

Slopes and high ridges of excessively and moderately well-drained sand characterize the major residential areas of DeBary. Well-drained soils support xeric vegetational communities predominately forested by pine-scrub oak. The DeBary residential areas have undergone extensive ecological modification since the 1950s.

Chapter 3. Prehistory of the DeBary Area

DeBary is located in Volusia County, which is in the East and Central Region of pre-Columbian Florida (Figure 2) (Milanich 1994).

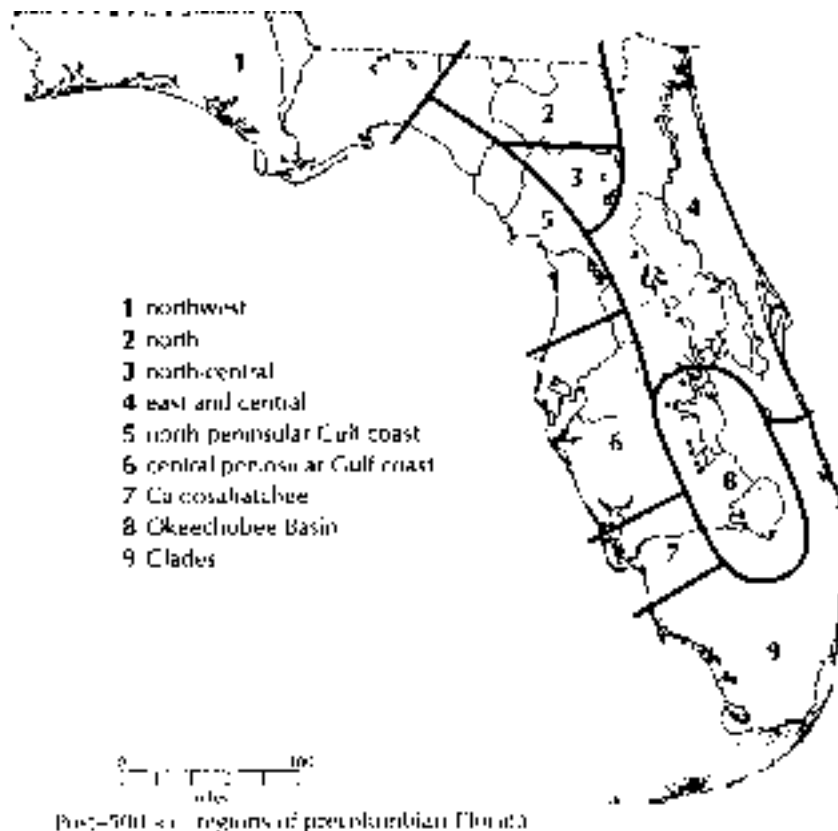


Figure 2. Cultural Regions of Pre-columbian Florida (after Milanich, 1994:xix).

Geographical regions in which archaeological cultures occur are called culture areas and the sequence of changing cultures through time within a culture area are called cultural periods. Cultural periods are identified by the appearance or disappearance of specific types of artifacts such as ceramics and projectile points. This overview of the prehistory of Florida is divided into broad cultural periods that are based on archaeological studies of the pre-Columbian peoples of Florida (Milanich and Fairbanks 1980). These temporal periods are based on cultural changes that were manifested in the artifacts pro-



duced during each of the following periods: Paleoindian, Archaic, Transitional, and Woodland periods.

Stone and ceramic artifact styles provide a set of clues to the cultures that occupied Florida and changes that occurred through time. Cultural periods for Florida are well-documented using stylistic changes in artifacts and absolute dating techniques such as radiocarbon dating. Changes in the styles of lithic (i.e., chipped stone) projectile points and other implements reflect how these items were used. As technology changed, so did the shape of the tool. As a result, diagnostic Florida projectile points are generally accepted as being representative of different temporal periods.

Paleoindians were the first native inhabitants of Florida and are estimated to have entered the area approximately 12,000 years ago during the late Pleistocene epoch. In the southeastern United States, the Paleoindian period lasts from approximately 10,000 to 7,000 B.C. The environment of Florida at that time was markedly different from the modern environment. The sea levels were 135 to 165 feet lower, and the shorelines extended as much as 100 miles beyond the present coastal boundaries (Milanich 1995). The climate was drier and cooler, and sources of fresh water were limited. The Paleoindians in Florida hunted and butchered Pleistocene mammals at watering holes in shallow lakes or deep springs. The remains of mammoths, an extinct species of bison called *Bison antiquus*, and other megafauna have been found at Paleoindian kill sites, many of which are inundated today.

Characteristics of the Paleoindian period include a nomadic settlement pattern, subsistence that included large-game mammals supplemented by small-game hunting and gathering, and an absence of pottery. The most recognizable Paleoindian artifacts are lanceolate stone spearpoints. Paleoindians hafted these long, thin, bifacial points to wooden spear shafts (Milanich 1994). Paleoindian archaeological sites are generally identified solely on the basis of the lithic remains. However, these sites are not very common and many questions remain about the Paleoindians, many of which are listed in the state's historic context: *More Than Orange Marmalade: A Statewide Comprehensive Historic Preservation Plan for Florida* (1995).

So far, there is no firm evidence for Paleoindian occupation in Volusia County. There is reportedly a Paleoindian component at the Dean Sligh site (8VO451) in DeBary (Figure 3), but there has been no controlled excavation there. The recovery of organic mate-

PALEOINDIAN PERIOD

rials from waterlogged Paleoindian sites such as the Little Salt Spring site in Sarasota County and most recently in the Aucilla River in northern Florida have greatly increased our understanding of this period in Florida. Plant remains and artifacts made of wood, which are not typically preserved in terrestrial (land) sites, are providing more information about the lifeways of these ancient Floridians (Milanich 1998).

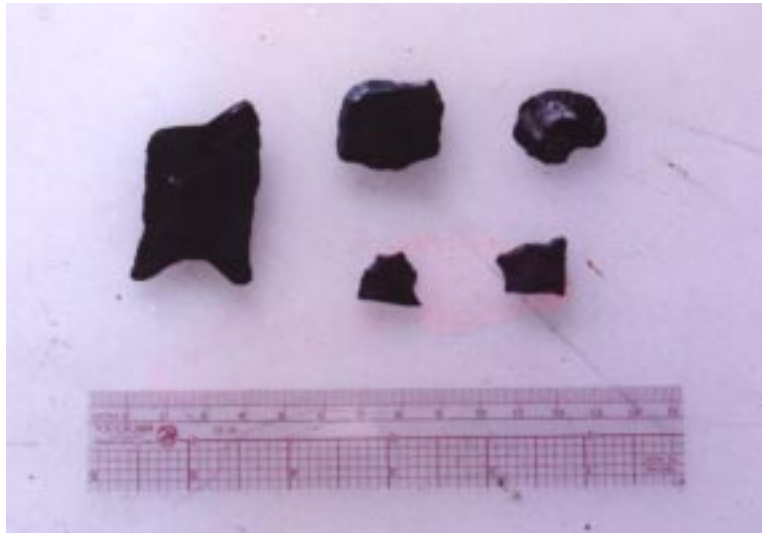


Figure 3. Truncated Suwannee point (left) from the Dean Sligh site (8VO451) in DeBary (photograph courtesy of Dean Sligh, Orlando, Florida).

The Paleoindian tool kit remains the most characteristic and identifiable clue to their culture. Clovis, Suwannee and Simpson points are the names given to lanceolate points found in Paleoindian sites in eastern North America. Suwannee points are found most commonly found in Florida. Bullen describes the Suwannee form as “slightly waisted ... with concave base, basal ears, and basal grinding of bottom and waisted parts of sides” (1975:55). The Suwannee is not typically fluted. Clovis points, indicative of Paleoindian occupation throughout most of North America, are rarely recovered in Florida.

Paleoindians used lanceolate spearpoints and other small lithic hand tools designed to hunt and process plants and animals. Bifacial knives and scrapers were used to butcher meat and clean hides. Other implements include oval ground stone weights or bolas, which may have been connected by thongs and thrown to bring down small game such as water birds (Neill 1971; Purdy 1981). Bones sharpened on both ends have been recovered at Paleoindian sites and may have been used to hold back the tissue while the carcasses of animals were butchered (Waller 1976). Most Paleoindian tools probably served multiple purposes, a result of the mobile lifestyle of Paleoindian groups.

Pollen and charcoal samples recovered in cores taken from the bottoms of Lake Sheeler near Gainesville and Lake Tulane near Avon Park provide information on the environment of Florida during the Paleoindian period (Watts and Hansen 1988). During the period between 10,000 to 7000 B.C. the dominant natural community was mesic broad-leafed forest. Warm summers and cool winters characterized the climate, and the frequency of natural fire was low.

Perhaps the most influential environmental condition on the lifestyle of the Paleoindians of Florida was the limited sources of fresh water. The many inland rivers, lakes, springs, marshes, and wet prairies, which appear on the modern landscape of Florida, were almost nonexistent in the Paleoindian period. Fresh water was supplied by limestone-bottomed catchments such as water holes, lakes, and prairies, and very deep sinkholes. The presence of karst topography, in which sinkholes form, is a good indicator of Paleoindian settlements. Because of the cooler drier climate, the vegetation included plant species such as scrub oaks and pine that thrive in dry areas, open grassy prairies, and savannas.

The major theory of concerning Paleoindian settlement was first developed by Neill (1964a and 1964b), and later supported through the extensive recording and analysis of Paleoindian sites by Dunbar and Webb (Dunbar 1983, 1991; Dunbar et al. 1989; Webb et al. 1984). Neill's "oasis" model is based on the fact that limited potable water sources existed at this time. As such, the few that did exist would have been crucial to the survival of Pleistocene animals in the area for drinking water. For Paleoindian populations, these watering holes would have provided easy and dependable access to game, as well as fresh water for themselves.

The oasis model has been substantiated by evidence of hunting and butchering activities near former water holes and other perched water sources in the Tertiary limestone (karst) regions of Florida. Indeed, the majority of Suwannee and Clovis projectile points - the most diagnostic type of Paleoindian tools - have been found more commonly in Tertiary limestone regions (Dunbar and Waller 1983). Research by Carr (1986) has uncovered a filled-in solution hole and a corresponding Early Archaic and Paleoindian site in southern Florida, extending the area of settlement while still supporting the oasis model.

In general, Paleoindian settlement followed a seasonal round. Settlement was probably determined more by availability of lithic resources and water than by availability of floral and faunal resources. Over time,

the distribution of both of these resource types influenced settlement patterns. By the Middle Paleoindian period, settlement may have been more territorial, perhaps as a result of decreased resources and concomitant increased population (Anderson 1996). Materials recovered from Harney Flats, a Paleoindian terrestrial site in Hillsborough County, have yielded more information about adaptations of Paleoindian populations (Daniel and Wisenbaker 1987).

Daniel (1985) developed a model for Paleoindian cultural adaptations to short term environmental changes as well as to the gradual long-term environmental shift during the Holocene to a modern climate and biota. Based on findings at Harney Flats, archaeologists have concluded that some Paleoindian groups may have practiced a more sedentary lifestyle with a greater dependence on plants and smaller fauna (Daniel 1985; Daniel and Wisenbaker 1987). In addition to kill sites with large mammal remains, a subsistence strategy which incorporates collecting and storing smaller game and plants would enter into the archaeological record in field camps, hunting stations, habitation, extractive, and cache sites. Fewer residential moves would be required with such a strategy, which sends specialized groups out from semi-permanent camps near water sources to collect food.

Primarily through excavations at waterlogged sites in Florida, such as a Paleoindian component at the Page/Ladson site in Jefferson County, the subsistence of Paleoindians has been reconstructed (Dunbar et al. 1989). Both extinct and modern faunal species seem to have made up the diet. Most of the extinct species were large mammals such as sloth, tapir, horse, camelids, and mammoth. Some smaller extinct animals were also consumed. Modern species in the diet included deer, fish, turtles, shellfish, gopher tortoise, diamond-back rattlesnake, raccoon, opossum, rabbit, muskrat, and wood ibis. In addition, panthers and frogs have also been recovered from Paleoindian sites.

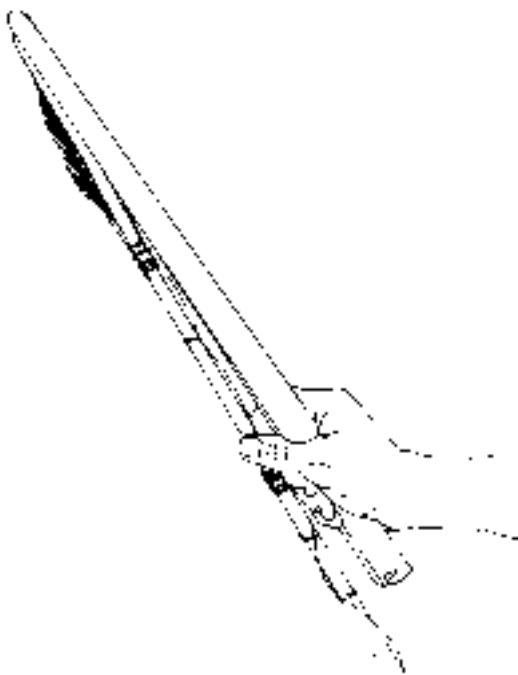
The archaeological evidence suggests that Paleoindian cultures subsisted on both large and small game mammals. In addition to food, these animals were used for their furs and as a raw material source for tools. There is little evidence of extensive reliance on coastal resources; however, as more sites are uncovered, this will likely be shown to be a substantial additional resource.

Toward the end of the Paleoindian period, large lanceolate points such as the Suwannee point disappear from the archaeological record and are replaced by smaller points such as the Greenbrier (Bullen 1975). In addition, side-notched points such as Dalton and Hardaway appear.

Such points may have been replacing earlier lanceolate points, or they may have been in use during part of the same period. Side-notched points also may have functioned more as hafted knives rather than projectile points. In general, the smaller side-notched points are interpreted as a result of changes in the environment and subsequent shifts from the hunting of large Pleistocene mammals to smaller game such as deer. Towards this end, these smaller notched point forms were probably fitted to shafts, which were propelled either by hand or with the aid of a spearthrower known as an atlatl.

The Archaic period occurred from about 7000 to 2000 B.C. and is associated with the Holocene geologic epoch. The forests of the late glacial pre-Holocene were replaced by more xeric woodlands, which included oak and pine (Miller 1998). After the extinction of the Pleistocene megafauna, human subsistence strategies became more diverse, and included the collection of new terrestrial plants and animals and aquatic species. These changes are seen in the way stone tools changed through time. Smaller side-notched spear points and knives replaced the large multifunctional lanceolate-shaped spear points used during the Paleoindian period. These smaller tools were designed to be thrown or launched with a spear-thrower (atlatl) (Figure 4) or hafted to handles and used as knives.

ARCHAIC PERIOD



These changes in the way people lived were due in large part to the physiographic and climatic changes occurring in Florida. As a result, subsistence and settlement patterns of the Archaic hunting and gathering groups also changed. People began to live in larger groups, use different types of stone tools and inhabit more of what is now Florida. Although the atlatl was developed during the Archaic, pottery and the bow and

Figure 4. Sketch of an atlatl developed during the Archaic period for launching spears (courtesy of Evelyn Raiford, Historic St. Augustine Preservation Board).

arrow had yet to be invented in North America. These two major innovations would come later during the Transitional period. It is important to note that these changes in material culture, social organization, and settlement and subsistence did not occur quickly. As Milanich (1994:63) points out, the changes that are visible in the archaeological record took place over many generations and were the result of shifting adaptations to a gradually changing environment.

EARLY ARCHAIC. The Early Archaic (7000 to 5500 B.C.) represented a continuation of the Paleoindian occupation of Florida and occurred during a time of rising sea levels, a gradual warming trend with less arid conditions, and the spread of oak hardwood forests and hammocks. An obvious difference between the Paleoindian and Early Archaic is the shift from lanceolate blade-like points like Suwannee and Simpson points to smaller side-notched and stemmed projectile points/knife forms such as the Bolen and Kirk clusters.

However, the waterlogged artifacts found in the deposits of an Archaic cemetery at a peat-bog pond site in northern Brevard County demonstrates how incomplete a picture of past life we have when we only have lithic artifacts to consider (Doran and Dickel 1988). The Windover Pond site (8BR246) was used as a cemetery for 1,000 years beginning approximately 6000 B.C. Artifacts preserved in this anaerobic environment have provided much information about the textile and wood technologies of the Archaic peoples in the East and Central Region of Florida.

Subsistence and settlement patterns became more diversified during the Early Archaic. The shift in how people lived is reflected in the location of archaeological sites from this time period across the landscape. In general terms, subsistence and settlement patterns became more diversified during the Early Archaic, perhaps as a result of the shift in climate.

Chert is a flintlike stone found in the limestone formations of Florida that was quarried by Paleoindians and Archaic peoples and chipped into tools. Archaic peoples had a larger, though less carefully worked tool kit than their ancestors of the Paleoindian period. While thermal alteration of chert occurred for the first time during the Early Archaic period, the practice was limited (Powell 1990). Alternate beveling of the cutting edges of stone tools was a common practice during the Archaic period and is interpreted as evidence of the resharpening of lateral margins by pressure flaking. Evidence suggests that the wooden shaft would typically be held in the left hand while the right side of the actual point was resharpened with the

right hand. This process resulted in the removal of flakes in a downward motion from one lateral margin, then, when the point was flipped over, flakes would be removed from the opposite lateral margin in the same fashion. This method of resharpening results in beveled margins that appear as unifacially resharpened edges that occur on opposite sides of the implement (Figure 5).

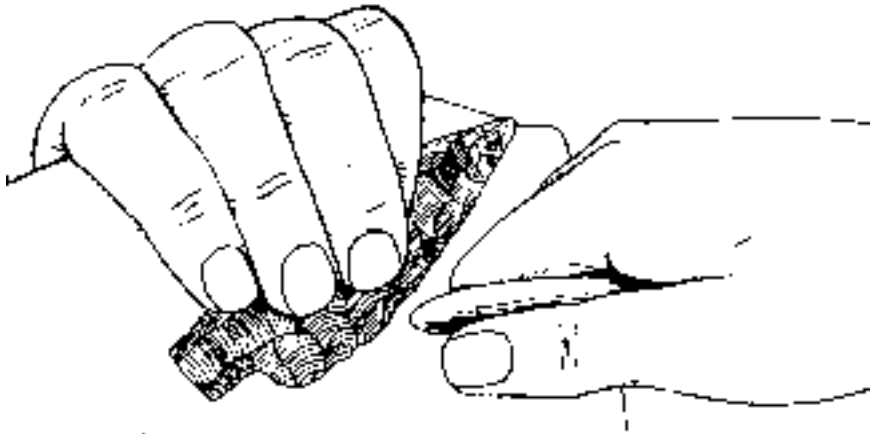


Figure 5. Sketch showing the beveled edge of a projectile point produced by pressure flaking (from Purdy 1981).

