

ARCHAEOLOGICAL SURVEY OF NORTH  
YWADIN ISLAND, COLLIER COUNTY,  
FLORIDA

By Robert S. Carr and David Allerton

Consultations with John Beriault

May 6, 1988

AN ARCHAEOLOGICAL SURVEY  
OF  
NORTH KEYWADIN ISLAND, COLLIER COUNTY, FLORIDA

by  
Robert S. Carr  
David Allerton

Archaeological Consultants

P.O. Box 450283

Miami, Florida 33145

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John Beriault

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## TABLE OF CONTENTS

	<u>Page</u>
1. Introduction .....	1
2. Natural Setting .....	3
3. Culture Area .....	6
4. Previous Research .....	14
5. Methods .....	15
6. Survey Results .....	18
7. Recommendations .....	21
8. Bibliography .....	23

## INTRODUCTION

North Keewaydin Island is located along the Gulf of Mexico within the Naples city limits in Collier County, Florida. The project area is within Sections 27 and 28 of Township 50 South, Range 25 East.

During the course of a biological survey by Dr. Durban Tabb of Tropical Bioindustries of the Keeywadin project property, he noted an area of extensive shell refuse within a cabbage palm hammock. Dr. Tabb correctly identified this area as an "Indian Midden" and recommended to John Remington, President of A. Vernon Allen Builder, Inc., that a professional archaeological assessment be made of the site.

Mr. Remington contacted archaeological consultant Robert S. Carr to conduct the site assessment. This site survey was designed to meet all guidelines required of cultural resource assessments by municipal and county planning criteria, as well as to provide acceptable historic resource assessments for any potential reviews by the Southwest Florida Regional Planning Council, Florida's Division of Historic Resources, and the Corps of Engineers.

# ARCHAEOLOGICAL ZONES OF HIGHEST SITE PROBABILITY

## KEYWADIN PROJECT AREA

- 1-Coastal
- 2-Corkscrew-Lake Trafford
- 3-Okaloachoochee
- 4-Fakahatchee
- 5-Chokoloskee



## NATURAL SETTING

Keeywadin Island is located south of Gordon's Pass. The island is actually a complex of land forms that includes an active dynamic barrier beach running along the Gulf of Mexico and a relic Pleistocene dune ridge that forms the western core of the island. The contrast between these two geomorphic areas are of interest in reconstructing environmental changes for the island, particularly in regard to the area's prehistory.

The eastern Pleistocene ridge of Keeywadin is composed of Immokalee Fine Sand and has elevations of up to 8.6 feet above sea level in relation to several small sand hills, but generally averages an elevation of 5 feet above sea level. This ridge is composed of well drained sandy soil and supports a pine flatlands with interspersed oaks and wax myrtle with an understory of palmetto. Our survey of this portion of Keewaydin suggests that the area has been high and dry above maritime influences (except possibly during some severe storm surges) for at least the past 10,000 years and probably longer. Generally, this land form is consistent with similar sandy ridges on nearby Horrs Island, Marco Island and much of the Collier coast north of Naples.

Much of the area east of this sandy ridge is mangroves. Directly west and parallel to this ridge is a narrow sediment-filled channel that previously may have been a water filled channel running north to south along the ridge's western boundary. The channel is narrow, varying up to 100 feet in width, and is closed by overlying beach sediments in several locations. The channel is now filled with mangrove peat to an unknown depth and supports an extensive forest of black mangroves.

It is within the southern portion of this mangrove channel that a major prehistoric shellwork complex was discovered (discussed elsewhere in this report) during this survey.

West of the channel is the barrier beach. The beach is a shell hash, composed of small to large whole and fragmentary shells, limerock, and sand, most showing evidence of secondary water deposit. At several points in the mangroves, the relatively recent accretion of beach sediment is demonstrated by shovel tests that indicated mangrove peat beneath the beach deposits.

