

## **A SETTLEMENT SURVEY FOR PREHISTORIC ARCHAEOLOGICAL SITES ON GRAND CAYMAN**

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### **Satellite view of Grand Cayman.**



### **Abstract**

A major theme in West Indian archaeology continues to be the movements and distributions of prehistoric populations. Located along two hypothesized migration routes the Cayman islands seemed to provide the potential to evaluate the route by which people first entered the West Indies as well as the overwater mobility of Native West Indians late in prehistory. Although we fully expected to find archaeological sites during the archaeological survey conducted in March and April 1993, no sites were found. In the present paper we describe our survey methods and discuss possible reasons for our failure to locate evidence of prehistoric activities.

### **Introduction**

Migrations and population distributions have been the main theme of archaeological research in the West Indies for over fifty years (Rouse 1986, 1992). Yet it is only within the past decade that

archaeological investigations have been initiated on most of the islands. These studies have demonstrated that almost every island was colonized prior to the arrival of Europeans (Keegan 1994).

One of the last nations to be investigated is the Cayman Islands. Composed of three of the smallest and most isolated of all Caribbean islands, it was generally assumed that the Caymans were first discovered by Europeans. Prehistoric archaeologists found no reason to test this assumption until it was realized that the Cayman Islands might hold evidence related to both the earliest colonization of the West Indies and the overwater mobility of late prehistoric groups.

Of greatest significance is the hypothesis that the first movement of peoples onto the Caribbean islands occurred across the now submerged mid-Caribbean chain of islands between Nicaragua and Jamaica (Keegan and Diamond 1987; Rouse 1986) (Figure 1). The Cayman Islands are located along this route. If tool types similar to those used in Central America were discovered in the Cayman Islands, they would have added considerable support to this hypothesis.

A second, but not mutually exclusive, possibility is that the Cayman Islands were colonized at the end of a later migration. Pottery-using horticulturalists, who entered the Antilles from the South American mainland around 500 B.C., had occupied lands adjacent to the Cayman Islands by A.D. 800. It is well-documented that native West Indians made extensive use of marine resources (deFrance 1989). Grand Cayman provides nearly ideal assemblages of highly productive marine resources, including sea turtles and crocodiles, which could have attracted colonists from Cuba or Jamaica.

It is their isolation and location in relation to the above mentioned migration routes that stimulated our interest in the Cayman Islands. A three-week archaeological survey of Grand Cayman was conducted in March and April, 1993. The purpose of the survey was to determine whether or not humans occupied the island before it was sighted by Christopher Columbus in 1503. The Grand Cayman survey was designed to add to our understanding of prehistoric migration patterns and the economies of Caribbean Indians. Unfortunately, no evidence of prehistoric activity was found on Grand Cayman, despite the presence of habitats that would have been settled on other islands in the West Indies. It is our conclusion that Grand Cayman was not settled prior to the sixteenth century.

Recognizing that negative evidence is also a contribution to our knowledge, the present paper begins with a brief description of Precolumbian migration routes with regard to the Cayman Islands. Next, previous investigations of the prehistory of the Cayman Islands are reviewed. Last, the survey procedures, results, and conclusions from our investigations are presented.

## **Geographical and Cultural Position of the Cayman Islands**

Grand Cayman, Cayman Brac, and Little Cayman sit atop emerging projections of the Cayman Ridge, which is a continuation of the Sierra Maestra Range in Cuba. The islands are near the intersection of 22°N latitude and 80°W longitude and are completely surrounded by the Caribbean Sea (Figure 1). Little Cayman and Cayman Brac are about 200 km northwest of Jamaica and 192 km south of Cuba. They are separated from Grand Cayman by 112 km of open water. Grand Cayman is about 288 km from Jamaica and 240 km from the Isle of Pines, Cuba.

There were at least two prehistoric migrations that could have come into contact with the Cayman Islands (Figure 2). The first entered the Greater Antilles from Central America about 7000 years ago. The second began about 2000 years ago and swept from mainland South America through the Lesser and Greater Antilles to reach the vicinity of the Cayman Islands by A.D. 800. The cultures associated with these migrations are briefly reviewed to identify the probable locations and kinds of materials that would be found if these peoples landed in the Cayman Islands.

The earliest peoples to enter the archipelago were foragers (hunter-gatherers) who lived in small groups, did not cultivate plants, and are often called "aceramic" because they did not make or use pottery until pottery was introduced from South America around 200 B.C. The first immigrants, called "Casimiroid" after the type site in the Dominican Republic (Rouse 1992; Veloz Maggiolo 1991), practiced a lithic technology characterized by tools made from flaked flint blades. Ground stone and Strombus shell tools were added to the tool kit around 2000 B.C. Thus, early Casimiroid sites would be characterized by flaked-stone tools, while later sites would include Strombus shell and ground stone tools (Veloz Maggiolo and Vega 1982).