Debate continues among southeastern archaeologists about whether to place early side-notched forms such as the Bolen in the Late Paleoindian or Early Archaic periods. This is largely the result of conflicting evidence from archaeological sites in Florida and the Southeastern Coastal Plain. Milanich (1994) and Purdy (1981) both describe Bolens as Late Paleoindian period implements, since these points were recovered in association with lanceolate Suwannee and Simpson forms at the Harney Flats site in Hillsborough County (Daniel and Wisenbaker 1987). However, other archaeologists assign Bolens to the Early Archaic (Goodyear 1982; Tesar 1994; Tuck 1974; Widmer 1988).

Numerous small Early Archaic special activity sites and campsites have been located throughout the Central Florida Highlands (Milanich and Fairbanks 1980; Milanich 1994). Tesar (1994:111) summarizes Early Archaic settlement as being characterized by relatively large base camps that were occupied at least semi-permanently and smaller seasonal camps and special use sites. These base camps are often located near “ecotonal breaks” with dependable sources of freshwater nearby. Because these sites were typically in desirable locations, they were also sometimes reoccupied during later periods.

Paleoindian and Early Archaic artifacts are sometimes recovered in association with each other; however, overall Early Archaic

settlement patterns appear to be more widespread than those of the Paleoindian period. This expansion in settlement patterns is probably due in part to the warming trend and increase in precipitation that occurred at the close of the Pleistocene. Early Archaic people also began to utilize coastal and riverine environments more heavily. However, as Milanich (1994:64) points out, we lack information about the full range of Early Archaic tools (lithic and bone) because of the scarcity of artifact collections from professionally excavated sites.

MIDDLE ARCHAIC. As populations grew and the climate continued to become more like modern conditions, Archaic groups began to become more diversified. They slowly moved into previously unoccupied environmental niches and began producing stone tools that tended to be stemmed rather than notched. This diversification is seen in the variety of stone tools produced, the exploitation of shellfish resources, and the increase of archaeological sites that date to this time period. Archaeologists refer to this period as the Middle Archaic period (5500-3000 B.C.).

The Middle Archaic was a wetter period with the intrusion of mixed pine and oak into the hardwood forest. As conditions became wetter after 6500 B.C. (Watts and Hansen 1988), large river systems and wetlands developed, and people began to exploit the resources associated with these habitats (mainly freshwater shellfish). This trend toward more sedentary occupations and more circumscribed territories continued into the Late Archaic, as conditions became similar to the modern environment. Milanich (1994:76) points out that Middle Archaic sites are found in a variety of locations around Florida including wetland systems such as the St. Johns River Basin. In sum, Middle Archaic habitation sites increased in size, included denser amounts of artifacts and for the first time included large shell middens.

Lithic technology during the Middle Archaic was centered on the stemmed point (Figure 6). Few Middle Archaic point types in Florida are side-notched. Stem configurations vary and some are no more than protrusions that extend from the basal region of the tool (e.g. Brier Creek or Morrow Mountain cluster). Other stem configurations are well formed and extend as obvious hafting attachments (e.g. the Newnan cluster). Alternate beveling of points was still practiced but on a lesser degree than during the Early Archaic period.

While basal grinding is seldom found on Middle Archaic forms, the use of thermal alteration increased during this time. Thermal alteration or heat treating of stone was often done to increase control over the fracturing properties of the raw material. Heat-treated

chert is commonplace at Middle Archaic sites in Florida. Although the thermal alteration of chert took place throughout the Archaic, this practice appears to have peaked during the Middle Archaic (Ste. Claire 1987).



Figure 6. Archaic tools recovered from the DeBary Area (James Barwick Collection, PCI photograph courtesy of Freddie and Margie Oglesby, DeBary, Florida).

LATE ARCHAIC. The Late Archaic (3000-1500 B.C.) is characterized by the emergence of modern environmental conditions in Florida as major wetland systems developed (Watts and Hansen 1988, Table 3). Deposits from Lake Sheeler suggest that the dominant natural community appears to have been pine forests interspersed with swamps. Water levels and fire frequency were high during this time.

While many, if not most, of the same cultural traits were carried over from the Middle into the Late Archaic, certain developments separate the two periods. In particular, the use of steatite cooking vessels and the development of fiber-tempered pottery are unique to the Late Archaic (Milanich 1994; Powell 1990). In Volusia County in the East and Central Region of Florida, the Late Archaic is divided into two phases: the Mount Taylor phase and the Orange phase.

Mount Taylor Phase. With the rise of water levels during the Holocene, the southern part of the St. Johns River changed to a rich habitat that could support freshwater shellfish. The Mount Taylor phase is named for the type site in Volusia County (Goggin 1952) and is characterized by the use of stemmed projectile points and the emergent importance of freshwater shellfish in the diet of Archaic peoples. Radiocarbon dates from the Tick Island site on the St. Johns River in Volusia County indicate that Archaic people began to live in the St. Johns Basin between 4000

and 2000 B.C. (Miller 1998; Jahn and Bullen 1978). While people did not necessarily occupy different environmental zones during the Mount Taylor phase, they began to successfully exploit *Viviparus georgianus*, a still water snail which grows in colonies in the stable environment of creeks, lakes, sloughs, and springs within the St. Johns River basin (Cumbaa 1976; Miller 1998;). Bivalve mollusks (*Elliptio* sp.) and apple snails (*Pomacea paludosa*) also are found in the large Mount Taylor shell middens blanketing the banks of the St. Johns River (Bullen and Bryant 1965).

Extensive shell middens that date to the Late Archaic are found throughout the state. Interestingly, Milanich (1994:87-88) points out that few large Late Archaic sites are found in the interior forested regions of Florida. This is thought to be the result of a reliance on riverine and coastal wetland resources. Mount Taylor populations also hunted deer, snakes, and birds and collected wild plants and nuts. Banner stones of steatite, bone points, and bone tools are found in Mount Taylor shell middens, typical of the tool assemblage of the preceramic Archaic throughout the southeast United States (Miller 1998:70).

Recent excavations at the nearby Groves' Orange Midden wet site (8VO2601) have recovered an artifact assemblage from the early occupation of the St. Johns River basin during the Mount Taylor and Orange phases (Purdy 1994; Wheeler and McGee 1994). The water-saturated Mount Taylor artifacts clearly show the foundations of the cultural tradition that would develop in the St. Johns area. Artifacts recovered from the Mount Taylor tool kit include bone and shell tools for leather and textile working, fishing implements, marine shell tools, wood working implements, shark tooth tools, and baked-clay objects used as cooking stones for indirect heating.

The Enterprise Midden site (8VO55) in Volusia County on the banks of Lake Monroe has yielded artifacts primarily from the Mount Taylor and Orange phases (Goggin 1952; Russo et al. 1992). The Enterprise midden was first described by Jeffries Wyman (1875) in his memoir on the fresh water shell mounds of Florida (Figure 7). The high bluff Wyman described a century ago has been reduced to an apron of midden after extensive mining and leveling activity.

The general trend of the Late Archaic can be summarized as a shift towards large relatively permanent villages. The Mount Taylor phase lasted from about 3000 B.C. until the first hand-molded fired clay pottery was introduced into the archaeological record about 2000 B.C.



Figure 7. Shell Mound at Old Enterprise (Wyman 1875:19-20, Plate 1).

Orange Phase. In southeastern North America the development of pottery began in coastal South Carolina, Georgia, and northeast and southwest Florida around the same time. This crude fiber-tempered ware marks the beginning of the Orange phase around 2,000 B.C. in the East and Central Region of Florida (Milanich 1994: 88; 1998: 29). Bruce Smith (1986) refers to the introduction of pottery and the widespread trade in gourds in southeastern North America as a “container revolution.” The use of pottery spread rapidly among the pre-Columbian populations in North America and may have played a role in the intensive exploitation of wild seed crops and the development of horticulture. Most of the Orange ceramics contain fibers from palmetto fronds or Spanish moss incorporated into the pottery to help strengthen the clay (Figure 8). The tool kit of the Orange phase is similar to the Mount Taylor phase with the addition of pottery and the concomitant evidence of basketry impressed on the clay pots (Milanich and Fairbanks 1980).

By the Orange phase, the Late Archaic peoples were well adapted to the riverine environments. Miller (1998) points out that there is a dramatic increase in the number of sites recorded in northeast Florida at this time, which not only attests to their successful adaptation, but also to a rapid growth in the population. While fiber-tempered pottery is found throughout Florida, Orange wares are found primarily in the north and eastern parts of the state (Griffin 1945).

The Florida Transitional period is identified on the basis of development of ceramics rather than major changes in subsistence or settlement patterns. The definition of this period has been so problematic, that Milanich (1994) has recommended discarding the term Transitional pe-

**TRANSITIONAL
PERIOD**

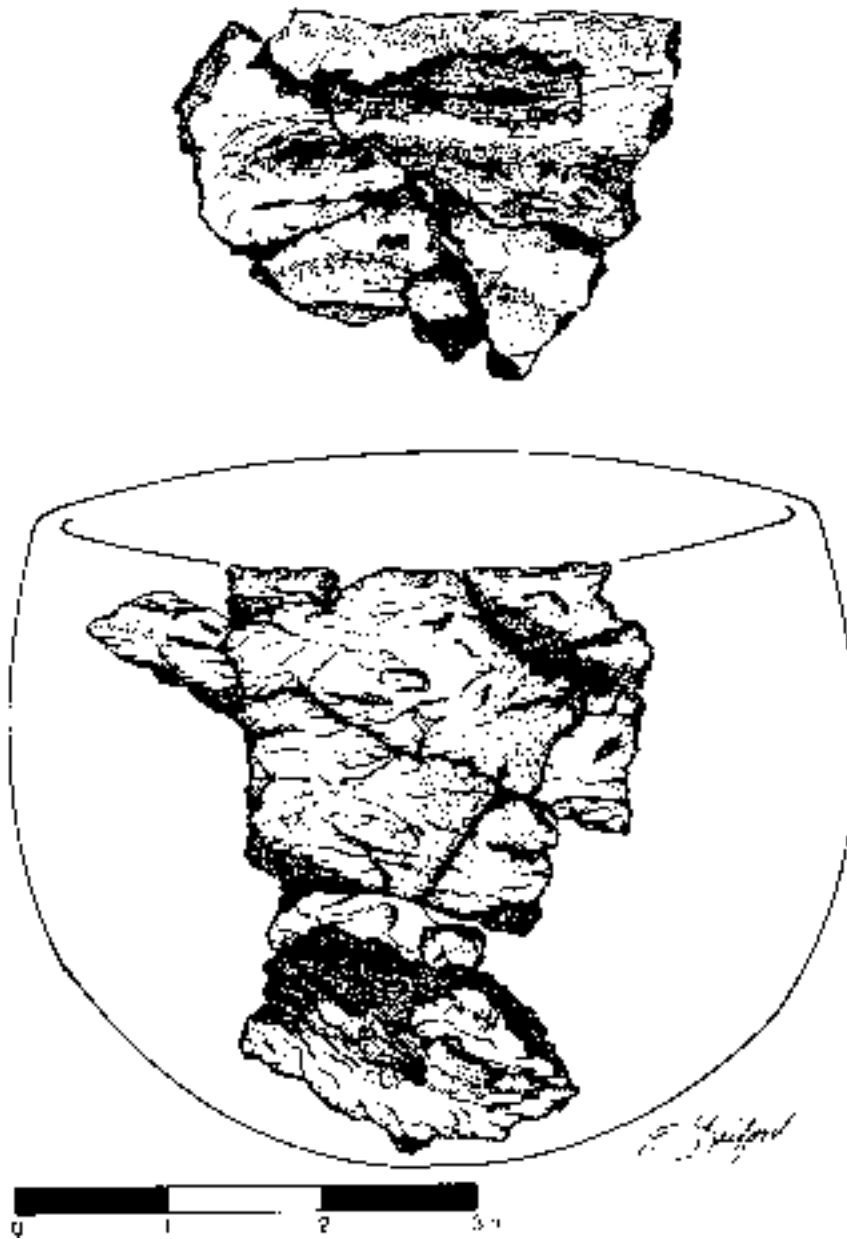


Figure 8. Sketch of Orange period pottery (courtesy of Evelyn Raiford, Historic St. Augustine Preservation Board).

riod altogether. However, the Transitional period appears to mark the beginning of cultural variations about 1200 or 1000 to 500 B.C. These can be recognized in the archaeological record as differences in ceramic styles and designs. The degree to which they represent other differences in lifeways is not clear. In fact, variation in ceramic decoration may not actually represent a cultural transition in eastern Florida (Milanich 1994; Miller 1998). From 1250-1000 B.C. sand began to be introduced along with plant fibers into the ceramics as temper, and the coiling method of manufacturing clay pots was first used (Sassaman 1993).

In addition to the emergence of ceramic traditions, the Transitional period has been characterized in the archaeological literature by the inception of limited horticulture. Horticulture preceded the early fiber-tempered pottery, which appeared in three areas of the southeastern United States between about 2000 and 1000 B.C. (Sassaman 1993).

A fiber-tempered ceramic variant known as Tick Island Incised was produced at the same time as Orange series ware and occurs in the Upper St. Johns River drainage area. The designs incised onto the exterior of Tick Island ware are curvilinear and incorporate small dashes or punctations. A typical design uses concentric circles and small dashes between the lines of the circle. This type is somewhat localized and is not typically found at sites outside of the Upper St. Johns area.

During the late Transitional period, more and more sand was added to the clay as a tempering agent. Eventually, this technique replaced the practice of using plant fibers as a tempering agent. Early sand and grit-tempered pottery in north Florida was produced by the Deptford culture. The other dominant pottery type that followed the fiber-tempered tradition is called St. Johns. St. Johns pottery relies on microscopic sponge spicules or exoskeletons as temper. Although some sand was added to this pottery, St. Johns ware lacks the fiber, sand, and grit temper that is typical of much prehistoric pottery. Deptford and St. Johns were produced at the same time and are often recovered in association with each other; however, the Deptford culture area is primarily to the north of Volusia County. DeBary is located in what was the St. Johns heartland.

The lithic assemblage of the Woodland period is similar to that of the Transitional period in that they had projectile point forms that overlap, and expedient tools were more prevalent than curated tools. Point types such as the Citrus and Hernando points are found in sites that date to the Woodland period. Other point types developed during the Woodland period, although quality of craftsmanship declined. For the most part Woodland point types are stemmed, though some triangular forms appear and persist into Mississippian times. Woodland point types commonly found in Florida include Broward, Sarasota, Taylor, Bradford, Ocala, Duval, Columbia, and Weeden Island points (Powell 1990). Flake tools and shaped tools continued to be made during the Woodland period, but the emphasis was still on an expedient flake tool technology.

WOODLAND PERIOD

ST. JOHNS CULTURES. The St. Johns cultural tradition of the East and Central region of Florida includes a distinctive ceramic tradition, the beginning of mound burial, and a semi-sedentary lifestyle. In the St. Johns culture area, cultural traits clearly changed through time, resulting from

different types of adaptations and different levels of social complexity. St. Johns people adopted and came to rely on maize, bean, and squash agriculture in the later pre-Columbian times and their social organization shifted from the band organization of hunter-gatherers to the chiefdoms observed by the first European explorers of northeast Florida (Miller 1998). The East and Central Florida region does not contain the fertile soils needed for the slash-and-burn agriculture practiced by peoples in the St. Johns heartland. Therefore, they and their Timucua descendants never practiced the intensive farming, which other groups employed to the west and in the Florida Panhandle. Although St. Johns people planted crops, they did not share the beliefs or the level of social complexity of inland southeastern cultures (Milanich 1998).

St. Johns pottery was produced from approximately 500 B.C. until European contact and slightly later (circa A.D. 1513 to 1565). St. Johns paste is chalky and surface treatment may be plain, checked-stamped, incised, painted, or cord marked. While this ceramic type is found across the peninsula, the St. Johns River drainage in northeastern Florida was the core area of the St. Johns culture. In East and Central Florida, the St. Johns culture grew directly out of the Orange culture. This is evidenced by the carryover of late Orange phase designs to early St. Johns period pottery. Within the St. Johns period there are two major sub-periods, I and II, which were separated at about A.D. 800 with the emergence of check-stamped pottery (Goggin 1952; Miller 1998). Within each of these sub-periods, there are several divisions.

St. Johns I. People of the St. Johns I culture (500 B.C. to A.D. 100) were foragers who relied primarily upon hunting, fishing, and wild plant collecting. During this time, the resources found near freshwater wetlands, swamps, and the coastal zones were typically the most heavily exploited. St. Johns I sites are often shell middens in coastal zones that contain St. Johns Plain and Incised pottery, and occasional Deptford ceramics as well. The earliest St. Johns pottery has a chalky paste, was formed using a coiling technique, and was commonly decorated with incising. Low sand burial mounds also appear for the first time during the St. Johns I period.

St. Johns Ia. At St. Johns Ia sites (A.D. 100 to 500), St. Johns Plain and Incised pottery continued to be produced and a red-painted St. Johns variant called Dunn's Creek Red was also made. Deptford and Swift Creek pottery were traded into northeast Florida from north central Florida and the panhandle. Exotic Hopewellian artifacts also occur in burial mounds after about A.D. 100. This is the first period where foreign materials appear in the archaeological record of the St. Johns culture area

(Miller 1998:85-86). High-status burials contained mica, galena, copper, animal jaws, ear spools, quartz, and animal effigies from the Hopewellian trade network (Milanich 1994). Weeden Island pottery has also been recovered from late St. Johns Ia sites.

St. Johns Ib. The St. Johns Ib period (A.D. 500 to 750) is similar to the St. Johns Ia period except that Weeden Island pottery is more common. During this period, St. Johns Plain and Incised wares and Dunn's Creek Red pottery were still produced. The majority of everyday ceramics were plain. As the St. Johns culture continued in northeast Florida, sand mounds continued to be used and grew in size as time passed.