Radiocarbon dates of mangrove samples from beneath the eastern edge of these beach deposits should reveal the date when the berm was most recently deposited. The most simplistic interpretation of the holocene period of Keeywadin Island is as follows:

Approximately 10,000 years ago during the Wisconsin Interglacial, the eastern sandy ridge of Keeywadin represented one of the many typical relic dune ridges that occurred along the western flatlands of South Florida areas of present day mangroves and estuary were undoubtedly well above sea level (the sea level has been estimated to have been approximately 300 feet lower at that time making the Gulf shore considerably west of its present location). As sea level rose, the more shallow upland flatlands became inundated and the coastal mangrove communities moved steadily eastward. Approximately 5000 years ago the shoreline was perhaps several miles west of its present location. A barrier island was also several miles westward and tidal estuaries interspersed with occasional upland ridges was located between "old" Keeywadin and the area now covered by barrier beach. Probably sometime during the previous 1000 years,



possibly the Neo-Atlantic period of ca. 1200 A.D., major cyclonic activity combined with a somewhat higher sealevel may have created the first intrusions of beach sediment upon the mangrove forests directly west of old Keeywadin. Windblown and water deposited sediment eventually plugged the westerly channel, possibly by ca. 1500 A.D. The loss of flowing water through this channel may have been a principal cause for the Indian's abandonment of the Keeywadin site. Without water flow the loss of oyster and fishlife there shifted prehistoric procurement to other estuaries making site 8Cr578 a less attractive location for settlement.



## THE CULTURE AREA

Keeywadin Island is within the Glades culture area as originally defined by M.W. Stirling (1936) to include all of southern Florida. John M. Goggin defined more specific boundaries for the area and identified three inclusive sub-areas (1947). These were the Calusa sub-area in southwest Florida, the "Tekesta" sub-area for southeast Florida and the Florida Keys, and the Okeechobee sub-area around Lake Okeechobee. Goggin classified these sub-areas on the basis of his recognition of their distinctive natural environments, the different tribes in those regions during historic times, and differences in the archaeological record between the areas. Since Goggin's work, there have been several amendments to these definitions, perhaps one of the most important being the recognition of the Okeechobee sub-area as a distinctive cultural area apart from the Glades area. Research there by William Sears at the Fort Center site on Fisheating Creek uncovered maize pollen in association with a major complex of mounds and earthworks. These data indicated some major differences between the material culture and subsistence patterns of the Lake Okeechobee Basin as compared to those of other parts of southern Florida (Sears 1982). Intensive agriculture is not recognized as part of the Glades tradition of hunting, fishing and gathering subsistence that is considered typical of southern Florida (Goggin 1949a).

The area north of Naples to Cape Haze has been reclassified as the Caloosahatchee Area (Sears 1967; Griffin 1974), and Milanich and Fairbanks (1980) extended this area southward to near Cape Sable. We have no difficulties with the area as described by Sears and Griffin. However, research in the Ten

Thousand Islands, including test excavations at the Turner River site (Ehrenhard et al. 1979) and a recent test excavation at Addison Key (Beriault et al. unpublished) indicates a distinctive ceramic tradition for the Ten Thousand Islands area. Preliminary analysis indicates that during the period of ca. A.D. 200 - A.D. 800, the predominant decorated types of pottery in the Ten Thousand Islands were Gordon's Pass Incised, Sanibel Incised, and another unclassified type of linear-punctate pottery. These decorated ceramic types are found infrequently, at best, in the Gulf area north of Wiggins Pass. This distinctive ceramic tradition undoubtedly reflects a separate tribal group from those using the plain, undecorated pottery typical of the Caloosahatchee Area to the north of the decorated pottery types of Opa-locka Incised and Dade Incised typical of southeast Florida. The lack of awareness by archaeologists of the distinctive ceramic traits of present day Collier County reflects the minimal amount of stratigraphic research that has been conducted there. Furthermore, because the area's ceramic types became more similar to those of southeast Florida by ca. A.D. 800-1000, there is the appearance of uniformity between southwest and southeast Florida by the middle of the Glades II period and through part of the Glades III period. This apparent cultural uniformity during the Late Formative Period has mislead some investigators (i.e., Milanich and Fairbanks 1980) who have failed to note the distinctive trait assemblages between the various South Florida areas through time.

