

**PROCEEDINGS  
OF THE  
EIGHTH SYMPOSIUM  
ON THE  
NATURAL HISTORY OF THE BAHAMAS**

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## POSSIBLE ANALOGIES FOR A PALAEOENVIRONMENT ON SAN SALVADOR ISLAND

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### INTRODUCTION

In 1492, when Christopher Columbus sailed into the New World, he reported that the island of first landfall was lush, green and with much water. The native population called the land Guanahani, but Columbus sought to call it San Salvador (Dunn and Kelley, 1989). If today's Bahamian Island of San Salvador, formerly Watling's Island until 1926, was Columbus' first landfall, then even the famous explorer would not recognize it (Craton, 1986). Although green trees continue to greet the offshore visitor, the variety, height, and thickness of the trees are far from what Columbus observed in 1492. The "much waters" of Columbus' time has also been reduced in size. Yet, in the five hundred years since that first landfall there still exists some evidence that gives credence to Columbus' words.

### CURRENT WOODLAND SITUATION

Today, the evergreen woodland is a secondary growth woodland (Byrne 1972). During Columbus' time, the evergreen woodland would have been closer to a climax woodland, with trees reaching to heights above 50 feet. Before Columbus' arrival, the Bahamas Islands had only been inhabited for about 500 years by Amerindian populations who by Columbus' accounts, called themselves Lucayans. These people lived in small villages and practiced slash and burn horticulture as well as harvesting marine and land organisms (Rouse, 1992). How much of the primitive evergreen woodland and its biodiversity had been cleared with these farming methods and settlements patterns is unknown. It is known, from Columbus' accounts, that the

Lucayans constructed canoes from a single tree trunk. In fact, Columbus reported that he observed a canoe holding 40 to 45 individuals during his initial contact in the waters off Guanahani (San Salvador)(Dunn and Kelley, 1989). It is unknown as to whether or not the tree that was used to make the canoe actually grew on Guanahani. Yet, a mortar, made from the trunk of a mahogany tree (*Swietenia mahogani*), was recovered from a San Salvador blue hole. The trunk was 44 cm in diameter and 138 cm in circumference. Radiocarbon analysis produced a date of 530 +/- 65 yrs B.P. With a 95 percent confidence interval of A.D. 1290 to 1550, the mortar is evidence for an evergreen woodland during the Lucayan occupation (Winter and Pearsall, 1991).

Although little information is known about the Lucayans' field clearing practices, the evergreen woodland had more than 100 years to heal itself after the last Lucayans and before the first Europeans. It is during this later phase, the European occupation, that a clearer picture emerges about what was found within the Bahamas Islands, especially through the works of Catesby (1725), Schoef (1968), and Harvey (1982). During this occupation, the Europeans selectively harvested the evergreen woodland for commercial hardwoods for use as dyewoods, barks, and timber (Winter, 1987). Then normal succession of the woodland was prevented by clearing the woodland for large-scale farming and pasture, a scale that greatly surpassed the Lucayans (Winter 1987). Evidence of this large scale denuding of the land can be seen in the numerous plantation stone walls which still crisscross the island.

Today, only a few descendants of the early evergreen woodland remain to reveal a



Figure 1



Figure 3



Figure 4



Figure 2

Figure 1. Mastic tree revealing a straight trunk  
Figure 2. Roots of the mastic tree growing atop the bedrock  
Figure 3. Mahogany tree revealing where the bark has been stripped  
Figure 4. Interior freshwater pond