St. Johns IIa. During the St. Johns IIa period (A.D. 750 to 1050), St. Johns checked-stamped pottery appears for the first time (Figure 9). As populations grew, the number and size of mounds and villages increased. The total number of recorded sites is greater for the St. Johns II period than the St. Johns I and shows increasing settlement of inland environments away from lagoons, streams and rivers. This indicates less dependence on riverine and coastal resources and suggests an alternative source of food. By A.D. 800 foreign nonutilitarian ceramics became common in burial mounds and only individuals of high status were buried within the mounds (Miller 1998). During the late St. Johns IIa times, late Weeden Island pottery was traded into northeast Florida and is sometimes recovered in sand burial mounds that date to this period.

St. Johns IIb. During the St. Johns IIb period (A.D. 1050 to 1513), check-stamped pottery continued to be produced and some Fort Walton and Safety Harbor culture ceramics were traded into northeast Florida. During this period, certain southeastern Mississippian traits such as limited horticulture and the use of flat-topped pyramidal mounds are evident (Milanich 1994:269-270). The Thursby mounds in Volusia County (8VO35 and 8VO36), the Shields Mound in Duval County and Mount Royal in Putnam County (8PU35) are examples of these large ceremonial sites along the St. Johns River. Of these, Mount Royal is the largest and most famous. It was at Mount Royal in the late nineteenth century that C.B. Moore found a copper plate with the "forked-eye" motifs of the Southeastern Ceremonial Complex of Mississippian period sites (Milanich 1994). C.B. Moore (1894) also recovered indirect evidence for agricultural practices in Volusia County from the Thursby Mound site (8VO36) in the form of clay, gourd, squash, and corncob effigies. Corncob-marked ceramics and cucurbit seeds and rinds were recovered from Hontoon

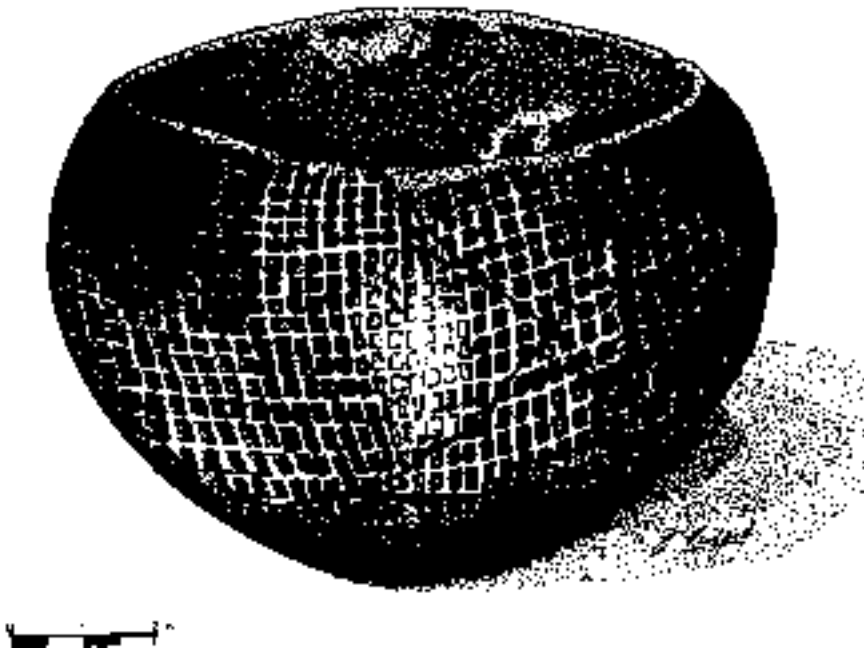


Figure 9. Sketch of St. Johns Check Stamped pottery (courtesy of Evelyn Raiford, Historic St. Augustine Preservation Board).

Island (8VO202) (Newsom 1987). The St. Johns IIb period ended in 1513, when Spanish explorers arrived in Florida and the lives of the Florida Indians changed drastically.

St. Johns IIc. The St. Johns IIc period (A.D. 1513 to 1565) is the period of first European contact or the protohistoric period and is characterized by the introduction of European artifacts. Items such as trade beads, non-aboriginal ceramics, metal hawk's bells, mirrors, and iron chisels and axes were recovered in burial mounds from this period. Native American artisans reworked metals such as copper, silver, and gold into aboriginal forms. These items were worn as jewelry and are interpreted as status markers for the native peoples. In Volusia County, the Hontoon Island wet site (8VO202) yielded Majolica ceramics and a copper coin that date to the sixteenth century. The shapes of native pots recovered at Hontoon Island also indicate European influences (Purdy 1987).

Early French and Spanish ethnohistoric accounts refer to native groups living in the St. Johns River drainage extending east to the Atlantic coast and as far north as southeast Georgia. Milanich (1995) refers to the Tumucua speakers of this area as the colonial-period Eastern Tumucuan. Chief Saturiwa and allied chiefs dominated the area from his village near the mouth of the St. Johns River south

**ACCULTURATIVE
STAGE**

along the Atlantic coast to the village of Chief Seloy, which was the later site of St. Augustine. Other allied eastern Tumucua chiefs, named Emoloa, Casti, and Malica, lived west of Satriwa's village along or near the St. Johns River (Figure 10) (Hann 1996). Further south along the St. Johns River was the territory of Chief Utina, a chief whose power and influence equaled that of Satriwa and whose territory extended to the area just north of Lake George in Putnam County. Another group affiliated with Chief Utina lived along the Oklawaha River in an area extending into Lake County, which is sometimes referred to as Ibiniyuti.

Other Eastern Tumucuan groups who did not live along the St. Johns River also are mentioned in sixteenth century accounts. The Eclavou, Onachaquara and Omittagua lived east of the river, and the Astina lived to the west (Hann 1996; Milanich and Hudson 1993). The Ais were a native group of hunters and gatherers living to the south of Timucua along the Atlantic coast. Ais territory extended along the Indian River inland. Ais lived primarily off marine resources. Artifacts within the Ais region bear affinities to the St. Johns and Glades traditions (Milanich and Fairbanks 1980; Rouse 1951). While ethnohistorical accounts offer glimpses into the indigenous populations of East and Central Florida from this period, the native populations were decimated by the mid-eighteenth century.

Based on the review of archaeological literature, surveys and recorded sites in Volusia County and the DeBary area, Table 1 lists



Figure 10. A 1591 DeBry engraving of Chief Satriwa and his allied vassal chiefs in 1564 (from Fundaburk 1957:Plate 11).

the possible periods of occupation for prehistoric sites within the boundaries of DeBary.

Table 1. Prehistoric Periods of the DeBary Area

Paleoindian	12,000-9000 BP
Early Archaic	9000-7500 BP
Middle Archaic	7500-5000 BP
Late Archaic	5000-2500 BP
Woodland	2500-1200 BP
Mississippian	1200- AD1513
Protohistoric	AD1513- AD1565

Chapter 4. History of the DeBary Area

This overview of the history of northeast Florida is divided into general historic cultural periods based on historic and archaeological literature, maps and manuscripts of northeast Florida, Volusia County, and the City of DeBary. Interviews and accounts from people with knowledge of the history of the area including Jesse Beall, Historian for the City of DeBary, also have been incorporated into the culture history.

FIRST SPANISH COLONIAL PERIOD (A.D. 1513-1763)

The first recorded European to reach Florida was Juan Ponce de Leon who landed on the East Coast near St. Augustine in 1513. Panfilo de Narvaez followed him in 1528, landing near Tampa Bay and trekking into the interior of Florida reaching the Apalachee region of west Florida. Hernando de Soto landed near Tampa Bay in 1539 and proceeded to march inland through Florida in search of gold. The de Soto trail, as reconstructed, headed north from the village of Ocale (approximately 25 miles southwest of present day Ocala) to the west of Gainesville, in the area of the San Felasco Hammock that was inhabited by Potano and Utina bands of Timucua Indians. From there, de Soto continued north into Georgia (Milanich and Hudson 1993). On his trek through Florida, de Soto did not see the St. Johns River, but the devastating secondary epidemiological and psychological effects of the expedition on virtually all of the southeastern native populations were recounted later in French and Spanish documents in the early 1560s (Hann 1996).

On May 1, 1562 French Protestants under the command of Jean Ribault found and explored a large river in the northern reaches of the Florida peninsula (Figure 11). Within a year the French successfully established Fort Caroline on what is today the St. Johns River, which they called the River of May. In 1564 an additional force of three hundred French Protestants joined the garrison already in place, and a foothold for the French was secured on the Florida mainland. This French presence created a strong threat to the Spanish shipping that had to follow the Gulf Stream and pass through the Bahamas Channel between the mainland and the Bahama Islands (Franklin and Morris 1996).





Figure 11. 1591 DeBry engraving of Captain Ribault with Timicua Indians near the mouth of the St. Johns River (from Fundaburk 1957:Plate 8)

The colony suffered from lack of supplies and poor relations with the Utina Indians. Jean Ribault was sent from France with supplies and a contingent of 600 soldiers and settlers to reinforce the fort. The French and Spanish were in direct competition for Florida and the Spanish king, Phillip II, sent Admiral Pedro Menendez de Aviles to destroy Fort Caroline and reclaim the land for Spain (Tebeau 1971).

Although there had been previous attempts by the Spanish to establish colonies on the mainland, the French presence in Florida provided an impetus for another, more determined effort to secure a base in Florida. Menendez established a base to the south of St. Augustine and continued to periodically attack the French. In response, Ribault formulated a plan to attack St. Augustine from the sea and organized a group of French ships to carry this out. The ships ran aground during a hurricane at Matanzas Inlet to the south of St. Augustine. With 500 soldiers, Menendez took advantage of the loss of the French fleet and attacked the poorly defended colony at Fort Caroline on September 20, 1565. Almost all of the settlers were massacred except for approximately 60 women and children who were captured (Gannon 1993). About fifty other settlers escaped Menendez and sailed for France. Fort Caroline was claimed by the Spanish and renamed San Mateo (Milanich and Hudson 1993).

Menendez then turned south and engaged the shipwrecked French fleet, Ribault among them, at Matanzas Inlet. The French surrendered, but Menendez, believing they were heretics and faced with the problem of caring for about 350 prisoners, killed all but those professing to be Catholic or musicians. To secure the northern boundaries of Spanish La Florida against any further invasions from other colonial powers, a small town was settled at Santa Elena on the coast of South Carolina. The St. Augustine settlement was maintained and a string of Spanish missions were established west across Florida towards Tallahassee (Tebeau 1971).

Menendez went on to found the city of St. Augustine in 1565. Chosen for its strategic location, St. Augustine existed as a military outpost and as a base for missionaries, who worked at converting the native population to Catholicism. Military operations took place in the form of land patrols to keep other colonial powers (such as France and Britain) from infringing on the Spanish claim. Spanish military ships also used St. Augustine as a base of operations for protecting the gold-laden ships that passed through the Florida Straits en route to Spain from Mexico and South America.

In an effort to convert the Potano Indians and recruit Native American labors for Spanish projects such as the construction of the fort in St. Augustine, Menendez instituted a mission system across north Florida in 1565 (Hann 1996; Milanich and Hudson 1993). Timucuan villages were targeted for the construction of missions, and accounts of both mission and Indian life were included in Spanish documents throughout the seventeenth century. These accounts mention skirmishes between native groups and the Spanish, disease epidemics, and the decline of indigenous populations (Gannon 1965; Johnson 1991; Milanich and Hudson 1993).

In 1696, the Jonathan Dickins family was shipwrecked near the Jupiter Inlet and encountered the Jeaga and Ais tribes. These groups were not fluent in Spanish and were living independent of colonization or Christianity. According to Dickinson's account, they appeared to be allied to the Spanish to the extent that the shipwrecked group pretended to be Spanish to receive better treatment (Andrews and Andrews 1975; Rouse 1951). Shipwrecks apparently were common along the Ais-controlled coastline. The Ais salvaged the wrecks and reportedly killed the survivors (Higgs 1942). However, the survivors of the Spanish Plate Fleet of 1715 were spared by the native peoples, after their ships were destroyed by a hurricane. Excavations of the McLarty Site (Burgess and Clausen 1976) and the Higgs Site (Smith 1949) indicate a cooperation between the Ais and the survivors of the disaster (Bellomo 1994).

As the number of Timucuan Indians living in this region of Florida had sharply declined since the arrival of the Spanish, Guale, and Yamassee Indians from the Georgia coast and Apalachee Indians from western Florida began to move into the area around St. Augustine during the 1600s. The efforts to Christianize the Timucua, Guale, and Apalachee Indians increased through the mission system. By 1684 the English settled in Charleston, South Carolina, and influenced the Indians to overthrow the Spanish in Florida (Tebeau 1971).

In their effort to take the town of St. Augustine, the English destroyed the missions north of the city in 1702, but failed to take the stone fort, although they did burn St. Augustine. St. Augustine was rebuilt, however, and by 1708 it was the only remaining Spanish mission in Florida.

After continual struggle for control of the coast, Spain ceded all of Florida to England in the Treaty of Paris dated 1763. The British split Florida into two parts: East Florida, with its capital in St. Augustine, and West Florida, with its capital at Pensacola. While the Spanish cession caused an immediate rush from Carolina for land to use for rice cultivation in the areas above the St. Marys River, the area south of the St. Marys was for the most part ignored, since it was characterized as “dismal swamp” (Chesnutt 1978). Yet the area was full of timber to be harvested and cultivated for the production of naval stores.

The American Colonies declared their independence from British rule in 1776. According to Coomes (1975), Georgia and South Carolina required their citizens to take a strict oath of loyalty to the Revolutionary cause, forcing loyalists to seek shelter in the Province of East Florida.

The native population had been ravaged by war and disease, which left much of Florida uninhabited by Native Americans by ca. 1750. This void allowed the Lower Creeks from Alabama, Georgia, and the Carolinas to migrate into Florida. In the field notes accompanying de Brahm’s 1765 map of Florida (Figure 12), he refers to these migrating groups with the Spanish term *cimarrone*, or “wild” and “runaway”. The term “Seminole” is thought to have derived from this reference (Fernald and Purdum 1992).

On the banks of the St. Johns River in a town west of St. Augustine called Picolata, fifty Lower Creeks ceded the territory east of the St. Johns River to the British on November 18, 1765. After

BRITISH PERIOD (1763-1783)

the Treaty of Picolata, the west bank of the St. Johns River became known as the “Indian Shore” and the native peoples of the North and Central Region of Florida were increasingly referred to as Seminoles by travelers, government officials, and traders (Weisman 1989, 1999).

Beginning in 1767, Seminole settlement radiated across the Florida landscape (Weisman 1989). The Seminoles prospered in Florida raising cattle and growing their traditional crops of corn, beans, squash, and tobacco, as well as crops such as sweet potatoes and melons borrowed from the Spaniards (Fairbanks 1973). During this period, the Seminoles established permanent towns from the Apalachicola River to the St. Johns River. A Seminole component was found at the DeLeon Springs site (8VO30) in Volusia County. Among the artifacts recovered were a carved deerbone hairpin, a Spanish olive jar sherd, and a Kaskaskia point. Dunbar (1981) argues that DeLeon Springs may be one of the largest and earliest Seminole sites south of St. Augustine.

Instead of the mission system of the Spanish, the British set up several trading posts in Florida. Seminoles traded deer, wild cattle, and furs in exchange for guns, iron tools, cloth, and a variety of ornamental jewelry (Fairbanks 1973; Weisman 1989). During this time, runaway black slaves from the Carolina colonies fled to Florida and sought refuge either in a black colony outside St. Augustine, where they were to become farmers and occasionally soldiers, or in the Seminole settlements in the interior of the colony. The Seminoles helped the runaways form their own settlements, and often prevented slavecatchers from capturing them (Fairbanks 1973).

In 1771 Bernard Romans surveyed the St. Johns River and was followed by William Bartram in 1773. Bartram traveled along the river to an area just south of Salt Lake (Cabell and Hanna 1943; Bartram 1791). Bartram’s famous observations of the St. Johns River and of Seminole Country were detailed, though sometimes exaggerated, accounts of the flora, fauna, and native peoples in the area. Following Bartram, William deBrahm surveyed British East and West Florida from 1766 to 1770. DeBrahm named modern Lake Monroe after the Grant family, which was given approximately 20,000 acres on the eastern shore of the lake by the British (Figure 13). However, no settlements were established on the lake during this period, and the name was not maintained (Francke et al. 1986). Plantations were established along the banks of the St. Johns River on the lower portions of the river around Jacksonville, Palatka, and Orange Park. Many of these were abandoned after the British Period and quickly reoccupied by the Spanish and Spanish loyalists.



Figure 12. DeBrahms 1765 Map of Florida (courtesy Florida State Archives).

At the Revolutionary War's end, the British defeat at the hands of the American colonists saw a new Treaty of Paris, which returned sovereignty of Florida to the Spanish and began the Second Spanish Period. Many large land grants were awarded along the fertile lands of the St. Johns River north of present day DeBary. However, most of the grants awarded to Spanish loyalists to the south were unoccupied during this period (Department of Natural Resources 1849). Near the end of the Second Spanish Period Moses Levy purchased more than 50,000 acres of land around the St. Johns River from grant holders. Levy established a plantation called *Hope Hill* on the west bank of the river near present day Astor and raised sugar cane (Caball and Hanna 1943).

With the return of the Spanish to East Florida came the attempt to reassert Spanish religious and cultural dominance in the

**SECOND SPANISH
COLONIAL PERIOD
(1783-1819)**

region, which had adopted a multi-cultural character under British rule. Although St. Augustine returned to its position of a Spanish trade entrypoint, it was no longer an essential military position guarding the route of Spanish shipping returning to the Old World. Trade also took on a more international aspect, with more vessels entering the harbor under foreign flags than under the flag of Spain (Griffin 1983). The influx of foreign nationals into the north Florida region likewise contributed to the continued deterioration of Spanish dominance in the area, along with a growing sentiment that the new United States should control Florida (Franklin and Morris 1996).

Indian refugees from the Creek War of 1814 fled to Florida and almost doubled the Seminole population. The new Seminoles were mostly Upper Creeks, originating from central Alabama, and spoke the Muskogean language. The Florida Seminoles spoke the Mikasuki language (Fairbanks 1973). Border conflicts between the Seminole and white settlers increased and culminated in 1817 with the First Seminole War. General Andrew Jackson, known to the Seminoles as Sharp Knife, invaded Seminole territory killing Indians and burning houses. This military effort was largely responsible for Florida becoming a United States Territory with Andrew Jackson as a military governor.