#### Paleo-Indian Period (14,000 B.P. - 8500 B.P.)

Archaeological evidence indicates that the Paleo-Indian arrived in Florida at least 10,000 years ago. Although most of the evidence from South Florida has been confined to the Cutler Fossil Site in Dade County (Carr 1986) and in a

limited area of southwestern Florida, particularly from Little Salt Springs (Clausen et al. 1979) and from Warm Mineral Springs (Cockrell and Murphy 1978), other Paleo-Indian sites are a strong possibility. Cockrell and Murphy (1978) provide an excellent location model for Early Man sites throughout Florida, and present a convincing case for the existence of submerged sites off Florida's coastline. These submerged sites are evidence of extensive sea level changes estimated as ranging from between 30 m to 100 m below the present level (Fairbridge 1974). This sea level decline would have greatly expanded the area of the Florida peninsula.

A growing body of paleoecological data indicates that during the Late Pleistocene, Florida would have been drier with cooler summers and relatively warm winters (Carbone 1983). Reduced cyclonic activity, because of cooler temperatures, would have made southern Florida more hospitable, but a scarcity of fresh water may have reduced areas selected for habitation. Carbone (1983) presents data indicating that Florida and all of the Southeast was an environmental mosaic of diverse microhabitats. Delcourt and Delcourt (1981) hypothesized that 18,000 years B.P. southern Florida was covered with scrub vegetation consisting xeric herbs and shrubs (rosemary and sandhill polygonella, etc.), with interspersed scrub oak. By 10,000 B.P. forests of oaks and pines were expanding and the scrub vegetation was being replaced by oak savannah (Delcourt and Delcourt 1981).

The Paleo-Indian may have lived in southern Florida in association with mammoths, bison, ground sloths and other types of megafauna. Deposits of fossilized Pleistocene faunal bones have been uncovered by dredging operations from several locations in southwestern Florida, and on the southeast coast, from

solution holes in south Dade County. Martin and Webb (1974) noted the wide range of grazing ungulates and sloths indicating more extensive grasslands than present. With the extinction of the megafauna by about 11,000 B.P., the Paleo-Indian apparently made an effective adaptation to the emerging wetlands of southern Florida, and began to establish the patterns of subsistence that were to provide the basis of resource procurement for the subsequent 8000 years.

#### Archaic Period (8500 B.P. - 2500 B.P.)

During the Wisconsin Post Glacial, the sea level rose and greatly diminished Florida's land size. It has been calculated that the rate of sea level rise was approximately 8.3 cm per 100 years from 6000 to 3000 B.P. That rate has decreased to about 3.5 cm per 100 years from 3000 B.P. to present (Scholl, et al. 1967). By 5000 B.P., cypress swamps and hardwood forests characteristic of the sub-tropics began to develop in southern Florida (Carbone 1983; Delcourt and Delcourt 1981). The Archaic Period was characterized by an increased reliance by the native populations on the shellfish and marine resources on the coast, and a generally expanded hunting, fishing, and plant gathering base throughout southern Florida.

Archaeologists were not aware until recently of the extent and nature of Archaic Period sites in southern Florida. The earliest dated archaeological materials of this period are from the Bay West site (8Cr200), a cypress pond mortuary situated in Collier County northeast of Naples (Beriault et al. 1981). It is likely that the Bay West site was a water filled sinkhole that provided an "oasis" and water during the much drier mid-Archaic period. Radiocarbon dates recovered there indicate a temporal range of 5500 B.P. - 7000 B.P. This

chronology and the cultural materials, particularly the preservation of organic materials, are very similar to those recovered from Little Salt Springs 110 km to the north (Clausen et al. 1979). These mortuary ponds, sinkholes, and springs are undoubtedly one of the characteristic types of cemeteries of the Archaic Period peoples throughout central and southern Florida.