It is hypothesized that the Casimiroid peoples migrated from either Belize or the Yucatan Peninsula around 5000 B.C. Casimiroid sites are known only from Cuba and Hispaniola, but these people also may have settled in Jamaica. Similarities between flaked-stone tools from the Greater Antilles and from Belize, where they date to around 7500 B.C., are the basis for identifying Central America as the Casimiroid homeland (Callaghan 1990).

Aceramic peoples appear to have been quite nomadic, occupying a site until the resources became depleted and then relocating to a more profitable location (Davis 1988; Veloz Maggiolo 1991). Their sites tend to be in caves, or along the water's edge adjacent to abundant shallow-water marine mollusks and near coral reefs (Armstrong 1980; Davis 1974). The latter sites are characterized by dense shellfish middens; while at the former, flaked-stone artifacts predominate.

Groups of pottery-using horticulturalists, called "Saladoids" after the type site in Venezuela, entered the Antillean chain from coastal Guiana and the Orinoco River Valley in Venezuela sometime prior to 400 B.C. (Haviser 1993; Rouse 1992; Siegel 1992). The earliest Saladoid sites in the West Indies are in the Leeward Islands and

Puerto Rico, which indicates a direct jump from the South American mainland. This migration is easily traced by the distinctive styles of pottery that were manufactured.

Saladoid peoples were extensive horticulturalists who lived in villages along the coast or adjacent to rivers. In addition to exploiting the numerous plants indigenous to the Antilles, they also brought with them familiar cultigens, the most important of which was manioc (cassava). Manioc was supplemented by other root crops and fruits, land animals, marine mollusks, and fishes.

After reaching Puerto Rico there was a pause of almost 1,000 years before population expansion continued to the west and north. By the time this second expansion began around A.D. 600, the pottery styles had changed to the point at which the peoples were distinguished as "Ostionoid," named for the type site in southwestern Puerto Rico. The second wave moved rapidly westward along northern and southern routes to colonize Hispaniola, Jamaica, the eastern end of Cuba, and the Bahamas (Rouse 1992; Keegan 1992b). It is hypothesized that Casimiroid foragers halted movement of the Ostionoid into western Cuba. However, too little research has been conducted yet to explain the fate of the aceramic groups living in Hispaniola and possibly Jamaica. The Casimiroid may have been displaced or exterminated by the Ostionoid immigrants, or they may have become acculturated into Saladoid groups thus giving rise to the Ostionoid culture (Chanlatte Baik and Narganes Storde 1990; Rouse 1986; Siegel 1989).

Trade networks were extensive during the Ostionoid period encompassing all of the Greater Antilles and possibly through the Lesser Antilles to mainland South America. Some researchers have suggested that there was also contact with Mesoamerica, based on similarities in the ballgames played both in Mesoamerica and the Greater Antilles (Alegria 1983). Columbus was impressed with the seaworthiness of West Indian canoes, and he described canoes which could hold 50 to 150 men in the Bahamas and Cuba (Dunn and Kelley 1989). Trade goods consisted of subsistence items, pottery, wood crafts, cotton, parrots, feathers, salt from the Bahamas, raw materials for tool manufacture, and ceremonial items such as cemis (spirit representations), stone and shell beads, semi-precious stones, and gold (Sauer 1966; Rouse 1986, 1992; Keegan 1992b). The people encountered by Columbus, today called Tainos, were organized in complex chiefdoms whose territory extended throughout the Greater Antilles, the Bahamas, and into the Leeward islands of Lesser Antilles.

The Cayman Islands are at the end of this second migration route, so people came to this area relatively late. Winds and currents would favor movement to the Caymans from Jamaica and Oriente Province, Cuba, but not from the Isle of Pines. The distances from these possible source areas are within the range of Taino canoes.

## **Previous Research**

The first professional investigation of the Cayman Islands was conducted early in this century by Jesse Walter Fewkes for the Bureau of American Ethnology. The full text of Fewkes' report reads:

The author made a special visit to the Great Cayman in order to investigate its archaeological features, but found nothing of importance to satisfy him that it was peopled in prehistoric times. He collected four stone axes, which may have been brought by turtle fishers from Honduras or Jamaica, and discovered a cave from which fragments of pottery were said to have been collected years ago. He is convinced that if there were any aborigines on the islands in prehistoric times they belonged to roaming, nomadic Carib, who landed there and remained only a few days. No middens or shell heaps were called to his attention. Fragments of pottery occur in certain caves and a few celts were obtained from the natives. As some of these closely resemble those of the other islands they may have been brought there by visitors (Fewkes 1922:258).