Florida became an U.S. territory in 1821. Landowners who had been granted land under Spanish rule were permitted to keep their lands. Governor Jackson organized the Territory of Florida into two counties, Escambia and St. Johns, with the legislative council meeting in Pensacola in 1822, and in St. Augustine in 1823 (Tebeau 1971). The First Seminole War ended with the Treaty of Moultrie Creek in 1823, which stipulated that the Seminoles would move to a reservation in the middle of Florida. This led to an increased Seminole presence in the East and Central Lakes Region. The Mizell site (8OR14) yielded a ceramic assemblage from which the Seminole pottery type Winter Park Brushed was named (Goggin 1958). Ceramics of European manufacture included sherds of blue shell-edged pearlwares, transfer-printed wares, and kaolin pipe fragments. The site demonstrates the Seminoles' use of lakes in the central Florida Lake district for animal husbandry and plantation agriculture (Weisman 1989).

During the territorial period, methods of transportation to connect the coasts to the interior became a priority. In addition to road improvements and new road construction, travel increased up inland rivers through the harness of steam power. There was con-

**TERRITORIAL TO
CIVIL WAR
PERIOD
(1821-1865)**

stant consideration for a canal to be cut through the state. Also, rail routes began to crisscross Florida.

The Payne's Landing Treaty of 1832 required the Seminoles to relinquish their land within three years and move onto reservations in the western United States. The Seminole leader Osceola killed Chief Charley Emathla who had agreed to move his town to Oklahoma. When the three years had expired, 180 Seminoles attacked a column of 108 men led by Major Francis Dade. The attack took place near the Withlacoochee River near present-day Bushnell while Dade and his men were en route from Ft. Brooke (present-day Tampa) to Ft. King (near present-day Ocala). The Seminoles left only three men alive at the battle and they died within a matter of weeks from their wounds (Chamberlin 1995; Covington 1993). With minimal Seminole casualties, the raid was an overwhelming victory. The battle demonstrated to the U.S. Army that the Seminoles, when organized, represented a considerable military force. In addition, the victory resulted in the capture of over one hundred U.S. Army muskets by the Seminoles.

On the same day as the attack on Dade, Osceola led an assault on Fort King. These incidents sparked the Second Seminole War. During this war, military outposts were established in central Florida including Fort Christmas, Fort Mellon, Fort Lane, Fort McNeil, Fort Gatlin, and Fort Taylor in the St. Johns basin (Davidson 1835-37). Nine named steamboats running on the St. Johns River in 1837 were used to service Fort Mellon on the southern shore of Lake Monroe, transporting troops, provisions, and removing captive Seminoles to Fort Marion (Castillo de San Marcos) in St. Augustine. The United States made the first extensive logistical employment of steamboats in warfare, contracting a total of thirty-nine vessels during the Second Seminole War (Francke 1977:51-58).

In April of 1836 General Winfield Scott, the second commander of the Army of the South in the Second Seminole War, reconnoitered the St. Johns River aboard the steamboat *Essayons*. On an 1836 map in the *American State Papers*, the "New Depot of Gen. Scott" records the point that Scott identified as an Indian crossing about eight miles below the southern end of Lake Monroe. Though it was never fortified, Scott's depot was referred to as Fort Florida (Figure 13) (Cabell and Hanna 1943; Francke 1977; Francke et al. 1986).

In 1837, the same year that Osceola was taken prisoner under a white truce flag, Lt. Colonel A. C. W. Fanning was sent up the St.

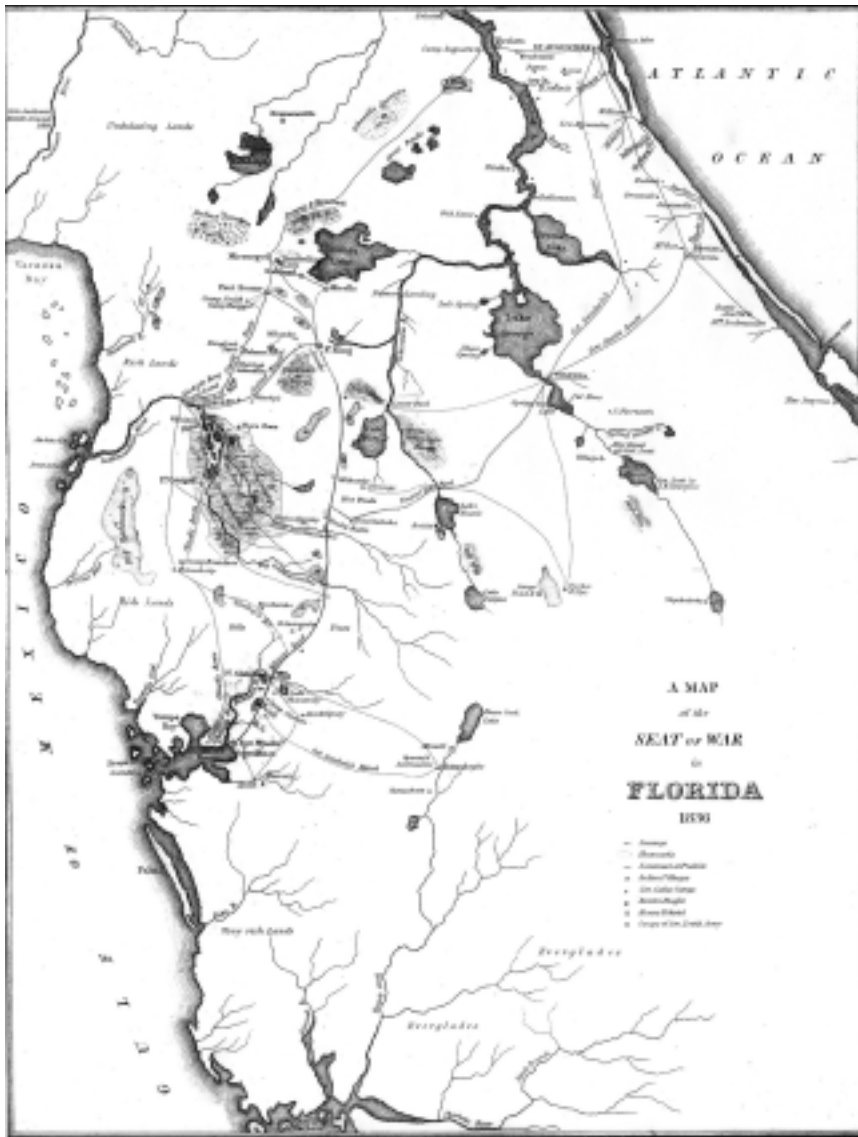


Figure 13. Fort Florida designated as New Depot of Gen. Scott on 1836 War Seat Map of Florida (courtesy Florida State Archives).

Johns River with his men. He traveled on the steamer *Santee* in search of the Seminole leader King Phillip. On February 8, 1837, they engaged the Seminoles in a skirmish on Lake Monroe. Captain Charles Mellon was killed in the fight and Camp Monroe, which was later fortified, was named Fort Mellon in his memory (Francke 1977; Sprague 1964).

The federal forces were confused by the Seminole raid-and-run tactics and were unfamiliar with the wooded and swampy terrain. The war spread to the south, in the vicinity of Lake Okeechobee, in the Everglades. After Osceola was taken prisoner, he was brought to Fort Marion in St. Augustine. His fellow Seminole prisoners

starved themselves until they were able to escape through their cell windows. Osceola, however, contracted malaria and later died in Fort Moultrie, South Carolina (Nolan 1995). The war continued until 1842, and almost 4,000 Seminoles were shipped to the western territories. Hundreds more were killed in battle or died awaiting deportation (Weisman 1999). In total, the Second Seminole War cost the United States an estimated \$40,000,000 and the lives of 1,500 troops. The Third Seminole War lasted from 1855 to 1858. More Seminoles were deported by the U.S. Government, leaving only about 200 people to continue living in south Florida.

In 1845 Florida became a state, though by 1861 it would again leave the Union. The area of the St. Johns River was not settled until the middle of the nineteenth century following the close of the Third Seminole War. American settlers moved into the area of the St. Johns River. Steamboats traversed its waters, and sugar cane was grown although on a limited scale compared with the earlier grand plantations before the Second Seminole War. However, citrus growing was expanded on plantations, and cotton cultivation continued (Griffin 1999).

The community of Enterprise was established in 1841 by Cornelius Taylor, a former timber agent. Enterprise was built at the abandoned lakeside site of Fort Kingsbury, where Taylor also planted citrus groves (Francke et al. 1983; Schene 1976). In 1843 Enterprise was the county seat of Mosquito County (Figure 14), which changed its name in 1845 to Orange County. During the 1840s and 1850s shallow-draft steamboats delivered mail from Palatka to Enterprise, where a post office was established in 1845 (Schene 1976).

By the 1850s Jacob Brock began transporting invalids up the St. Johns River to Enterprise, which had become popular as a health resort due to its sulfur springs. He built the famous Brock House in 1852, completed a steamboat wharf in front of the 100-room hotel, and operated the first regular line of Steamboats to Lake Monroe from Jacksonville. The Brock Line of steamboats included the *Hattie*, *Darlington*, *David Clark*, *Enterprise*, and *Floridance*. In 1854 the area of Orange County east of the St. Johns River became Volusia County and Enterprise became the seat of the new county. In 1855 Governor Broome appointed Elijah Watson of Enterprise as the first sheriff of Volusia County (Francke et al. 1983). The 1860 census lists four towns in Volusia County: Volusia, Enterprise, New Smyrna, and Sand Point (Dunn 1998; Schene 1976).

During the Civil War, Florida joined the Confederate States of America. Small militia bands formed in 1861 when Florida se-



Figure 14. 1831 map of Florida showing location of Mosquito County (courtesy Florida State Archives).

ceded from the Union. Many locals joined the Confederate Army and later spent their time flushing out Union supporters. Florida's primary role in the Civil War was to provide supplies and troops to the Confederacy. In a blockaded South where supplies were difficult to obtain, the Confederate Impressment Act collected food supplies including beef, pork, rice, and potatoes from Floridians who stored these supplies in warehouse depots throughout the state. Few significant battles were fought within the state.

Coastal communities in Florida were raided and occupied at will by Union forces. Fortunately there were no military objectives in the interior to draw attention, and no invasion occurred until 1864 (Tebeau 1971). Jacksonville was invaded and abandoned four separate times. In April of 1862, as the Confederates withdrew after the first invasion, they destroyed eight of their own sawmills, along with four million board feet of lumber, an iron foundry, and an ironworks. Retreating Confederate forces followed the tracks inland towards Baldwin, nineteen miles west of Jacksonville, where three railway lines converged. To prevent it falling into enemy hands, the Confederate troops pulled up several miles of railroad track along the route (Tebeau 1971).

In 1864, the St. Johns River became an important part of the Union strategy to create the South Atlantic Blockading Squadron. Under the command of Captain George B. Balch, the St. Johns River naval forces set out to capture some small Confederate steamers in order to navigate and explore areas where vessels with heavier drafts could not go. The 117-foot Union vessel *Columbine* captured the smaller 81-foot sternwheeler *General Sumter* in Lake George on March 12, 1864 (Figure 15). Immediately the Union-controlled *General Sumter* set out to capture the *Hattie Brock*, which was hauling 150 bales of cotton for export by the Confederacy. They successfully captured the 131-foot *Hattie Brock* in Lake Monroe on March 14, 1864, and headed downriver towards Enterprise with the wide sidewheeler in tow.

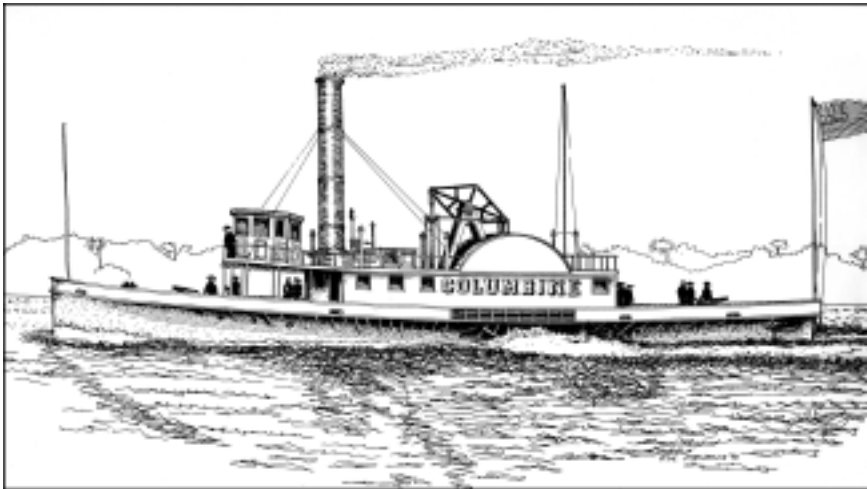


Figure 15. Sketch of the Union Steamer *Columbine* (courtesy Jesse Beall, DeBary City Archives).

At the landing dock of the Brock House, they supplied their boats with wood fuel and encountered Miss Hattie Brock after whom the captured boat had been named. According to an account published in the New York *Tribune* on April 1, 1864, from the verandah

of the Brock House, Miss Brock expressed her indignation and grief at the capture of her namesake by the Yankees. The marines were glad to get away as soon as their boats were supplied according to the account. They also took with them two black males and three black females from their stop at Enterprise and 2,000 pounds of sugar from a refinery about two miles farther downriver (Francke 1991; Francke et al. 1986). According to Arthur Francke (1991), a former historian for DeBary Hall, Inc., and member of the Volusia County Historical Commission, the *Hattie Brock* was towed for a little over six hours to the vicinity of Watson's Landing located at the lake end of modern Maple Avenue on Lake Monroe. Francke also locates the site of the sugar refinery farther downstream within the modern city limits of DeBary on DeBary Creek.

Ensign Sanborn, in command of the *Columbine*, decided to destroy the refinery and succeeded in destroying the greater portion of the works and all but one of the sugar-processing kettles. By impressing blacks into service, they were able to move the sugar and kettle by wagons to the river and load it aboard the *General Sumter*. The ruins of the refinery were left behind to avoid an encounter with an approaching force of 30 of 40 confederate guerillas. The ruins of a sugar mill on DeBary Creek are marked on an 1871 map of the Lake Monroe area (the same year DeBary Hall was built) and on an 1882 map of DeBary Hall Property. An orange grove surrounding the "Watson Place" is also marked on the 1882 map just west of a trail to Watson's Landing on Lake Monroe (Francke 1991).

During the fourth invasion, Union troops again entered Jacksonville and moved towards Baldwin along the rail track route. Confederate forces withdrew along the route of the advance, and finally a definitive battle was fought at Olustee. This resulted in Confederate troops retaining control of Florida's interior, which they maintained until the end of the war.

After the war, reconstruction proceeded in Florida at a decidedly slow pace, but by the end of the nineteenth century, Florida's population had increased to approximately 400,000 people (Marth and Marth 1988). This was due to homesteading acts as well as the citrus, naval stores, lumber, cattle, phosphate, and tourist industries.

In 1871, General Henry R. Sanford bought 12,000 acres near modern Mellonville on the upper St. Johns and experimented with growing various kinds of fruit trees (Cabell and Hanna 1943). During the same year, Samuel Frederick deBary, a prominent wine and Mumm's Champagne importer, businessman, and sportsman from

**RECONSTRUCTION
TO SPANISH-
AMERICAN
WAR PERIOD
(A.D. 1865-
1898)**

New York City, built a mansion known today as DeBary Hall. Its Italianate architecture is typical of southern plantation houses of the era. DeBary became interested in Florida through guidebooks such as the *Rambler*, which featured Jacob Brock's hotel at Enterprise, the Volusia County seat until 1888. DeBary ran a citrus and orange plantation on the lakeside property and wintered at the mansion until his death in 1898 (Figure 16) (Francke 1991; Francke et al. 1986).



Frederick DeBary and friends at DeBary Hall

Figure 16. Fredrick DeBary and friends at DeBary Hall in 1878 (courtesy Jesse Beall, DeBary City Archives).

In 1875 DeBary purchased his first steamboat the *George M. Bird*. He used the boat to transport his horses and dogs on hunting expeditions and to transport his fruit to market. By 1876 he had established the DeBary Merchants Line, which began transporting the mail in 1880 and later merged with the Baya Line in 1883. The DeBary-Baya Merchants Line operated a total of 13 steamers including the *Frederick DeBary* and the *Fannie Dugan* (Francke 1987; Francke et al. 1986).

The DeBary-Baya Line bought the 12-year-old *Fannie Dugan* in 1884 (Figure 17). Already over-aged for a wooden vessel, the *Fannie Dugan* received new boilers and new wheels, then served as the temporary replacement for the *Frederick DeBary* which had burned to the waterline in 1883. The 165-foot *Fannie Dugan* was abandoned on the north bank of DeBary Creek just below DeBary Hall in 1885 and

salvaged in 1886. The large bell was transferred onto another of the DeBary steamers called the *City of Jacksonville*. A crankshaft remained with the wreck until it was removed in the 1960s. It is on display at the nearby Blue Spring State Park (Francke 1987).



Figure 17. The Steamship *Fannie Dugan* (courtesy Jesse Beall, DeBary City Archives).

In 1876 Luther Caldwell bought Jacob Brock's Enterprise property, and invested heavily in the formation of the Atlantic Coast, St. Johns, and Indian River railways. During the 1880s, iron was shipped via steamboats for the construction of the Indian River Railroad and for the Enterprise to Titusville Railroad. Indian River citrus was shipped along the rails terminating on a rail-pier between Broadway and present-day Providence Boulevard in Enterprise, where steamboats were loaded. From 1880 to circa 1890, Fort Florida was a steamboat landing and freight dock (Figure 18). Situated near a shell mound on the west bank of the St. Johns River, Fort Florida lies across the river from the mouth of the Wekiva River and is located on private property near the Fort Florida Road through present-day DeBary (Francke et al. 1986).