Archaic Period "camp sites" and lithic tool chipping sites occur in southwestern Florida upon the top of the sand hills. Beriault (1973) has recorded a significant number of these sites in Collier County and has likewise recorded a large number of chert artifacts that were recovered from Southwest Florida beaches indicating that inundated Archaic period sites probably exist within the Gulf of Mexico. The fact that exposed deposits of chert or flint do not occur in southern Florida is important. Most of the chert apparently was quarried from the Tampa Bay region, suggesting considerable contact between the two areas. The subsequent scarcity of chert in southwestern Florida by the time of the Late Archaic period may indicate a shift in adaption to marine resources, and/or a more efficient use of bone and wood for projectile points. Another possible explanation is that chert outcrops existed in southwest Florida, but have been submerged because of the rise in sea level.

Extensive shell middens were formed throughout southwestern Florida from 5000-4000 B.P. Horseshoe-shaped ridges recalling the archaic shell rings of the Georgia and South Carolina coasts have been reported along the southern Gulf Coast, specifically on Horr's Island (McMichael 1979) and at Bonita Springs (Goggin n.d.) Preceramic cultural horizons beneath tree-island sites have been reported within the eastern Everglades (Mowers and Williams 1972). Radiocarbon samples dating peat strata that were intermixed with cultural material suggest

that occupation may have begun on certain tree islands while they were still inundated (Carr et al. 1979). If this proves to be the case, then the Indians' use of these "wet" tree islands may have been an important contribution toward their physiographic and floristic development.

The Late Archaic Period is distinguished by the development of fiber-tempered pottery, the precursor of a ceramic tradition that provided chronological markers for the subsequent three millennia. The Late Archaic Orange series of fiber-tempered pottery is well documented by Cockrell on Marco Island (1970), and undecorated fiber-tempered pottery has been recovered on the southeast coast at the Atlantic site (Carr 1981a). Sites containing fiber-tempered pottery have been dated from as early as  $3400 \pm 100$  B.P. on Marco Island, and dates of ca. 2500 B.P. at the Firebreak site (Beriault et al. unpublished) and 3000-4000 B.P. along Biscayne Bay (Carr 1981a).

#### The Formative Period (2500 B.P. - 500 B.P.)

Goggin (1947) defined three times periods for south Florida's prehistory. Using decorated pottery types that have subsequently proven to be effective time markers, he created the Glades I, II, and III periods. These divisions have proven most useful in extreme southern Florida. The Glades I Early period (500 B.C. - ca. A.D. 200) is characterized by the use of undecorated sand tempered pottery. Ceramic decorations in extreme southern Florida were developed between A.D. 200 - 500 with the inception of the Ft. Drum decorated series. While decorated types begin during the Late Glades I period, future revisions of the Glades period may simply make the first appearance of decorated ware coincide with the inception of the Glades II Period.

During the Glades II period (A.D. 750 - A.D. 1200), there are shifts in ceramic styles that allow archaeologists to accurately divide the period into three subperiods based on the relative frequency of certain decorative styles (i.e., Key Largo Incised, Miami Incised, Sanibel Incised, etc.). Mound construction was also initiated during this period, reflecting the rise of a stratified society with a select ruling and/or priest class. This is particularly evident among the Calusa.

During the Glades III period (A.D. 1200 - A.D. 1500), there is a shift in ceramic decorations and vessel shape in extreme southern Florida. Griffin reports the near absence of decorated pottery between A.D. 1000 - A.D. 1200 (1974). Occurrences of St. Johns tradeware increase along the east coast, and in general, a thriving trade network that brought a variety of exotic resources, such as lithic tools and ornaments, is evident. There is also a possibility that the Arawaks arrived in south Florida from eastern Cuba and/or the Bahamas about A.D. 1200 - A.D. 1500. This contact may have influenced the use of the root of white coontie, Zamia floridana, by the Indians. The plant produces a starch that is similar to the Caribbean manioc cultivated by the Arawaks for the manufacture of a bread.