Figure 7



Figure 5

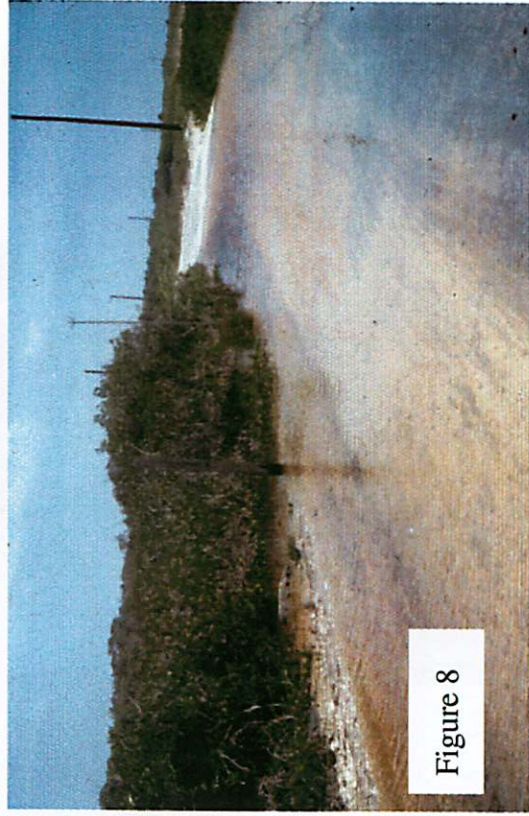


Figure 8

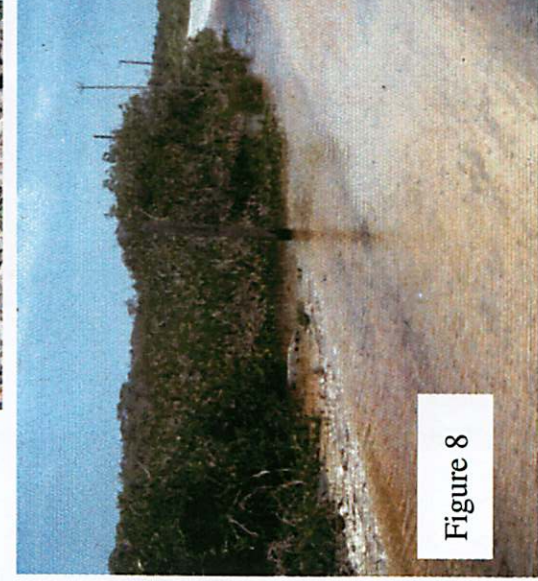


Figure 6

Figure 5. Line Hole Sinkhole revealing high water level.

Figure 6. Line Hole Sinkhole revealing low water level.

Figure 7. Pond apple tree revealing water stain marks at roots

Figure 8. Freshwater flowing across the main road into Bonefish Bay.

picture of the past. Three large mastic trees (*Mastichodendron foetidissimum*) have been found in three different areas on San Salvador: Hog Cay, Line Hole, and Dixon's Hill. Only the Line Hole tree presents the classic image of a very straight trunk that has grown up through a tall shade canopy (Figure 1). This specimen would be a good representative for the primitive woodland. This mastic tree has reached a height of more than 40 feet with a circumference of 149 cm, with its roots firmly embedded in the bedrock (Figure 2). The other two mastic trees have branched at the 10-foot level, which suggests a poor overstory canopy during growth.

Five mahogany trees (*Swietenia mahogani*) have been found in one area along the eastern side of Pigeon Creek on San Salvador. The trees are not good representatives for the primitive woodland as they are stunted and the residents of the island have removed their barks for medicinal purposes (Figure 3). The fact that descendants from the primitive woodland exist in the whitelands environment of today gives a scenario of the past.

### ISLAND WITH MUCH WATERS

Columbus noted that the island of discovery contained "much waters," a fact that many find fault with. Today, much of the observable water on the island is found in hypersaline inland lakes. Unfortunately, we forget that Columbus refilled his requirements for freshwater on the island. How can these freshwater resources be accounted for? Today, possible evidence for a "much waters" condition can be found in the numerous coastal and interior freshwater ponds (Figure 4). Many of these freshwater areas are seasonally flooded, but there are usually small amounts of year-round freshwater. Most of these ponds are light brown in color, the result of tannic acid build-ups caused by organic debris. During the rainy seasons, the freshwater levels can rise significantly, as revealed at Line Hole Sinkhole off Grahams Harbour on the well-field trail. In normal conditions, the water level in Line Hole is 2.2 meters from the top ridge (Figure 5). Yet in heavy rainfall, the water level rises to 82 cm

above the top ridge (Figure 6). In some areas of the island, freshwater-stain marks can be observed on the trunks of trees revealing the height of the standing water levels (Figure 7).

It must be remembered that Columbus arrived at Guanahani toward the end of what is now called the hurricane season. It is possible that the freshwater accumulations were significant enough for Columbus to make note of them in his diary. Today, given the proper rainfall conditions, freshwater can be observed to flow off the land into the sea. After a heavy rainfall, a freshwater flow appears as though a stream exists where water crosses the road near Bonefish Bay (Figure 8). Yet, even if excess rainfall does not occur, there is groundwater present. This can be found in the many sinkholes of the island. It is from these sources that the Plantation Era populations exploited the freshwater resources of the island. When reading the only diary from the island, there is often mention of a lack of rainfall for the crops but no mention of thirst for the human or animal populations (Peggs, 1957). One source of freshwater can be found in a sinkhole that lies to the west of the slave quarters at the Farquarson Estate. The sinkhole measures 43 feet 5 inches N to S and 60 feet 5 inches E to W. The present freshwater level is 3.14 meters below the top of the hole. To reach the freshwater, the Plantation Era people cut steps into the rock to produce a staircase into the sinkhole. The current water level lies below the staircase, perhaps indicating that the water table was 50 centimeters higher in the late 1700s.

Evidently, the accounts of Columbus did present an accurate representation for a more ephemeral island. Unfortunately, European settlers destroyed much of what Columbus observed. Fortunately for us, San Salvador has retained a few examples of her past environment with lush green trees and much water.

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