Freezing temperatures in northern parts of Florida in the late nineteenth century encouraged the development of the citrus industry in south Florida. Frederick DeBary's citrus grove that was planted from the DeBary Mansion to DeBary Creek froze in 1894 and again in 1895 (Dreggors and Hess 1989). Growers began the long process of converting the south Florida swampland to farmland. Major railroads were constructed throughout the state during this time. The railroads built



Figure 18. Steamboat landing and freight dock at Fort Florida in DeBary (courtesy Jesse Beall, DeBary City Archives).

by Henry Plant, William Chipley, and Henry Flagler opened up previously undeveloped areas of the state.

In 1887 the Plant System gave access to Jacksonville on the Jacksonville Tampa & Key West Railroad from a spur connecting the City of Enterprise to the Enterprise Junction located in present-day DeBary. Enterprise Junction was later referred to as Benson Junction and functioned as a connecting point between the north-south mainline between Jack-

sonville and Orlando and a branch line of the Florida East Coast connecting with the main line near Titusville (Figure 19).



The Florida East Coast branch line was abandoned in the 1950s and the railroad junction designation was removed along with the railroad tracks in the 1970s (Francke et al. 1986).

Figure 19. Enterprise Junction and nineteenth-century railways in Volusia County. (courtesy Florida State Archives)

**SPANISH-AMERICAN
WAR TO CITY
INCORPORATION
(A.D. 1898-1993)**

In 1898, Tampa served as the staging point for the United States (including Teddy Roosevelt's Rough Riders) during the Spanish-American War. At the turn of the century, Governor Napoleon Bonaparte Broward brought Progressive politics to Florida, calling for improved education, health standards, natural resource protection, development of south Florida, and prison reform, among other issues. Social change occurred rapidly in Florida in the early twentieth century. Electrical and telephone service reached many parts of the state, and commercial goods were more accessible (Gannon 1993). The early twentieth century also saw the beginning of Prohibition. Florida's geographical location and miles of coastline made it very attractive to smugglers bringing liquor from the Bahamas and other Caribbean islands (Gannon 1996).

The Valdez area of Volusia County became known as North Monroe and was pioneered by Zeke Stafford in 1911. Stafford operated a launch-lighter ferry, which ran from the river end of Old Monroe Road to the present day I-4 bridge at the outlet of Lake Monroe (Figure 20). The Monroe-DeLand Ferry continued until a wooden



Ferry, with boat beside it -- Lake Monroe, Florida -- about 1916

Figure 20. Ferry transporting a motorcar across Lake Monroe ca.1916 (courtesy Jesse Beall, DeBary City Archives).

drawbridge was built across the same area in 1916. Ferries and bridges were primarily a response to motorcars, which replaced the steamboats as the transportation of choice in Volusia County. Stafford then operated the hand-rotated crank turning draw mechanism and collected the 50-cent toll charged each way. His house was located midway across the bridge which had a first floor under the bridge with a kitchen, bedroom and dining room (Figure 21). When water was too high, a second floor with a kitchen, a living room, a bathroom, two bedrooms and an office

were used exclusively. The first Monroe Bridge continued to operate until the construction of the present US 17/92 bridge was completed in 1933. With the advent of DeBary in 1948, the vicinity of North Monroe became known as South DeBary (Francke et al. 1986).



Figure 21. The first Monroe Bridge was operated by a hand-rotated crank turning draw mechanism (courtesy Jesse Beall, DeBary City Archives).

For Florida, the 1920s were a time of boom and bust, both fueled by real estate and land development. Swelling property prices and land values fed booms in transportation, construction, and banking. The state became a desirable vacation and retirement destination. In 1925, the Ox Brush Fibre Company moved from its original location in Sanford to Benson Junction in DeBary (Figure 22). It successfully operated within the city limits of DeBary and at one time was the largest producer of

brushes in the United States. The brush company, which produced brushes from cabbage palm fibers, also included seventeen employees' houses and supported a grocery store and post office (Figure 23). The plant finally closed in the 1970s (Dreggors and Hess 1989; Francke et al. 1986).



Figure 22. Photograph from the Ox Fibre Brush Company (courtesy Jesse Beall, DeBary City Archives).

In 1926, Florida's economy collapsed and bank failures became daily occurrences. Two major hurri-

canes in 1926 and 1928 and the arrival of the Mediterranean fruit fly in 1929 complicated matters. Despite the blow to the citrus industry, agriculture (fruit, truck farming, cotton, corn, and cattle) remained the economic mainstay of the state. Although real estate and tourism rebounded slightly towards the end of the decade, the forward momentum was halted by the stock market crash of 1929 (Gannon 1996).

In sharp contrast to the glamorous lifestyles of the wealthy on Florida's coasts, African-American life in Florida for the first half of the twentieth century was defined by political and social repression (Figure 24). Blacks were kept from voting by the Poll Tax and all-white primaries. The turpentine industry imposed a type of forced labor on many black workers (Gannon 1993). Black workers found jobs in DeBary at the Ox Fiber Company in DeBary during the early part of the century.



Figure 23. Post Office at Benson Junction ca.1945 (courtesy Jesse Beall, DeBary City Archives).



*Annual fish fry -- Ox Fibre Company -- held at Big Whirl on the St Johns River -- off Ft. Florida Road
Lady in front with purse is Dottie Dechert "hopefully we have the name spelled correctly"*

Figure 24. Company picnic at the whirl on the St. Johns River (courtesy Jesse Beall, DeBary City Archives).

Although New Deal politics and tourism dollars helped during the Depression of the 1930s, Florida's economy benefited from the onset of World War II. Its temperate climate led to its extensive use for training troops, and it was not unheard of to spot German submarines off the Atlantic coast. The development of the highway system that accompanied this military growth contributed to a boom in tourism after the war ended. Industry and agriculture also rebounded during the 1940s. Both migrant labor and labor unions became more common (Gannon 1993).

Settlement in DeBary was sparse until after the Second World War when Florida Power and Light constructed a generating station near Benson Junction on the north side of the St. Johns River. Until the early 1940s members of the DeBary family used DeBary Hall as a winter residence. In 1947 Plantation Estates, Inc., purchased a large area which was formerly part of the holdings of the DeBary estate. Much of this area to the east of present US 17/92 was platted and sold for residential development.

Like residents of the DeBary area through the centuries, local people fished and hunted along the St. Johns River and in the area of



Figure 25. Prehistoric Florida residents killing alligators (DeBry 1591, in Fundaburk 1957).

the fish market for 30 cents a pound. In addition to commercial fishing, Beall found alligator hunting a good but dangerous way to supplement his 65 cents an hour wage from the Ox Fibre Brush Company (Figures 25 and 26)(Ste. Claire 1998).

Lake Monroe in the early part of the twentieth century to supplement their incomes. Jesse Beall recalls running a catfishing outfit on the St. Johns River in the 1950s. Beall often took some of his catch home for supper but sold most of the catfish at



Figure 26. Modern Florida resident killing alligators on the St. Johns River (courtesy Jesse Beall, DeBary City Archives).

In the second half of the twentieth century, Florida has experienced a tremendous influx of population from within the United States and from other countries, including Cuba and Haiti. Cape Canaveral on the Atlantic coast has been the site of many historic advances in space exploration. Tourist attractions bring millions of visitors from around the world to Florida every year. Industry and agriculture continue to thrive in Florida today.

Most of the growth and land development since the 1950s in the DeBary area has been residential. From 1959 until 1975, DeBary Hall was used as the headquarters for the Florida Federation of Art, Inc. At the urging of Senator Everett Dirksen, DeBary Hall was purchased by the State of Florida in 1967 and continued to be used by the Florida Federation of Art, Inc. This property was placed on the National Register of Historic Places in 1973.

During the early 1970s, large tracts of land at the south end of the DeLand Ridge were subdivided and developed. In addition, the construction of the Florida Power peak energy facility north of Highbanks Road and the enlargement of Lake Konomac to provide cooling water for the plant have altered the landscape of DeBary significantly. DeBary Hall functioned as a senior center from 1977 until 1989. In 1990 the state leased the property to Volusia County under a fifty-year renewable lease. The county commissioned a continuing plan to restore the house and grounds for use as a museum. Renovations began in 1993, the same year that DeBary incorporated as a city and elected its first city council. Volusia County acquired Gemini Springs in 1994.

Chapter 5. Archaeological Survey Methods

Panamerican Consultants, Inc., conducted a reconnaissance-level archaeological survey for the City of DeBary to identify culturally sensitive zones and to gather information about prehistoric and historic period cultural resources within the municipal boundaries of DeBary, Florida (Figure 28). PCI staff used the data collected to make a preliminary evaluation of the local and regional significance of the archaeological sites and to identify potentially sensitive archaeological areas.

BACKGROUND AND LITERATURE REVIEW

The background review was designed to familiarize PCI researchers with the existing literature regarding the environment, prehistory, and history of DeBary and its immediate surroundings.

During this phase of the survey:

- Data was gathered on the natural environment, settlement patterns and subsistence strategies of prehistoric populations, as well as historic information about the North and Central Regions of Florida to predict site locations.
- Archaeological models for settlement and site location were reviewed from scholarly publications and survey reports from the area of DeBary, Volusia County and northeastern Florida.
- The Florida Master Site Files were searched for previously recorded archaeological sites within the municipal boundaries and from related areas such as Lake Monroe and the St. Johns River Basin.

Published and unpublished documents were reviewed and studied from:

PCI research library and collections
Florida Master Site Files
University of South Florida Library and Special Collections





State Library of Florida
Florida State Archives Photographic Collection
Florida Department of Natural Resources
Florida Department of Agriculture
The City of DeBary Historic and Photographic Archives

Past issues of *The Florida Anthropologist* were researched for pertinent articles, and *A Selected Bibliography of Florida Archaeology and Related Topics* (Vojnovski 1997) published by the Central Gulf Coast Archaeological Society, a chapter of the Florida Anthropological Society, was consulted for additional materials such as unpublished manuscripts and reports.

As part of the historic review, early survey, postal, and war maps at the State Library of Florida and University of South Florida were inspected. Additional maps were obtained from PCI and City of DeBary archives to trace the history of DeBary's growth. Pamphlets and brochures from DeBary Hall, Inc., Florida newspaper articles about the DeBary area, and photographs of significant individuals and organizations were studied from the State Library of Florida, the Florida State Archives Photographic Collection and the City of DeBary Archives. The pre-urban environment was researched through the use of soil survey maps and aerial photographs of Volusia County, U.S.G.S. quadrangle maps, and GIS maps of the City of DeBary including contours, vegetation, soils, and the 100-year flood plain.

Knowledgeable local informants were relied upon to collect information on unrecorded sites. DeBary Historian Jesse Beall took PCI researchers to meet with property owners and residents in the DeBary area to gain more information about "backyard" cultural resources. Local amateur archaeologists and historians, landowners and enthusiasts brought a variety of information to the survey through meetings, phone conversations, and DeBary Archaeology Day at the Florence K. Little Town Hall, August 28, 1999 (Appendix C).

With the limitations of time and funds, first priority was given to locating and documenting previously unrecorded sites. DeBary Historian Jesse Beall worked in cooperation with PCI staff and DeBary residents to locate new sites and revisit selected sites along DeBary Creek, the St. Johns River, and the mouth of Lake Monroe. Owners were interviewed about the history of their properties and permission was obtained for the team to walkover sites on their properties (Appendix D).

INFORMANT INTERVIEWS

ARCHAEOLOGICAL FIELD INVESTIGATIONS

A non-intrusive reconnaissance of identified sites was made and artifacts lying on the surface, in the roots of trees and in the spoil heaps at the entrances of animal burrows were collected for analysis at the PCI laboratory. Elevated areas and eroded deposits along lake, creek, and river banks were inspected for evidence of human subsistence activities. Non-vegetated areas also were checked for archaeological materials. Wood and ferrous fragments of the *Fannie Dugan* steamship were distributed along the shoreline, embedded and protruding from the soft sandy banks. The location of the wreck was estimated based on the actual dimensions of the vessel and the distribution of these materials.

Field notes were kept and, when appropriate, sketch maps were made. Photographs were taken to document the material remains and visual site boundaries. The locations of sites were recorded in the field with a Garmin GPS 12 utilizing software 4.53 providing a position accuracy of less than 15 meters subject to accuracy degradation to 100 meters under the US DOD-imposed Selective Availability Program.

Florida Site File forms were completed for all newly recorded archaeological sites during the survey. Geographic locations of all sites were noted on copies of the Orange City or Sanford U.S.G.S. Quadrangle maps accompanying each form. PCI also provided the City of DeBary with a copy of these maps of site locations included in this report.

When possible, a preliminary evaluation of the local and regional significance was made for new or revisited sites. Criteria for evaluating the significance of sites were based on federal criteria for assessing eligibility for the National Register of Historic Places as presented in 36 C.F.R., Part 63, *Determination of Eligibility for Inclusion in the National Register of Historic Places*. Consistent with the Division of Historical Resources' guidelines for cultural resource projects in Florida, *The Historic Preservation Compliance Review Program of the Florida Department of State*, these criteria are recommended by FDHR for federal, state and local projects.

The principal criteria used to evaluate the significance of sites are:

1. The ability of a site to contribute important scientific information to the study of regional or local prehistory or history;
2. The association of a site with a person or event impor-

SITE RECORDING AND EVALUATION

tant to regional or local prehistory or history;

3. The association of a site with a group or district that is considered to be of regional or local significance;
4. The possession of qualities considered unique or rare, or that provide an especially well preserved example of a particular type of site; and a site's potential for public display and interpretation.

The data collected during a reconnaissance-level survey is insufficient to make a complete determination of National Register eligibility. Certainly, the background and literature review of the survey provides the geographic, archaeological, and historic contexts from which site significance can be tested. Systematic subsurface testing and/or controlled test excavations should be conducted to provide supporting evidence.

The criteria listed have been followed for this project. The development of criteria established locally for site significance is encouraged and in keeping with the intent expressed in Chapter 9J-5.003(35) F.A.C., *Minimum Criteria for Review of Local Government Comprehensive Plans and Determination of Compliance*. For example, a renewed popular interest in the vernacular architecture of Florida's wood-frame "cracker houses" has lead architects to study the regional traditions and architectural forms. Wooden structures built by the early nineteenth century homesteaders through the Seminole Indian Wars, the Civil War, and into the first decades of the twentieth century would fit the time frame for the cracker architecture of Florida. The elements of the cracker farmhouse, plantation, and townhouse have been used as the basis for the design of modern buildings throughout Florida (Haase 1992). Cracker Vernacular structures built during these periods may be extant within the municipal limits of DeBary.

One such structure reviewed during the DeBary survey is the home of former resident James Barwick, identified during a transmission line right-of-way survey for the Florida Power Corporation. The house was built in 1910, but was in ruinous condition and was being used for storage during the 1994 survey. The Barwick House as described below (Bellomo 1994:50) was revisited during the DeBary survey project. It is representative of the early Frame Vernacular rural architecture of the region, but is not considered eligible for the National Register of Historic Places because of its condition (Appendix A).

Chapter 6. Survey Results

To meet the objectives of the survey, PCI staff searched the Florida Master Site File for archaeological surveys and sites recorded within the city limits of DeBary. PCI staff developed a site location predictive model and generated a preliminary archaeological sensitivity map of the City of DeBary with high, medium and low probability zones. Results of the archaeological field investigation included the location and mapping of new sites, as well as revisiting selected sites in the large high probability zone along the river. Preliminary recommendations were made based on data from the Florida Master Site File office and information collected in the field.

RESULTS OF FLORIDA MASTER SITE FILE SEARCH

On of August 11, 1999, PCI staff searched the Florida Master Site File to conduct a review of archaeological surveys and sites previously recorded within the municipal boundaries of DeBary. The sites are recorded on maps taken from the U.S.G.S. Sanford and Orange City 7.5' Quadrangle maps (Appendix D) and a review of surveys and sites is presented below.

PREVIOUS SURVEYS CONDUCTED IN DeBARY.

Beginning in the early Archaic period and continuing into historic times, the St. Johns River and Lake Monroe have provided potable freshwater and aquatic resources to residents of the DeBary area, and have served as a part of an interconnected corridor for transportation to other areas north and south of DeBary. A total of six systematic archaeological surveys, most located near the river, have been funded by Volusia County, the Florida Power Corporation, the Florida Department of Transportation, and developers near well-known archaeologically sensitive areas. Previous cultural resource investigations within the city limits of DeBary recorded in the Florida Master Site File are discussed below including the type, purpose, and results of each survey.



Survey No. 262. In 1973 the Florida Department of State, Division of Archives, History and Records Management surveyed four tracts of land in central Florida for the Florida Power Corporation (Miller 1973). One of these tracts was in DeBary. In this tract, two sites were recorded on Pine Island: 8VO191 (Apple Snail Site) and 8VO192 (Vittaria Site). Both of these midden sites are believed to date to the St. Johns period and were recommended as potentially eligible for the NRHP.

Survey No. 3353. In 1992 Florida Archeological Services, Inc. (FAS), conducted an archaeological site assessment survey in association with the proposed alteration of SR 15-600 (US 92) in Volusia County (Johnson and Ashley 1992). No archaeological sites were recorded during this survey. One historic structure, the Orange City Fire Tower, was recorded and recommended as ineligible for the NRHP; however, this structure is located outside of the DeBary city limits.

Survey No. 3486. In 1992 R. Christopher Goodwin & Associates Inc., completed an archaeological survey of the Planned 10-in. O.D. Sanford Florida Power & Light Loop and Meter Station (Athens and Donald 1992). During this survey only one site was recorded: Site 8VO4585, an early-twentieth-century homestead. Site 8VO4585 was recommended as ineligible for the NRHP.

Survey No. 3585. Janus Research conducted a survey of 210 acres in Volusia County for Pinnacle Companies in April 1993 during a cultural resource assessment survey of the Gemini Springs Project Site (Estabrook 1993). A total of nine sites were located within the project area, two of which were considered to be potentially eligible for the NRHP. The seven sites considered ineligible included 8VO4376-4377, 8VO4379-4383, three of which were single lithic flakes, one was a single sherd, and three were sparse lithic scatters. The two potentially eligible sites include 8VO4378, the Gemini Springs Midden, and 8VO4384, the Gray Residence. The Gemini Springs Midden is a large freshwater shell midden dating to the terminal Archaic and St. Johns periods, and the Gray Residence is a ca.1900, I-type, Frame Vernacular style residence with few alterations.