Several comments are warranted. First, our understanding of native West Indian geography has changed substantially since Fewkes' day. For instance, it is now known that the Island Carib settled no further north than the Windward Islands of the Lesser Antilles prior to the arrival of Europeans (Rouse 1992). Although there are reports of Caribs conducting raids against Puerto Rico during the early years of contact, Fewkes was wrong in proposing that Caribs may have reached the Cayman Islands.

Second, as Fewkes recognized, stone axes and celts had high mobility in historic times. Sears and Sullivan (1978:7) report, "Glover, in his study of the native boat building industry of the Bahamas (1974), found that celts, known locally as 'thunderbolts' are prized as good luck pieces. When a Bahamian sailing vessel was built in the northern or central Bahamas, a celt was placed under the mast before it was stepped." Thus, Fewkes was probably correct in concluding that the celts were brought to the Caymans from elsewhere.

Third, the pottery found on Grand Cayman could have been Afro-American pottery. Because Afro-American and other "colono-ware" potteries are usually earthenwares made from local materials, they can be indistinguishable from prehistoric pottery, especially to the untrained eye (Armstrong 1983). Whatever the case, it is impossible to determine the cultural affiliations of the pottery reported by Fewkes, because this pottery was removed from Grand Cayman before Fewkes had the chance to examine it. In sum, the few "artifacts" described by Fewkes could all be explained as items transported to Grand Cayman in historic times.

The next professional archeologist to visit Grand Cayman was Anne Stokes. While exploring the island in May 1990 she found the columella of a conch shell (Strombus gigas) that appeared to have been worked into a gouge. Shell gouges are known from the tool kits of the aceramic Guayabo Blanco and Cayo Redondo

peoples of Cuba (Tabío and Rey 1966) and are also reported from the aceramic Arboretum site in the Virgin Islands (Tilden 1976:245; also see Keegan 1984). In modern parlance, the Cuban cultures are aligned in the Casimiroid series, while the Virgin Islands site is in the Ortoiroid series. Because Stokes was not on the island in a professional capacity she did not disturb the site, but instead called her discovery to the attention of the Cayman Islands National Museum.

Before Stokes could return to Grand Cayman, Peter Drewitt conducted spot surveys of beach habitats and caves on Grand Cayman and Cayman Brac. He did not find any archaeological remains on Grand Cayman, but did find a number of West Indian Top Shells (*Cittarium pica*) in a cave deposit on Cayman Brac. Drewitt (1993) has reported that these shells were modified by humans, although the evidence is not compelling.

## **Research Procedures and Results**

In deference to Drewitt's plans to continue his research on Cayman Brac, we focused on completing a comprehensive survey of Grand Cayman (Figure 3). Grand Cayman measures about 33 km east-west and 7 km north-south with a 15 km north-south beach ridge at West End (i.e., "Seven Mile Beach"). At some time in the past Grand Cayman was three small cays: one comprised of present-day West End, one in the Georgetown to Bodden Town area, and the third from Frank Sound to East End. The unification of these cays reflects beach formation, tectonic uplift, and infilling of mangrove/buttonwood marshes. The island is about 90 square kilometers in area, although the interior is dominated by North Sound and much of the interior is buttonwood and mangrove marsh. Despite this relatively small size, there was at least 100 km (80 miles) of coastline that needed to be evaluated during the course of our survey.

Recognizing that it can never be proved that something did not happen in the past, it was necessary to define non-site parameters as closely as possible. In other words, collecting negative information can be viewed as a process of elimination; you can only be certain that something did not happen in the specific context investigated. For example, the statement that Frank Sound was never settled prehistorically, is contingent on the methods used to reach that conclusion. Evaluating whether or not an entire island was ever settled involved eliminating alternative possibilities.

The survey design was based on our knowledge of Native West Indian settlement patterns and of how changes in vegetation, sea level, and coastal geomorphology have affected these patterns (Keegan 1992a, 1992b; Stokes 1991). It was decided that a standard walkover survey would provide coverage of the largest area in the shortest period of time. Considering the changes in the landscape of Cayman by modern humans and by storm activity, it may seem unlikely that a walkover survey would reveal prehistoric sites. However, our work in the Bahamas, Antigua, and Grenada,

has shown that changes during the past 500 years are as likely to uncover sites as they are to disguise them.

Our research began with the examination of topographic maps. The probability that a particular area had been settled was ranked according to a number of characteristics, including coastal geomorphology, vegetation, soils, wind direction, elevation, coastal access, marine resource base, security, and the availability of fresh water. Map information afforded a preliminary identification of likely settlement locations. Stokes went to Grand Cayman a week before Keegan to collect additional information and to field check the information displayed on the topographic maps.