#### European Contact Period (Ca. A.D. 1513 - A.D. 1760)

When the Europeans arrived in the sixteenth century they encountered a thriving population, with at least five separate tribes in southern Florida: the Tequesta in southeast Florida, the Calusa in southwest Florida, the Jeaga and Ais along the east coast north of the Tequesta, and the Mayami near Lake Okeechobee. At this time the Calusa maintained political dominance over these



other tribes. It has been estimated that there were about 20,000 Indians in south Florida when the Spanish arrived (Milanich and Fairbanks 1980). By 1783, when the English gained control of Florida, that population had been reduced to several hundred. These tribal remnants were reported to have migrated to Cuba with the Spanish (Romans 1775), however, it is likely that the so-called "Spanish Indians" (Sturtevant 1953) who raided Indian Key in 1840, were the mixed-blood descendants of the Calusas and/or refugees from northern Florida from missions raided by the English in the early eighteenth century. The Spanish-Indians became part of the Seminoles, who had fled into south Florida during the early 1800s. The European contact period coincides with Goggin's Glades IIIC period and is distinguished in extreme southern Florida by the appearance of Glades Tooled pottery and a general introduction of European materials.

## PREVIOUS RESEARCH

This area of Collier County has been the subject of a number of significant archaeological projects during the last century including Goggin's pioneer work at the Goodland Pass midden in the late 1930's (Goggin 1939). Other archaeological surveys have been conducted in recent years at nearby coastal areas such as Marco Island (Widmer 1975) and Horrs' Island (MacMichael 1974). However, no systematic archaeological survey had yet been conducted at Keeywadin Island.

A search of the master site file at Florida's Division of Historic Resources indicated an extensive number of sites recorded for the area of Gordon's Pass including sites 8Cr54, 8Cr55, 8Cr58, 8Cr62, 8Cr227, and 8Cr549.

A check with informants in the area indicated that the site on north Keeywadin was apparently well known to the island's previous owners, and more recently to certain naturalists and avocational archaeologists in the area (John Beriault, personal communication). A site form had been prepared by the Southwest Florida Archaeological Society based on several descriptions of the site, but no excavations or testing had been conducted at the site nor had any public disclosures or popular articles or accounts been written about the site. Generally, the site's location on private property has prevented it from being widely known and subject to unscientific collecting that has affected most of the sites along the coast.

## METHODS

It was the primary intent of this archaeological survey to assess and determine boundaries for the black dirt midden located during a biological survey by Durban Tabb. However, the consultants included in this assessment a survey of other upland portions of the North Keeywadin property to determine what, if any, additional archaeological sites might exist on the property.

The methods employed for this archaeological survey were the standard high probability approaches based on vegetation and topographic features often related to archaeological sites. In addition, aerial map interpretations were used to complement the pedestrian surveys. Aerial map interpretations, following the methods outlined by Carr (1975), were used to identify high probability targets which were later ground tested. These high probability areas consisted of the following:

1. High Pleistocene sand dune ridges
2. Hardwood hammocks
3. Uplands adjacent to channels, estuaries, and other potentially navigable features
4. Uplands adjacent to freshwater ponds or marshes

The pedestrian survey consisted of walking the buttonwood and or the halophytic groundcover transitional zone. This pattern has proven to be highly successful in archaeological surveys of the Florida Keys (Carr 1985; Carr, Allerton and Rodriguez 1987, 1988). It allows the surveyors the opportunity to travel in relatively open terrain as well as the ability to detect sites in both upland and mangrove communities, thus providing a cost effective survey strategy. Surveys in the Keys have shown that archaeological refuse, usually shell scatter, from either mangrove or hammock located sites is apparent in the transitional zones. This strategy proved effective at Keeywadin.

In addition, this strategy allows the surveyors the opportunity to note any vegetative patterns or discontinuities in adjacent vegetative communities. For example, the occurrence of Agave decipiens and Sanseveria spp. often grows on disturbed historic components (Mattucci: pers. com.). Gumbo limbo (Bursera simaruba) is often a reliable indication of high ground and possible aboriginal occupation, especially in Southwest Florida. Tamarind (Tamarindus indica), date palm and sapodilla are usually indicators of historic home-sites. Craighead (1971) has documented that shell mounds have a distinctive vegetative community which can include gumbo limbo, dove plum, sea grape, mastic, figs, posionwood, myrsine, bustic, paradise tree, saffron plum, Jamaica dogwood, Spanish and white stoppers. Hardwood communities in Collier County with a high percentage of tropical species are strong candidates for overlying aboriginal sites.