Survey No. 3940. Janus Research completed a cultural resource assessment survey of Florida Power Corporation's DeBary-Winter Springs 230kV transmission line right-of-way in Volusia and Seminole counties (Bellomo 1994). This survey was a corridor study of 20 miles of right-of-way with a corridor impact area of 110-180 feet in width. The survey resulted in the location of five prehistoric

sites within the corridor and four historic structures located near, but not within the corridor. None of the sites was determined to meet the criteria for inclusion in the National Register of Historic Places.

Survey No. 5486. In 1998, SouthArc, Inc., completed a cultural resources survey of the Riverside at DeBary development area (Dickinson and Wayne 1998). SouthArc conducted a preliminary pedestrian survey of the area to identify previously recorded sites and areas of potential resources. This preliminary survey identified and relocated five previously recorded archaeological sites in the general vicinity of the Riverside tract (8VO46, 8VO47, 8VO48, 8VO49, and 8VO50). Only Site 8VO48 (Fort Florida Midden) was within the project area. The Fort Florida Midden is a shell midden containing bone, lithic debitage, and St. Johns ceramics. Middle Archaic and St. Johns II components were identified at this site. Site 8VO48 was recommended as potentially eligible for the NRHP and additional archaeological testing of the site was recommended.

A search of the Florida Master Site File was conducted to identify previously recorded archaeological sites within the city limits of DeBary. The official number, name, location, type, setting, and significance for each site are summarized below. Based on information available at the Florida Master Site File as of August 11, 1999, there are 25 recorded archaeological sites within the city limits of DeBary. The exact locations of only three of these sites (8VO45, 8VO46, 8VO52), recorded by late nineteenth century archaeologists (LeBaron 1884; Moore 1894), have not been determined. These sites may have been destroyed after they were recorded or may be the same as or related to other nearby sites.

Site 8VO45. The Barker's Landing Midden is said to be located on the east bank of the St. Johns River, two miles north of the mouth of the Wekiva River. Based on this vague description the general vicinity of the site has been plotted on a USGS topographic map by the Florida Master Site File Office. Very little information relating to this site is known although it is described as a midden.

At the mouth of the Wekiva there are two mounds on the east bank of the Saint John's. They are 1 mile south of Emanuel Landing. One is about 100 feet from the river, on the edge of the hummock, and the other is about 250 yards, and in the hummock (LeBaron 1884:775).

A note to check Bartram and sites 8VO44, 8VO46, and 8VO47 is included in the file. There is insufficient information to make an assessment of Site 8VO45's NRHP eligibility status.

ARCHAEOLOGICAL SITES RECORDED IN DEBARY

Site 8VO46. One of two middens (or mounds) on the east bank of the St. Johns River near the mouth of the Wekiva River (described by LeBaron, quoted above for Site 8VO45), Site 8VO46 may be the same as or related to the Fort Florida Midden (Site 8VO48). A note to check Bartram and sites 8VO44, 8VO46, and 8VO47 is included in the file. There is insufficient information to make an assessment of Site 8VO46's NRHP eligibility status. This mound or midden may be located between Fort Florida Road and the river. Construction of existing houses along the river may have destroyed this site (Dickinson and Wayne 1998).

Site 8VO47. This is one of two middens (or mounds) on the east bank of the St. Johns River near the mouth of the Wekiva River (described by LeBaron 1884, quoted above). In 1998 this mound or midden was said to be located approximately 75 m from Riverside Drive in an oak hammock. The mound is 2 m high and 20 m in diameter. One pothunter's hole was noted in 1998 but otherwise the site appeared to be intact (Dickinson and Wayne 1998).

Site 8VO48. This is the Fort Florida Midden described by Moore (1894a:83) as being one mile south of the mouth of the Wekiva River, a location which correlates with Emanuel Landing (see Site 8VO46 above). Prior to Moore's visit, Wyman (1875:21) had referred to shell fields bordering the river in this area. In the 1960s Pat McMullen of St. Cloud, Florida, collected St. Johns Check Stamped and St. Johns Plain sherds from the surface of the site. In 1998 the location of Site 8VO48 was verified during a cultural resource assessment survey (Dickinson and Wayne 1998). Multiple components were identified at this shell midden including St. Johns II and Archaic. Artifacts collected include St. Johns Plain sherds, St. Johns Check Stamped sherds, St. Johns Cordmarked sherds, worked bone, a reworked Putnam projectile point, and some historic artifacts dating to the early twentieth century. No assessment of Site 8VO48's NRHP eligibility status was made although further testing of the site was recommended.

Site 8VO49. The Fort Florida Mound is a burial mound on the eastern bank of the St. Johns River about one mile south of the mouth of the Wekiva River. The exact location of the mound is unknown but the site has been plotted on a USGS topographic map at the Florida Master Site File office based on a description from Moore (1894). Moore excavated a trench through this 6.5-ft. tall mound in 1894 and found it to be stratified. Moore recorded finding check-stamped and plain sherds and portions of a human skeleton disturbed by a previous excavator. A note from Laura Robbins

Schell dated October 28, 1997, states that this site may have an artifact and/or human skeletal collection that was accessioned to the Wagner Free Institute of Science in 1919.

Site 8VO50. Mound Near Fort Florida was described by Moore (1894a:83) as being stratified with sand and shell. This mound is thought to be one excavated by Wyman as well. The exact location of this mound is unknown and has been plotted on a USGS topographic map by the Florida Master Site File Office based solely on Moore's vague description. The mound may be located at the end of Riverfront Drive within a dirt driveway to a residence (Dickinson and Wayne 1998).

Site 8VO51. Thrasher's Shell Pit was first described by LeBaron 1884 (775) as being located "near or on land of Colonel Thrasher, about a quarter of a mile from the Saint John's River, across a marsh. This mound is 1 mile north of Lake Monroe, on the east side of the river." The location was later described in the site file as about three miles below the outlet of Lake Monroe on the north bank of the St. Johns River. From 1932 to 1934 James Gut of Sanford, Florida, collected shell tools from this site. Two *Busycon* celts, two *Strombus* celts, two *Busycon* gouges, and one columella chisel are now part of the Simpson Collection at the University of Florida.

Site 8VO52. This sand mound near the northern end of Lake Monroe was described by C.B. Moore in 1894 (83):

Near the railroad bridge crossing the St. John's at its exit from the lake is an unsymmetrical mound of sand. It lies back of the hammock land bordering the river on the eastern back. It is not visible from the channel. Its height is 8 feet 5 inches; its circumference, 275 feet. It is composed of pure white sand unstratified. No shell deposit is in the immediate vicinity. Six feet from the margin of the base of the southwestern portion of the mound a trench was dug 13 feet in breadth, converging to 10 feet at the end and 37 feet in length. At a depth of 9 feet water was reached. Beyond one piece of charcoal, absolutely nothing was found denoting human agency in the erection of the mound.

Site 8VO52 has been plotted on a USGS topographic map by the Florida Master Site File Office based on this vague description.

Site 8VO54. The exact location of the DuBarry Creek Midden is unknown and only the general vicinity is shown on the maps at the Florida Master Site File. Recorded by Goggin in the

1950s, the DuBarry Creek Midden is described as being located on DeBary Creek. Little is known about the site other than it was visited by Jeffries Wyman in the 1870s. His description of the site is as follows:

A few hundred yards to the westward of Old Enterprise...is an "old field," where a thin deposit of shells extends along the shore about three hundred feet, and is distributed uniformly over the surface behind (Wyman 1875:20-1).

No NRHP evaluation of this site has been made.

Site 8VO144. The Goodacres Midden was recorded in 1966 by W.C. Smith, who was referred to the site by Mrs. H.H. Simpson. Site 8VO144 is a shell midden on the east bank of the St. Johns River at the Goodacres Development about five miles north of Sanford, Florida. A few sherds (type not noted) were collected from the surface but none were found in the midden. Projectile points (type not noted) were collected from bulldozed areas. Materials from the site are part of the Simpson Collection.

Site 8VO191. The Apple Snail Site was recorded in 1973 (Miller 1973) on Pine Island. No artifacts were found at this shell midden but based on excavations at nearby Site 8VO192 (see below) it is believed that Site 8VO191 dates to the St. Johns period. The shell composition of these two middens was nearly identical indicating deposition in a similar environment and time period. It was recommended that this site be avoided during construction of a power plant. If avoidance was not possible partial excavation of the site was recommended.

Site 8VO192. The Vittaria Site was recorded in 1973 (Miller 1973) on the southern end of Pine Island. This freshwater shell midden covered 1/2 to 3/4 of an acre with two house mounds visible in the northwestern portion of the site. The site was judged to be in an excellent state of preservation. Artifacts were collected from tree falls and from the excavation of a 1-x-1-m test unit. Shell in the midden was primarily freshwater gastropods (*Paludina* and *Pomacea caliginosa*) and occasional river mussel. Animal bone included mammal (raccoon), bird, turtle, and fish. St. Johns Plain pottery and a Savannah River projectile point were also collected. It was recommended that this site be avoided during construction of a power plant. If avoidance was not possible, partial excavation of the site was recommended.

Site 8VO451. The Dean Sligh Site was recorded by Marilyn Stewart of Rollins College based on information from Dean Sligh. The site is located along the I-4 causeway near its landfall on the north shore of Lake Monroe. Paleoindian artifacts, Early Archaic artifacts, and St. Johns Plain pottery have been collected from Site 8VO451. There is also a lithic scatter. A portion of the site has been used for historic refuse disposal. No NRHP evaluation of this site has been made.

Site 8VO1970 (originally 8VO188). The general vicinity of the Fanny Dugan Shipwreck is west of I-4 and south of DeBary Bayou, although the date and kind of shipwreck at this location is not recorded on the Florida site form. No NRHP evaluation of this site has been made.

Site 8VO4376. The South Flake Site was recorded during a survey of Gemini Springs (Estabrook 1993). A single chert flake was found at this location. Site 8VO4376 is considered to be ineligible for the NRHP.

Site 8VO4377. The Middle Flake Site was recorded during a survey of Gemini Springs (Estabrook 1993). A single chert flake was found at this location. Site 8VO4377 is considered to be ineligible for the NRHP.

Site 8VO4378. The Gemini Springs Midden Site was recorded during a survey of Gemini Springs (Estabrook 1993). This multicomponent midden dates to the Mount Taylor, Orange, and St. Johns periods. Artifacts collected during shovel testing include Newnan hafted bifaces, fiber-tempered pottery, St. Johns pottery, sand-tempered plain pottery, bone pin fragments, and a *Busycon* hammer. The Gemini Springs Midden site was recommended as potentially eligible for the NRHP because it is likely to yield important information about inland freshwater resource procurement strategies during the terminal Archaic and St. Johns I and II periods.

Site 8VO4379. The Spring Sherd Site was recorded during a survey of Gemini Springs (Estabrook 1993). A single St. Johns Plain sherd was found at this location. Site 8VO4379 is considered to be ineligible for the NRHP.

Site 8VO4380. The Spring Flakes Site was recorded during a survey of Gemini Springs (Estabrook 1993). One chert flake and one silicified coral flake were found at this location. Site 8VO4380 is considered to be ineligible for the NRHP.

Site 8VO4381. The North Flake Site was recorded during a survey of Gemini Springs (Estabrook 1993). A single silicified coral flake was found at this location. Site 8VO4381 is considered to be ineligible for the NRHP.

Site 8VO4382. The Pond Scatter Site was recorded during a survey of Gemini Springs (Estabrook 1993). Eight chert flakes were recovered from the Pond Scatter Site. Site 8VO4382 is considered to be ineligible for the NRHP.

Site 8VO4383. Two flakes were recovered from the Twin Flake Site, recorded during a survey of Gemini Springs (Estabrook 1993). Site 8VO4383 is considered to be ineligible for the NRHP.

Site 8VO4585. The Powerplant Site was recorded during a survey of the planned 10-in. O.D. Sanford Florida Power and Light Loop and Meter Station (Athens and Donald 1992). Glass shards and an earthenware sherd consistent with an early-twentieth-century occupation were collected near three standing residential structures dating to 1920-1940. A powerplant constructed in 1920 also is nearby. Site 8VO4585 has been determined to be ineligible for the NRHP.

Site 8VO4715. The Debary-Winter Springs #1 Site was recorded during a cultural resource assessment of the Florida Power Corporation's DeBary Winter Springs 230kV transmission line right-of-way (Bellomo 1994). The site is east of the CSX railroad tracks that run east of Konomac Lake, and an unnamed wetland lies 500 m to the north. The only artifact collected from Site 8VO4715 was a lithic waste flake. Site 8VO4715 is considered to be ineligible for the NRHP.

Site 8VO4717. The Debary-Winter Springs #3 Site was recorded during a survey of the Florida Power Corporation DeBary-Winter Springs 230 kV transmission line (Bellomo 1994). This small campsite dates to the St. Johns period. Site 8VO4717 has been determined to be ineligible for the NRHP.

With the assistance of DeBary Historian Jesse Beall, PCI staff conducted a non-intrusive reconnaissance survey of selected sites within the DeBary city limits. Priority was given to locating new sites in the large high probability zone along the river and to revisiting sites for which the descriptions in the Florida Master Site Files were vague. Owners were interviewed about the history of

RESULTS OF ARCHAEOLOGICAL FIELD INVESTIGATIONS

their properties and permission was obtained for the team to walkover sites on their properties.

Between August 12 and September 13, 1999, four new sites were recorded and four sites revisited. Sites were photographed, mapped, and recorded with the Garmin GPS 12 utilizing software 4.53 providing a position accuracy of less than 15 meters subject to accuracy degradation to 100 meters under the US DOD-imposed Selective Availability Program. The Florida Master site file forms are included in Appendix A, and survey findings and preliminary evaluations are summarized below.

SITE 8VO7176. The Barwick Shell Midden (GPS: N28° 52.843' W81° 20.172') is located on Barwick Road in Township 19 South, Range 30 East, Section 8 (U.S.G.S. Sanford Quadrangle) in DeBary, Florida. It is situated just north of the St. Johns River and lies beneath two structures built by James Barwick and family. The mound was truncated on its western perimeter by shell-mining activities, but remains relatively undisturbed beneath the buildings and gradual slopes to the southeast.

The mound may be associated with the St. Johns period campsite (8VO4717) recorded nearby, although no testing of the association was performed during the survey. Artifacts collected from the area by James Barwick (see Figure 6) include a smoothed brown rectangular stone perforated for suspension on both ends, a sharpened bone, and several Archaic points. The shells lying on the surface of the mound include *Viviparus georgianus*, a freshwater snail commonly found in aboriginal mounds along the St. Johns River.

While an NRHP evaluation can not be made based on a reconnaissance level survey, further testing of the site should be conducted to determine the period(s) of occupation and to assess the significance of the site.

SITE 8VO7177. The Elijah Watson House (GPS: N28° 52.230' W81° 16.675') was located in the vicinity of the intersection of Maple Avenue and Magnolia Place, Township 19 South, Range 30 East, Section 1 (U.S.G.S. Sanford Quadrangle) in DeBary, Florida. It was the residence of the first sheriff of Volusia County and is designated on the 1882 map of DeBary Hall Property. An orange grove surrounding the "Watson Place" is also marked on the 1882 map just west of a trail leading to Watson's Landing on DeBary Creek.

**PREVIOUSLY
UNRECORDED
SITES**

No remains of the structure or grove were observed during the survey, and a modern house has been built in its probable location on the northwest corner of the intersection north of DeBary Creek. Because of the demolition of the structure and the disturbance of the area during the landscaping and construction of the current residence, Site 8VO7177 is considered ineligible for listing on the National Register of Historic Places.

SITE 8VO7178. The Frederick DeBary Packing House (GPS: N28° 52.230' W81° 16.675') was located in the vicinity of the intersection of Maple Avenue and Magnolia Place, Township 19 South, Range 30 East, Section 1 (U.S.G.S. Sanford Quadrangle) in DeBary, Florida. It is designated on the 1882 map of DeBary Hall Property just east of a trail to Watson's Landing on DeBary Creek. DeBary packed the citrus from his lakeside plantation at this location approximately 100 meters north of Watson's Landing and used steamboats to transport his fruit along the St. Johns River to market.

No remains of the structure were observed at its probable location just west of a drainage ditch running parallel to Maple Avenue and emptying into DeBary Creek. No evaluation of NRHP eligibility for Site 8VO7178 can be made until the site has been tested for evidence of the packing house.

SITE 8VO7179. The DeBary Creek Sugar Mill (GPS: N28° 52.071' W81° 7.707'), the ruins of which were noted on an 1871 map of Lake Monroe and on an 1882 map of DeBary Hall Property, was located in the general vicinity of River Oaks Estates south of the cul-de-sac on River Village Drive, Township 19 South, Range 30 East, Section 2 (U.S.G.S. Sanford Quadrangle) in DeBary, Florida. During the Civil War, Union Forces may have been responsible for the mill's destruction (Francke 1991).

No evidence of the structure in the general vicinity was observed, but weathered brick fragments were scattered on the surface along the shore of DeBary Creek. No evaluation of NRHP eligibility for Site 8VO7179 can be made until the site has been tested for evidence of the sugar mill.

SITE 8VO49. The Fort Florida Mound (GPS: N28° 52.116' W81° 21.484') is a burial mound located in a hammock 300 yards northwest of the eastern bank of the St. Johns River about one mile south of the mouth of the Wekiva River (Moore 1894), Township 19 South, Range 30 East, Section 37 (U.S.G.S. Sanford Quadrangle) in DeBary, Florida. C. B. Moore excavated a trench through this 6.5-ft.

**SITES REVISITED
DURING THIS
SURVEY**

tall mound in 1894 and found it to be stratified. The trench is still visible in the northwestern portion of the mound. Moore recorded check-stamped and plain sherds and portions of a human skeleton disturbed by a previous excavator in the center of the mound.

According to recent informant sources, skeletal fragments have been found in the depression in the center of the mound since Moore's excavation. The remainder of the sand mound appears to be relatively intact with a sparse scatter of freshwater snail shells on the surface. Based on information in the Florida Master Site Files, Site 8VO49 is considered potentially eligible for listing on the National Register of Historic Places.

SITE 8VO50. This site represents the Mound Near Fort Florida (GPS: N28° 51.855' W81° 21.542'). The eroding remnants of a shell mound were located on private properties at the south end of Riverfront Drive, Township 19 South, Range 30 East, Section 37 (U.S.G.S. Sanford Quadrangle) in DeBary, Florida. The mound is situated on the bank of the St. Johns River. The wooden mooring posts from the pier at the Fort Florida steamboat landing and freight dock (Francke et al. 1986) were photographed still standing in the river near the mound.