The most likely areas of settlement were sand beaches with a leeward aspect and coppice vegetation near marine reef flats prograding to barrier coral reef. The least likely settlement locations were interior ridges away from other bodies of water. Although greater attention was paid to areas with the highest probability for prehistoric sites, the survey was of sufficient length to permit the examination of every location that had a remote possibility of having been settled.

During the walkover survey a soil probe was used to evaluate subsurface deposits. The probe is a 2-cm diameter tube with one side cut open to reveal the composition of the soil. The probe was used to a depth of 60 cm. Although the probe gives a limited view of subsurface deposits, it is adequate to reveal changes in strata indicative of human activity. The soil probe provides a good supplement to standard walkover procedures. In addition, shovel testing was conducted in areas in which the sandy soils showed signs of anthropogenic enrichment or where a surface scatter of mollusk shells was observed. The shovel tests were 25 cm diameter holes dug to a depth of 60 cm. At 60 cm, the soil was notably coarser and more yellow in color, which is typical of sterile beach deposits. If prehistoric sites had been concealed by strata of sand and soil, this testing procedure would have uncovered them.

As mentioned above, no evidence for prehistoric activities was found during the survey.

## **Conclusions**

From the outset, we recognized that no prehistoric sites would be found if Grand Cayman was never settled. The survey was therefore designed to eliminate as many settlement alternatives as possible. From this research design it is possible to address the main reasons that have been given for the absence of prehistoric sites on Grand Cayman.

The most common reason given for the absence of artifacts is that the extensive development of Grand Cayman has obliterated any sites that once existed. We dismiss this possibility for several reasons. First, in all of the development of Grand Cayman no one has reported finding any prehistoric artifacts or human remains. Even J. W. Fewkes, who visited the island long before substantial

development had taken place, was unable to locate any prehistoric artifacts. Second, paleontologists have investigated a number of caves which contained largely undisturbed deposits, but did not contain artifacts of human manufacture. Third, numerous historic artifacts and burials have been discovered, which proves that modern Caymanians recognize artifacts. It follows then that they would have been able to recognize prehistoric tools, pottery, or burials. Lastly, there are many areas that would have been ideal for prehistoric settlement that have not been developed and which have seen very limited alteration. These areas were carefully surveyed, but no evidence for prehistoric activities were observed.

A second reason is that the prehistoric sites were obliterated by sea-level fluctuations or other geomorphic changes. However these types of changes are as likely to reveal sites as they are to hide them. For example, 3,000 year old prehistoric sites are evident on the surface of Antigua; an island that has undergone similar geomorphic changes.

The third reason is that Grand Cayman was visited sporadically during prehistory but only for short periods of time. If this were the case, activity areas would be small and "shallow" and of too short a duration to produce anthropogenic soils or stratified sites. Such small sites could have been obliterated in a single storm so their former presence would be undetectable. However, given the abundance of resources on Grand Cayman we believe that following discovery both aceramic and ceramic-age populations would have established permanent settlements, if only to exploit the island's rich marine environment.

In our opinion the most likely reason that Grand Cayman was never colonized is that it was probably never encountered. The island just does not present an adequate target (see Keegan and Diamond 1987; Held 1993; and Irwin 1992 for a discussion of geometrical properties and their affects on island colonization). Lacking substantial elevation, the island would not be visible until the canoe was less than 12 km (7 miles) away. Moreover Grand Cayman is pointed at Jamaica, giving it a target angle of only 4° (see Figure 2). Cayman Brac and Little Cayman fare somewhat better, offering a 10° target to Jamaica, but they are pointed at Cuba, which reduces their target angle to 1°. From Cuba, Grand Cayman has a target angle of 4°, but the route would strike Cayman Brac or Little Cayman first. The Cayman Islands lack a number of other features which would make them more visible to passing vessels. The islands are too small to produce substantial weather systems, are surrounded by too deep water to effect substantial water color changes or wave refraction patterns, they apparently lack major bird migrations, and they were not along any apparent trade routes. In sum, their remoteness and isolation made discovery of these islands a very low probability.

The inescapable conclusion is that Grand Cayman was not visited prior to the arrival of Christopher Columbus in 1503. This conclusion suggests that prehistoric peoples did not pass through

Grand Cayman during migrations from Central America and that later explorations did not reach these small, isolated islands. These findings have important implications for paleontologists and biogeographers because they indicate that up to the sixteenth century plant and animal populations developed in the absence of humans. Such pristine conditions existed nowhere else in the West Indies.

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