The present survey consisted of pedestrian archaeological traverses along the interface between vegetative communities relying primarily on visual inspection. Other traverses crossed the principal relic ridges. Any subsurface disturbances such as gopher tortoise burrows and man-made disturbances were particularly observed and examined when encountered. In addition, the surveyors visited the archaeological high probability areas where high probability markers were observed. Based on the above survey strategy, shovel-test or post-holes were dug in areas where suitable vegetation and/or cultural material was noted. Holes were dug to a depth of about one meter or to culturally sterile sediment. In some cases, soil conditions prevented the excavations to that depth, particularly in areas of mangrove peat or wet sand.

Within the area of the black dirt midden limited collecting of diagnostic artifacts was conducted. Particular features such as elevated mounds, ridges,

shell works and other culturally altered terrain was noted in relation to existing survey stakes whenever possible. Postholes and shovel tests were excavated within the site area to determine depth of deposit and site boundaries.

## SURVEY RESULTS

The archaeological assessment of north Keeywadin Island revealed one prehistoric black dirt midden with an associated shellwork (8Cr578). The site is located on the southern end of the relic dune ridge that is the core of eastern Keeywadin Island. The elevated midden is up to 75 cm in depth in distinctive mound-like features. These elevations suggest house mounds. Post hole tests in these mound features indicate lenses of charcoal and ash, animal bones, shell refuse, and pottery sherds -- all materials typically associated with prehistoric habitation.

Refuse material is scattered within the cabbage palm/hardwood hammock that occupies the site. The most concentrated areas of refuse are on the hammock along a relic estuary, now filled with sediment and supporting a mangrove forest. Within this relic estuary are extensive prehistoric shellworks represented by elevated "islands" made of oysters and whelks varying from 25 cm to 75 cm in elevation above the mangrove peat.

Pottery sherds collected from the surface of the midden include Surfside Incised and St. Johns Checked Stamped. In addition, a very unusual corn cob impressed rim sherd suggest trade with other parts of Florida. Generally, these ceramic types suggest a chronological range of ca. 1000 - 1400 A.D. for the midden.

Other features of interest associated with the midden area include two linear ditches of modest depth (up to 35-40 cm) within the hammock, and a small circular feature near stake IN7. This pond like feature was about 3 meters in diameter and suggested an intentionally constructed pond or catchment. A large

"bulls-eye" pond directly east of the site appears as a natural solution hole, but one informant has told Clifford Schneider that pond was artificially constructed soon after hurricane Donna in 1960 to obtain fill.

Archaeological assessments were conducted in other upland areas of north Keeywadin without significant results. High priority areas visited and tested include two detached relic ridge "islands" - one small area of less than several areas north of the central ridge and a much larger relic upland area east of the central ridge. In both areas no archaeological materials were observed. Within the main ridge, high probability areas inspected included three elevated dunes and the uplands adjacent the three freshwater marshes. Aside from some isolated shell refuse no other archaeological materials were encountered. A total of 21 subsurface post holes and shovel tests were conducted during the assessment. Of particular interest are the results of test #21 excavated within one of the site's notable mound features. The assessment of this sample is discussed in Table 1.

TABLE 1: SUBSURFACE ASSESSMENT OF SITE 8Cr578  
AT TEST HOLE #21

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Level 1 (0-10cm) - Soil consists of humic sand with midden.

Final sediment-brown sand with dark charcoal, suspended material in water cleared quickly leaving poured off water clear. A sherd with a t-shaped rim profile was noted in this level. Sherd is oxydized all the way through and appears well made with a slight groove in center of flatened rim. Fauna included 1 garfish scale, 2 small cerithids, noted about .5 and .8 mm in length; Helisoma, 2 unidentified seeds, and a crab claw.