Moore (1894a:83) described the Mound Near Fort Florida as being stratified with sand and shell. A recent trench cut through the mound provided a fresh stratigraphic profile, which revealed a top layer of freshwater snails and bivalves mixed in a brown matrix overlying a layer of brown silt and a bottom buff-colored layer with limestone inclusions. The depth of the shell layer varies from 1 1/2 to 4 1/2 feet. These may be the remnants of the stratified mound excavated by Wyman (1875).

Owners of properties at 621 and 639 Fort Florida Point Road have collected materials from the eroding surface of the mound. Bud and Alice McMillan have a collection which includes a bone punch, worked shell tools and celts, and Archaic points. Tom and Barrie Freeman have collected check-stamped potsherds and bone artifacts from the roots of the oaks and palms growing on the top of the mound.

While an NRHP evaluation cannot be made based on a reconnaissance level survey, further testing of the site is recommended to determine the period(s) of occupation and to assess the significance of the site. It is also recommended that the mound be stabilized, since large portions have collapsed into the river along with trees from the top of the mound.

SITE 8VO54. The DuBarry Creek Midden (GPS: N28° 52.102' W81° 17.705') was located in River Oaks Estates south of the cul-de-sac on River Village Drive, Township 19 South, Range 30 East, Section 2 (U.S.G.S. Sanford Quadrangle) in DeBary, Florida. The thin deposit of shells, described by Wyman (1875) and recorded by Goggin in the 1950s, has been disturbed by residential development and shell-mining operations along the shore of DeBary Creek. Midden materials including freshwater shellfish (*Viviparus georgianus*) and a St. Johns plain rimsherd were scattered on the surface.

Because of the substantial disturbance, Site 8VO54 is considered ineligible for listing in the National Register of Historic Places.

SITE 8VO1970 (ORIGINALLY 8VO188). The *Fanny [sic] Dugan* Shipwreck (GPS: N28° 52.102' W81° 17.276') is located in the DeBary Creek south of the cul-de-sac on Hickory Street, Township 19 South, Range 30 East, Section 2 (U.S.G.S. Sanford Quadrangle) in DeBary, Florida. The 165-foot wooden steamboat was abandoned on the north bank of DeBary Creek in 1885 and salvaged for parts in 1886. The crankshaft currently displayed at Blue Spring State Park remained with the wreck until it was removed in the 1960s (Francke 1987:20-29). Wood and ferrous fragments of the *Fannie Dugan* steamship are distributed along the shoreline, embedded and protruding from the soft sandy banks. PCI staff estimated the location of the wreck based on the actual dimensions of the vessel and the distribution of these materials.

While an NRHP evaluation cannot be made based on a reconnaissance level survey, further testing of Site 8VO1970 is recommended to locate any structural remains in DeBary Creek and to assess the regional significance of the wreck.

PCI staff generated a table of the Archaeological Sites in DeBary (Table 2 below) based on the information available in the Florida Master Site Files and the information gathered in the field during the reconnaissance survey. The chart lists the 29 sites within the city limits of DeBary by official number, name, location, site type, period, NRHP status, and references in the archaeological literature.

SUMMARY

Table 2. Archaeological Sites in the City of DeBary, Florida.

Site No.	Site Name	T/R/S	Quad. Name	Site Type	Period	NRHP
8VO45	Barker's Landing Midden	18S/30E/30	Orange City	midden/mound	unk.	insuf.
8VO46	—			midden/mound	unk.	insuf.
8VO47	—			midden/mound	unk.	insuf.
8VO48	Fort Florida Midden	18S/29E/31	Orange City	midden/mound	Archaic/St. Johns II	PE
8VO49	Fort Florida Mound	19S/30E/6	Sanford	burial mound	unk.	insuf.
8VO50	Mound near Fort Florida	19S/30E/37	Sanford	mound	unk.	insuf.
8VO51	Thrasher's Shell Pit	19S/30E/7	Sanford	shell mound	unk.	insuf.
8VO52	—	19S/30E/16	Sanford	sand mound	unk.	insuf.
8VO54	DuBarry Creek Midden	19S/30E/2	Sanford	shell midden	unk.	insuf.
8VO144	Goodacres Midden	19S/30E/7	Sanford	shell midden	unk.	insuf.
8VO191	Apple Snail	18S/30E/20	Orange City	shell midden	St. Johns	PE
8VO192	Vittaria	18S/30E/20	Orange City	shell midden/mound	St. Johns	PE
8VO451	Dean Sligh	19S/30E/1	Sanford	midden/lithic scatter	Paleo/E Archaic/St. Johns	insuf.
8VO1970	Fanny Dugan Shipwreck	19S/30E/2	Sanford	shipwreck	historic	insuf.
8VO4376	South Flake	19S/30E/3	Sanford	flake	prehistoric	IE
8VO4377	Middle Flake	19S/30E/3	Sanford	flake	prehistoric	IE
8VO4378	Gemini Springs Midden	19S/30E/3	Sanford	midden	Archaic/St. Johns I&II	PE
8VO4379	Spring Sherd	19S/30E/3	Sanford	sherd	St. Johns	IE
8VO4380	Spring Flakes	19S/30E/3	Sanford	lithic scatter	prehistoric	IE
8VO4381	North Flake	19S/30E/3	Sanford	flake	prehistoric	IE
8VO4382	Pond Scatter	19S/30E/3	Sanford	lithic scatter	prehistoric	IE
8VO4383	Twin Flake	19S/30E/3	Sanford	lithic scatter	prehistoric	IE
8VO4585	Powerplant	19S/R30E/16	Sanford	scatter	early 20th C.	IE
8VO4715	DeBary-Winter Springs #1	18S/30E/32	Orange City	flake	prehistoric	IE
8VO4717	DeBary-Winter Springs #3	19S/30E/8	Sanford	campsite	St. Johns	IE
8VO7176	Barwick Shell Midden	19S/30E/8	Sanford	shell midden/mound	unk.	insuf.
8VO7177	Elijah Watson House	19S/30E/1	Sanford	house site	historic	insuf.
8VO7178	F. DeBary Packing House	19S/30E/1	Sanford	packing house	historic	insuf.
8VO7179	DeBary Creek Sugar Mill	19S/30E/2	Sanford	sugar mill	historic	insuf.

T/R/S-Township/Range/Section PE- Potentially Eligible IE- Ineligible insuf- Insufficient Information
 NRHP- National Register of Historic Places

Chapter 7. Archaeological Site Predictive Model

Previous systematic subsurface testing during surveys of DeBary have demonstrated that many archaeological sites may still be undiscovered within the city limits of DeBary. However, a citywide archaeological survey to test for subsurface sites would be time consuming and expensive. An alternative approach is the development of a site location model, which can be used to predict the possible locations of prehistoric and early historic archaeological sites. The City of DeBary could utilize this model as a tool in planning for future land use and to decide whether to require archaeological surveys prior to land development.

As part of the reconnaissance-level archaeological survey for the City of DeBary, PCI staff developed a site location predictive model based on a review of:

- previous archaeological studies and settlement models;
- prehistoric and historic archaeological and scholarly literature;
- previous surveys conducted in Florida, Volusia County, and DeBary;
- an archaeological study and predictive model for Volusia County;
- previously recorded sites in DeBary;
- soil survey maps and aerial photographs of Volusia County;
- U.S.G.S. Orange City and Sanford Quadrangle maps;
- GIS maps of DeBary including contours, vegetation, soils, and 100 year flood plain;
- early survey, postal, and war maps;
- photographic archives of the State of Florida, Volusia County, and DeBary.

Using this model, PCI staff produced an archaeological sensitivity map of the City of DeBary, which, after further testing and refinement, could be used to predict the possible location of prehistoric and



early historic archaeological sites. Preliminary high, medium, and low probability zones were designated according to the following factors (in order of importance):

- proximity to known site(s);
- proximity to potable freshwater
- relative elevation and slope;
- soil drainage.

Human settlement patterns often depend on the relationship between site location and the natural environment. Environmental factors determine what resources are available for use. Both prehistoric and historic subsistence was based on the idea that it is desirable to maximize returns and minimize cost and risk. A change in settlement pattern often reflects a change in subsistence strategy, which is often the result of an environmental change.

By examining the results of previous studies, archaeologists can determine what environmental settings prehistoric and historic populations preferred. Site predictive modeling is not simply identifying a single variable. Often, the interaction of several variables must be considered.

Paleoindian and Early Archaic settlement patterns were determined by proximity to water sources and the presence of high-quality lithic material. Sites dating to these periods are usually found near karst sinkholes or springs. During the Middle Archaic, more water became available and the use of thermal alteration allowed the use of lower-quality lithic materials. People living in the St. Johns River basin traveled up and down the river seasonally collecting terrestrial plants and animals and aquatic species. Different types of sites are found in upland and lowland settings. During the Woodland period, settlement may have been coastal year-round with occasional forays inland for specialized resources. However, Woodland settlement patterns are the topic of much discussion and this model may reflect the relatively greater amount of archaeological research conducted in coastal settings as opposed to inland areas. There also is evidence of permanent interior settlement during the Woodland period.

Sites may also be found in areas that appear unsuitable but are adjacent to high probability areas. These may represent microenvironments that had some highly desirable resources not available elsewhere. Sites (such as Archaic wetland burials) are also found in wetland environments adjacent to large upland sites.

THEORETICAL RATIONALE

The goal of the site predictive model is to identify the areas of high, moderate, and low probability for locating prehistoric and historic archaeological sites or structures within the city limits of DeBary. A review of the existing prehistoric and historic archaeological literature and the maps and manuscripts of northeast Florida, Volusia County, and the City of DeBary were used to determine the cultural resources of DeBary. A search of the Florida Master Site File at the Florida Division of Historical Resources in Tallahassee was made, and archaeological surveys conducted within the city limits of DeBary were consulted and reviewed to identify the previously recorded cultural resources. Interviews and accounts from people with knowledge of the history and archaeology of the area, including Jesse Beall, Historian for the City of DeBary, were used to collect information on unrecorded sites. Geographic locations of the 25 previously recorded sites were incorporated with environmental data to prepare a site predictive model for the survey area.

The following environmental factors are most commonly assumed to be important for predicting site locations:

- soil drainage
- distance to potable fresh water
- resource availability

Typically, predictive models claim that well-drained soils have a high site probability, moderately well or somewhat poorly drained soils have a medium site probability, and poorly drained soils have low site probability. However, our review of previous surveys conducted in Florida revealed that the majority of sites are located on moderately well-drained, somewhat poorly drained, or poorly drained soils. Excessively drained soils may actually be low probability rather than high. For example, Neilhurst sand, 1 to 5 percent slopes, is an excessively drained soil that was formed in homogeneous sandy material from phosphate and silica mining. Sites would not be expected on this soil type. It appears that soil drainage is not the most important factor in determining site location; rather, it is the availability of fresh water. Areas of higher relative elevation, especially where soils are not well drained, are also more likely to contain archaeological sites. Therefore, when determining probability zones for the City of DeBary, the following factors were considered (in order of importance):

1. proximity to known site(s);
2. proximity to potable freshwater, particularly lakes, ponds, springs, rivers, streams, sloughs, and hard-

SITE LOCATION

ENVIRONMENTAL VARIABLES

- wood swamps;
- 3. major rivers, streams, and slough systems for transportation and aquatic resources;
- 4. relative elevation and slope;
- 5. soil drainage.

PROXIMITY TO WATER. Fresh water was part of the group of primary resources for the prehistoric inhabitants of Florida, as the need for water is universal. The numerous water table lakes of DeBary have water of high quality as do other lakes in the karst topography of the DeLand Ridge in Volusia County (Baldwin et al. 1980). Based on site distribution data from other parts of the state with similar environments, there is a strong potential for sites on the DeLand Ridge (Layman 1990).

Areas of DeBary in closest proximity (within 300 meters) to water are given a higher level of probability of prehistoric use provided there is a reasonable elevation differential in relation to this resource. This resource would have been of greater relative importance during the Archaic and Paleoindian periods when sea levels were lowered and access to fresh water was more restricted. During these periods sinkholes and aquifer-fed rivers were critical resources. Archaic peoples in the DeBary area collected freshwater mollusks and discarded the shells in the large heaps and middens along the St. Johns River and in swampy areas of the river meanders and floodplain. In fact, 11 of the 25 recorded archaeological sites within the city limits of DeBary are in these areas.

A study of 284 archaeological sites recorded in Volusia County (Layman 1990) revealed that the highest concentration of archaeological sites is along the Atlantic coast and St. Johns River. The density of known sites along the St. Johns was second only to the coastal zone of the county. Layman (1990) recommended that all surveys conducted within 400 meters of permanent water sources such as Lake Monroe and the St. Johns River should be surveyed to determine if significant archaeological sites are present.

RELATIVE ELEVATION. Archaeological sites are often found on the highest elevation relative to a water source, such as a pond or stream. While the drainage of soil has been shown to be a useful indicator of site preference (Almy 1976, 1978; Grange et al. 1979), the preference for relative elevation near a water source, even on more poorly drained soils, is a better indicator of possible site presence.

SOILS. While soil type is not the most important factor in determining site location probability zones, it does nonetheless play a vital role. The xeric upland soils of the DeLand Ridge are characterized by the soils of the Paola-Orsino association. These excessively and moderately drained soils are interspersed with sinks, lakes and wet depressions. Archaic and later period sites predictably would be located near potable water in association with these soils. However, Paleoindian and Early Archaic sites also have been located in submerged areas or where the modern environment is swampy and the soils poorly drained (Doren and Dickel 1988; Jahn and Bullen 1978; Purdy 1986, 1994; Russo et al. 1992).

In general, all other factors being equal, poorly drained soils provide a less desirable site location than well-drained soils. Some soil types also may be more likely to contain certain types of sites. For example, soils well suited for agricultural purposes may be more likely to have been chosen by prehistoric horticulturalists. Other soil types may be less likely to contain sites. For example, soil types created by mining or other earth moving activities can be assumed to contain few if any sites.

The following soil types are found within the DeBary city limits (Baldwin et al. 1980). The numbers to the left of the soil types are the codes used on the maps produced by the Soil Conservation Service.

Excessively drained

- 4—Astatula fine sand, 0 to 8 percent slopes. Nearly level to sloping soil on sandhills.
- 42—Paola fine sand, 0 to 8 percent slopes. Nearly level to sloping sandy soil on high, broad sand hills.
- 43—Paola fine sand, 8 to 17 percent slopes. Strongly sloping or moderately steep sandy soil in small areas of the side slopes of sand ridges, around sinks, and along streams with high banks.

Well drained

- 1—Apopka fine sand, 0 to 5 percent slopes. Nearly level to gently sloping soil on intermediate to high sand hills.
- 2—Apopka fine sand, 5 to 12 percent slopes. Sloping to moderately steep soil around sinks and depressions and on narrow side slopes of gently undulating sandhills.

Moderately well drained

- 17—Daytona sand, 0 to 5 percent slopes. Nearly level to gently sloping soil on gently undulating sandhills or slightly elevated

places in flatwoods.

- 37—Orsino fine sand, 0 to 5 percent slopes. Nearly level to gently sloping sandy soils on low flat ridges and low side slopes of higher sand hills.
- 54—Quartzipsamments, gently sloping. Gently sloping sandy soils that have been reworked and shaped by earthmoving equipment.
- 63—Tavares fine sand, 0 to 5 percent slopes. Nearly level to gently sloping soil on higher positions on the low sand ridges and intermediate positions on higher ones.

Somewhat poorly drained

- 13—Cassia fine sand. Nearly level to gently sloping sandy soil in slightly elevated positions in the flatwoods or lower positions in the sand hills.
- 22—Electra fine sand, 0 to 5 percent slopes. Nearly level soil in slightly elevated places in flatwoods.

Poorly drained

- 8—Basinger fine sand, depressional. Nearly level sandy soil mainly in depressions and a few poorly defined drainageways.
- 20—EauGallie fine sand. Nearly level soil with a sandy surface layer over a loamy subsoil. It is in broad flatwoods.
- 21—EauGallie fine sand, depressional. Nearly level soil found mainly in depressions and, in some places, in broad, poorly defined drainageways.
- 23—Farmton fine sand. Nearly level soil in broad areas within the flatwoods.
- 24—Fluvaquents. These are nearly level and frequently flooded soils on flood plains of rivers, creeks, and lakes.
- 29—Immokalee sand. Nearly level sandy soil that generally occurs in broad areas in the flatwoods, in low areas between sand ridges, or in slightly elevated areas between ponds and sloughs.
- 30—Immokalee sand, depressional. Nearly level sandy soil in shallow intermittent ponds and sloughs in the flatwoods.
- 31—Malabar fine sand. Nearly level soil in broad low flats.
- 32—Myakka fine sand. Nearly level soil in the flatwoods.
- 33—Myakka fine sand depressional. Nearly level, poorly drained soil in depressions in the flatwoods.
- 45—Pineda fine sand. Nearly level soil in the flatwoods on broad low flats in poorly defined drainageways and at the edges of sand ponds and swamps.
- 49—Pomona fine sand. Nearly level soil in low broad areas within the flatwoods.
- 50—Pomona fine sand, depressional. Nearly level soil in depres-

sions and in poorly defined sloughs.

- 55—Riviera fine sand. Nearly level soil in broad low flats.
- 61—St. Johns fine sand. Nearly level sandy soil in low places in flatwoods, generally adjacent to swamps.
- 62—St. Lucie fine sand, 0 to 8 percent slopes. Nearly level to moderately sloping soils on dunelike ridges and isolated knolls.
- 73—Wabasso fine sand. Nearly level soil in broad areas of the flatwoods and depressions.
- 77—Winder fine sand. Nearly level soil in broad, low flats.

Very poorly drained

- 10—Bluff sandy clay loam. Nearly level, frequently flooded soil on low terraces bordering the St. Johns River.
- 14—Chobee fine sandy loam. Nearly level soil on low places in coastal hammocks, in drainageways, and on flood plains.
- 25—Gator muck. Nearly level, well decomposed organic soil in freshwater swamps and marshes and on the flood plains of lakes.
- 27—Hontoon mucky peat. Nearly level organic soil in freshwater swamps and marshes within the flatwoods.
- 48—Placid fine sand, depressional. Nearly level soil in wet depressions. The acreage is small in extent.
- 56—Samsula muck. Nearly level organic soil in broad, low flats, in small depressions, freshwater marshes, and swamps.
- 60—Smyrna fine sand. Nearly level soil in broad areas in flatwoods, low-lying areas adjacent to depressions, and low areas within sandhills.
- 65—Terra Ceia muck. Soil formed in organic material in swamps, freshwater marshes and small depressions with concave or smooth slopes. Gradient less than 1 percent.
- 66—Tomoka muck. Soil formed in moderately thick beds of hydrophytic plant remains in swamps and marshes.

Other

- 47—Pits. Excavations from which soil and geologic materials have been removed for use in construction.
- 71—Urban land. 85 percent or more covered with streets/parking lots/buildings.

Archaeological sites within the municipal boundaries of DeBary have been recorded as a result of systematic surveys or when fortuitous finds were made. Most DeBary sites have been recorded along the St. Johns River basin and along the shores of DeBary Creek and Lake Monroe. No sites have been recorded around the approximately 43 small water table lakes surrounded by the developed tracts

**PREVIOUSLY
RECORDED
ARCHAEOLOGICAL
SITES IN DeBARY**

of land, constituting the residential sections of modern DeBary. The lack of recorded sites does not indicate a low probability of archaeological sites in the residential lake areas, but rather, the lack of systematic surveys in these areas of the city. Modern economic and recreational interests in the resources of the larger bodies of water of DeBary has drawn attention away from the small lakes district where archaeological sites may still be present.

A search of the Master Site File found 22 recorded sites within the limits of DeBary, which can be categorized according to soil drainage and soil type.

Table 3. DeBary Archaeological Sites by Drainage and Soil Types.

Soil Drainage	Soil Type	Site Number
Excessively drained Well drained	42—Paola fine sand	8VO4715
	1— Apopka fine sand	8VO4376
		8VO4377
		8VO4378
		8VO4379
		8VO4380
		8VO4382
		8VO4383
Moderately well drained	17—Daytona sand	8VO45
Somewhat poorly drained	NONE	NONE
Poorly drained	20—EauGallie fine sand	8VO4381
	23—Farmton fine sand	8VO48
		8VO49
		8VO144
	29—Immokalee sand	8VO4585
		8VO191
		8VO192
Very poorly drained	10—Bluff sandy clay loam	8VO51
		8VO54
		8VO4717
	25—Gator muck	8VO451
	Shipwreck in river	8VO1970
Underwater	71—Urban land	8VO52
Urbanized		

Table E shows the proportional distribution of DeBary sites by soil drainage. Approximately 36 percent of the sites are located in excessively to moderately well-drained soils, and 48 percent of the sites are deposited in poorly drained to wet soils. The remainder (16 percent) falls into the categories of urbanized sites or sites with incomplete site file information.

Table 4. Distribution of DeBary Archaeological Sites by Soil Drainage

Soil Drainage	Number of Sites	% of Sites
Excessively drained	1	4
Well drained	7	28
Moderately well drained	1	4
Somewhat poorly drained	0	0
Poorly drained	7	28
Very poorly drained	4	16
Underwater/Wet	1	4
Urbanized	1	4
Incomplete site file information	3	12
	—	—
<i>Totals</i>	25	100

The covariation of soil drainage with the distribution of sites on the landscape of DeBary as recorded in 1999 is useful in the formulation of the site predictive model, particularly in the residential areas containing small lakes. A ratio of 0.45 represents the number of sites (n=9) recorded in excessively, well, and moderately well-drained soils to the number of well-defined sites distributed on land within the boundaries of DeBary (n=20). The ratio of the number of sites (n=11) recorded in poorly drained and very poorly drained sites to the total land sites in DeBary is 0.55. This would indicate that all soils in DeBary have a high potential for archaeological sites, but the sample admittedly is small and is not necessarily representative of the possible number of archaeological sites in DeBary. A greater sample size from Volusia County can be used to refine the site predictive model for DeBary.

Sylvia Layman's recent study of 284 archaeological sites in Volusia County included a proportional distribution of county sites by soil drainage. Table F is adapted from Table 7 of the study (Layman 1990:56). Approximately 14.4 percent of the Volusia County sites are located in excessively to moderately drained soils and 34.5 percent of the sites are located in poorly drained to wet soils. Tidal sites in the coastal zone comprised 9.1 percent, and 39.5 percent of the sites were urbanized sites or sites with incomplete information.

The countywide data considered here provides greater sample size compared to the distribution of previously recorded sites in DeBary, and clearly indicates even more site potential in areas associated with water resources. No sites in DeBary or in Volusia County were recorded in the category of somewhat poorly drained soils.

Table 5. Distribution of Volusia County Archaeological Sites by Soil Drainage (from Layman 1990).

Soil Drainage	Number of Sites	% of Sites
Excessively drained	20	7.0
Well drained	6	2.1
Moderately well drained	15	5.3
Somewhat poorly drained	0	0.0
Poorly drained	63	22.2
Very poorly drained	35	12.3
Underwater/Wet	7	2.5
Tidal	26	9.1
Urbanized	1	0.4
Incomplete site file information	111	39.1
	—	—
<i>Totals</i>	<i>284</i>	<i>100.0</i>

The ratios of soil drainage types to the total 139 well-defined land sites identified in 1990 can be used to further differentiate between high and medium probability areas for the DeBary predictive site model. An approximate ratio of 0.295 represents the number of sites recorded in excessively, well, and moderately well-drained soils to the well-defined sites distributed on the landscape of Volusia County (n=139). The ratio of poorly drained and very poorly drained sites to the total land sites in Volusia County is approximately 0.705. High probability areas remain where poorly drained soils are associated with bodies of water, while better-drained soils associated with bodies of water have a medium probability. This is consistent with PCI reviews of previous surveys conducted in Florida and supports the designation of high probability zones in areas of higher relative elevation, especially where soils are not well drained and near a water source.

Using this site predictive model, PCI staff produced an archaeological sensitivity map of the City of DeBary (Appendix D). Archaeologically sensitive areas were identified first by proximity to known sites. High, medium and low probability zones then were differentiated based on cogent environmental factors. A high probability area was identified along the riverbanks and shores of Lake Monroe and in the low-lying swampy areas of the meanders and floodplain of the St. Johns River. This area was bounded by the 50-foot contour and adjusted to include known sites. A medium probability

ARCHAEOLOGICAL SENSITIVITY MAP

zone extending 400 meters from the river flood plain was identified using the predictive model developed for Volusia County. Two bodies of water that had been extensively dredged were designated as low probability zones within the boundaries of this high probability area.

Little previous archaeological testing has been conducted in the residential section of northeast DeBary. Residential development has encircled most of the water table lakes in this section. Therefore, high probability zones were designated extending 400 meters from the lakes with a higher relative elevation, especially where soils are not well drained. Medium probability zones were designated in areas extending 400 meters where the soils are better drained. Six low probability zones lie along the perimeter of the high and medium areas surrounding the water table lakes.

A large low probability zone lies between the medium probability zone along the river flood plain and the medium probability areas of the water table lake district. This may be a medium probability zone as well, but is not within 400 meters of a water source. Designating this area as low probability is consistent with the Volusia County site predictive model, but if field-tested, the area may deviate from the county pattern due to localized environmental processes.

The site sensitivity map contains nine high probability zones, six medium probability zones and eight low probability zones within the municipal boundaries of DeBary. The high and medium probability zones are predicted to have higher concentrations of sites. Within the large high probability zone along the St. Johns River floodplain, one steamboat wreck and ten prehistoric mounds and middens had been previously recorded. A possible Paleoindian site (8VO451) has also been recorded in this high probability zone as well. Undiscovered sites may also lie adjacent to high and medium probability areas in what appear to be unsuitable environments, but which may have contained some resources that were highly desirable to prehistoric peoples. Zones designated low probability may still contain sites, but are predicted to have a lesser concentration.

Small, sparse lithic scatters are the most common type of prehistoric site and are easily missed by large interval shovel tests or over-reliance on ground surface inspection. Ten sites of this type were located and recorded during the 1993 survey of Gemini Springs (No. 3585) and during a 1994 survey for the Florida Power Corporation (No. 3940) within the large high probability zone in the St. Johns River floodplain. While high probability zones may contain many of these isolated artifacts, few may actually be considered significant

sites. On the other hand, low probability zones may contain fewer sites, but these sites could be significant.

Areas of prior disturbance are considered low probability, and areas of complete excavation, such as phosphate mines, are considered zero probability. The most common type of prehistoric site found in inland areas is a small, sparse lithic scatter. This type of site is easily missed by large shovel test intervals or by over-reliance on ground surface inspection. It is also important to remember that a low probability does not mean that there are no sites located there, rather only that there will not be as many sites. Assigning a probability zone to a portion of a survey area also does not imply anything about the relative importance of an individual site. While the low probability zones tend to contain fewer sites, these sites can still be significant. Even if there are more individual archaeological sites in high probability zones, it may be that many of these are insignificant, isolated artifacts.

It is important to point out that these low, medium and high probability zones have not been field-tested and that many sites in DeBary may still be undiscovered in all three zones. Limitations of the site predictive model have already been discussed, but should be reviewed as part of future planning to decide whether archaeological surveys should be conducted prior to land development.

The high probability zone along the riverbanks and lake shore contains known archaeological sites that are significant or potentially significant resources. Given the long period of human habitation from Paleoindian to Archaic peoples to the historic Seminoles, irreplaceable cultural information may yet be undisturbed in other sections of DeBary that have had no archaeological testing. If these areas are to be disturbed, systematic site testing and data recovery procedures should be used.

Chapter 8. Conclusions and Recommendations

This report and recommendations are intended to provide a framework for a consistent program for the management of cultural resources within the City of DeBary. Panamerican Consultants, Inc., conducted the reconnaissance-level archaeological survey between August 9, 1999, and September 14, 1999, to catalog previously recorded and known archaeological sites. The archaeological resources within the context of this project included both prehistoric and historic period sites. From the information collected, an archaeological site predictive model was developed within the land and water municipal boundaries of the city. The archaeological site sensitivity map should be tested and refined to assist in this management process. At present, no city legislation exists for the protection and management of prehistoric and historic cultural resources. There are no requirements for identifying, evaluating and protecting significant resources on city owned property. The following recommendations are designed to aid DeBary in strengthening its management and protection of its cultural resources.

I. Before an effective development review process can be implemented, legislative support for this process must be established. The following suggestions are intended to strengthen the local review process by inclusion in the land development code currently being drafted for the City of DeBary.

- A. Include land use regulations to explicitly consider unknown archaeological resources in all ground penetrating construction activities during the review process.
- B. Allow the City Planning Division to review all land development and ground penetrating activities in archaeologically sensitive areas within this report that will be further defined into areas of low, medium, and high archaeological site potential.

- Zones of **low probability** are defined as ar-



areas where no archaeological materials are known to exist but which may contain unanticipated finds. If cultural materials are found, work should be halted until an evaluation by a professional archaeologist is conducted.

- Zones of **medium probability** are defined as areas which have a potential for archaeological sites and which are in areas associated with water resources with a high relative elevation. Isolated finds often fall into this category. If cultural materials are found, work should be halted until an evaluation by a professional archaeologist is conducted.
 - Zones of **high probability** are defined as areas in which archaeological materials are known to exist or which have a potential for archaeological sites in close proximity to water resources. Areas of high probability should be subjected to an archaeological survey by a qualified professional archaeologist. On completion of the appropriate studies, recommendations should be made to the Planning staff regarding significance and/or measures to preserve significant resources. If preservation is not feasible, then the mitigation of any proposed impact should be required. If a determination is made that no further work is needed, development of the property may proceed. If an archaeological site is determined to be potentially significant or to require further work, then an archaeological survey should be required.
- C. Establish penalties for destroying or vandalizing archaeological and historic sites and properties.
- D. Management of cultural resources on public lands.
- The process of identification and evaluation would be the same for both public and private lands. The final tested sensitivity map would be consulted to determine the pres-

ence of known sites or suspected site locations, and an assessment would be required. However, regulating ground disturbing activities on public lands does not have to deal with issues of private ownership. The public stewardship of significant cultural resources has a lengthy and secure legal mandate at the federal, state, and local levels.

- A strict no collection policy should be instituted for all city-owned properties. Signs indicating this should be placed throughout the managed lands, and visitors should be made aware of this policy prior to any use of the surrounding grounds. Collection of artifacts should only be made by trained archaeologists and only when artifacts are in danger of being destroyed. Currently only sites on state-owned property are protected under Chapter 267 of the Florida Statutes and under Public Law 96-95. However, trespass and vandalism laws (810.10 and 806.13, FS) can be used in the protection of archaeological sites. A strict prosecution policy should be instituted for anyone violating the no collection policy. See Appendix E.

E. Management of cultural resources on private land.

- Since the majority of archaeological and historic sites are located on private lands throughout the state, the strengthening of the local Historic Preservation Ordinance, land use regulations, and the incorporation of procedures for locating and protecting sites of local significance on private lands into the local development permitting process, are essential for the effective management of the prehistoric and historic resources of DeBary.

F. It is recommended that:

1. Impact analysis for unknown archaeological and historical resources be included in the appropriate sections of all existing and future land use regulations.
2. The archaeological predictive model be tested in ar-

areas of archaeological sensitivity identified on the preliminary map and that the tested map be used by the City Planning staff to identify areas of archaeological sensitivity.

3. Impact analysis of archaeologically sensitive areas be conducted by a professional archaeologist.
4. Measures to mitigate impact to a significant cultural resource be provided by the developer to the City of DeBary.
5. Areas of new construction be subjected to an archaeological survey.
6. In the case of large-scale developments, it is recommended that funding of the necessary archaeological studies by the permit applicant be mandatory. Such studies should be required prior to obtaining permit approval. Preservation of significant cultural resources by private developers should also be encouraged through incentives such as transfer of development rights, preservation easements, and donations. The latter two can result in significant tax credits for the landowner.

II. It is recommended that a complete Phase I archaeological survey should be implemented within the municipal boundaries of DeBary on all city, state, or federally owned land and on private property where permission can be obtained. It has been recognized by the Division of Historical Resources of the Florida Department of State that wet-site deposits may be the most significant and sensitive resources in DeBary, and should be incorporated into future archaeological testing. It is further recommended that information from this and other archaeological surveys be incorporated into DeBary's Comprehensive Plan.

III. The following evaluations and recommendations were made previously for these five sites recorded in the Florida Master Site Files.

- A. The Apple Snail Site (8VO191) is located on private property on Pine Island and was recommended as potentially eligible for the National Register of Historic Places (Miller 1973).
- B. The Vittaria Site (8VO192) is located on private property on Pine Island and was recommended as potentially eligible for the National Register of

Historic Places (Miller 1973).

- C. The Gemini Springs Midden (8VO4378) is located in county-owned property at Gemini Springs Park and is potentially eligible for the National Register of Historic Places. Preservation of the site and/or archaeological excavation to determine the significance of the site and to identify the possible locations of any human burials was recommended (Estabrook 1993). Unmarked human burials are protected on both public and private property under Chapter 872 of the Florida Statutes.
- D. The Gray Residence (8VO4384), an I-type house in the Frame Vernacular style, is located in county-owned property at Gemini Springs Park and is considered potentially eligible for the National Register of Historic Places for its architectural significance and its notable association with DeBary Hall (Estabrook 1993).
- E. The Fort Florida Midden (8VO48) is located on Emmanuel Landing and is potentially eligible for the National Register of Historic Places. Further testing of intact features and period(s) of occupation to determine the significance of the site was recommended (Dickinson and Wayne 1998).

IV. The following recommendations are for the four previously unrecorded sites identified during this survey of the City of DeBary:

- A. The Barwick Shell Mound (8VO7176) is on privately owned property. Further testing is recommended to determine the period(s) of occupation and to assess the significance of the site.
- B. The Elijah Watson House (8VO7177) is on privately owned property. No further testing is recommended due to the demolition of the structure and substantial disturbance by residential development. The site is considered ineligible for the National Register of Historic Places.
- C. The Frederick DeBary Packing House (8VO7178) is on privately owned property. Further testing is recommended to locate archaeological evidence of the packing house and to assess the regional significance of the site.
- D. The DeBary Creek Sugar Mill (8VO7179) is probably located in the county-owned property at

Gemini Springs Park or in the River Oaks development. Further testing is recommended to locate evidence of the ruined sugar mill and to assess the regional significance of the site.

V. The following recommendations are for the four sites revisited in this survey of the City of DeBary:

- A. The Fort Florida Mound (8VO49) is on privately owned property. The site is recorded with mention of human burials and is potentially eligible for listing on the National Register of Historic Places. Any human interments located within this mound should be preserved in place. Unmarked human burials are protected on both public and private property under Chapter 872 of the Florida Statutes. All individuals involved in any ground penetrating activities or review of such activities should be made aware of the appropriate legislation during permitting processes.
- B. The Mound Near Fort Florida (8VO50) is on privately owned property. Further testing is recommended to determine the period(s) of occupation and to assess the significance of the site. It is also recommended that steps be taken to stabilize the mound, since large portions with trees from the top of the mound have collapsed into the river.
- C. The DuBarry Creek Midden (8VO54) is on privately owned property. Further testing is not recommended due to substantial disturbance by residential development and shell-mining operations along the creek. The site is considered ineligible for the National Register of Historic Places.
- D. The *Fannie Dugan* Shipwreck (8VO1970) is underwater in DeBary Creek. Further testing is recommended to locate any structural remains in DeBary Creek and to assess the regional significance of the wreck.

VI. Treatment of Human Burials.

To knowingly disturb human burial remains is a third degree felony in the State of Florida. Individuals who do so can be prosecuted under Chapter 872, F.S. 1987 (*Offenses Concerning Dead Bodies and Graves*). All individuals involved in any ground penetrating

activities or review of such activities should be made aware of this legislation during permitting processes. The law includes prehistoric as well as historic period interments, aboriginal burial mounds, and cemeteries, including historic period cemeteries. Procedures for dealing with the discovery of unmarked human burials are outlined in S. 872.05 (4). If unmarked human burials are suspected in an area that will be subject to ground disturbing activities, the area should first be surveyed by a professional archaeologist in order to locate such remains. Procedures for dealing with human remains discovered during an archaeological investigation are presented in S. 872.05 (5-7). Any located human interments should be preserved in place, if possible. If it is necessary to excavate or otherwise move the remains, efforts should be made to identify and contact persons who may have a direct kinship, tribal, community, or ethnic relationship with the deceased in order to arrange for their appropriate disposition.

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