Level 2 (10-20cm) - ashy soil

Final sediment-brown sand with grey silt and minute charcoal flecks. Suspended material did not settle and turned the water gray-brown. Very little charcoal noted in this sample. Silty sediment adhered to fine fraction despite washing. Small gastropods recovered by flotation. Fauna includes archosargus and/or drum teeth and garfish scale.



Level 3 (20-30cm) - ashy soil

Unprocessed weight of screened sample: 566.6 gms.

Final sediment - silty but not as much as level 2. brown sand.  
overall a brown sandy sediment. Suspended material did not settle and poured off. water: grey-brown. Sample includes 8 cerithids recovered by flotation, small barnacles and ribbed mussels, archosargus and/or drum teeth noted, one unidentified seed and stone crab claws.

Level 4 (30-40cm) - ashy soil

Unprocessed weight of screened sample: 548.1 gms

Final sediment - not as silty. water cleared faster. final sediment darker brown than previous. composed of tan sand, grey silt and charcoal fragments. Fauna includes barnacles, archosargus, catfish and drum.

Level 5 (40-50cm) - ashy soil

Unprocessed weight of screened sample: 875 gms

Final sediment - same level 4. Sample includes garfish scale, possible sample includes red and black painted pottery, 2 charred seeds, a large sample of charcoal, and 5 fish otoliths from at least two different species.

Level 6 (50-60 cm) - ashy soil

Unprocessed weight of screened sample: 300.6 gms

Final sediment - same as 5. Sample includes 2 perforated oliva shell, and a plain sand tempered sherd.

Level 7 (60-70cm) - ashy soil

Unprocessed weight of screened sample: 302.1 gms

Final sediment - water cleared faster - sediment is light tan with charcoal flecks and a dark brown finer sandy component. Sample includes 1 catfish otolith in an absolute excellent state of preservation, and 3 small fish vertebra, probably from same individual. Generally, there is little bone in this sample.

Level 8 (70-80cm) - sterile quartz sand.

Little or no cultural materials.

## RECOMMENDATIONS

Site 8Cr578 is a well preserved prehistoric black dirt midden and shellworks potentially eligible for listing on the National Register of Historic Places. This highly significant site is of local and regional significance and has the potential for yielding information on prehistoric subsistence, environmental changes in the Gordon's Pass area, and other research topics relevant to prehistoric studies in southwest Florida.

### Scientific Testing

Additional scientific testing of 8Cr578 is highly recommended. A research design addressing the site's function, chronology, and record of environmental changes could yield new data to help augment and further our understanding of pre-Calusa and Calusa related lifeways. The research should be conducted under the direction of a professionally qualified archaeologist and should adhere to a strict conservation policy that samples only a small representative portion of the site (less than 5% of the site area), restores and refills any excavation units, and leaves a negligible impact on the natural flora that composes the cabbage palm/hardwood hammock that dominates the site. A detailed contour map of all site features and shellworks should also be conducted.

### Public Interpretation

The site's general accessibility and highly visible features present a rich educational opportunity for public interpretation. Public access, in terms of this proposed project, is intended to encompass only the residents of development and their guests.

It is recommended that the site and hammock become the focus of a green space preservation area. The preservation area could become an interactive park and be highlighted with a loop trail that circumscribes the site. Exhibit and signage could interpret significant natural and archaeological elements of the park. Trails within the hammock could be defined and covered with mulch. An additional boardwalk trail could be used to interpret the prehistoric shellworks in the mangroves. Added interpretative elements could include an archaeological excavation unit protected beneath plexiglass that provides viewers with a subsurface view of significant archaeological features.

The authors have planned and co-constructed an archaeological park at Arvida's Weston development in Broward County. If plans are proposed to create an archaeological park at Keeywadin, we would like to submit a proposal to design and implement that project. In summary, Keeywadin's archaeological preservation area should include the following key interpretative components:

1. Interpretive trails
2. Interpretive signage
3. Covered excavation area interpreting subsurface areas. (optional)
4. Central Chickee or covered exhibit area with artifacts. (optional)

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