

FIELD GUIDEBOOK
to
ENVIRONMENTS OF COAL FORMATION
IN
SOUTHERN FLORIDA

Trip Leaders
William Spackman
David W. Scholl and William H. Taft

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products of the surface lowering process that has been active in the recent past and may still be operative in this brackish water zone.

The pollen content of a core taken through the liver mud in a Mangrove Pond is presented as Figure 19. Because this material appears to be secondarily deposited and because of the flocculent nature of the sediment, it is questionable as to whether one should attempt to reconstruct the area's history from the superposed pollen assemblages. The abundances of pine, chenopodiaceous pollen, buttonwood and myrtle in the core indicate collectively and individually that the sediment is foreign to the environment in which it is now found. Perhaps coincidentally the upper two inches contains high concentrations of Conocarpus and Myrica and a small percentage of Rhizophora, suggesting a trend in the direction of representing the present vegetation.

STOP 8: Midway Key

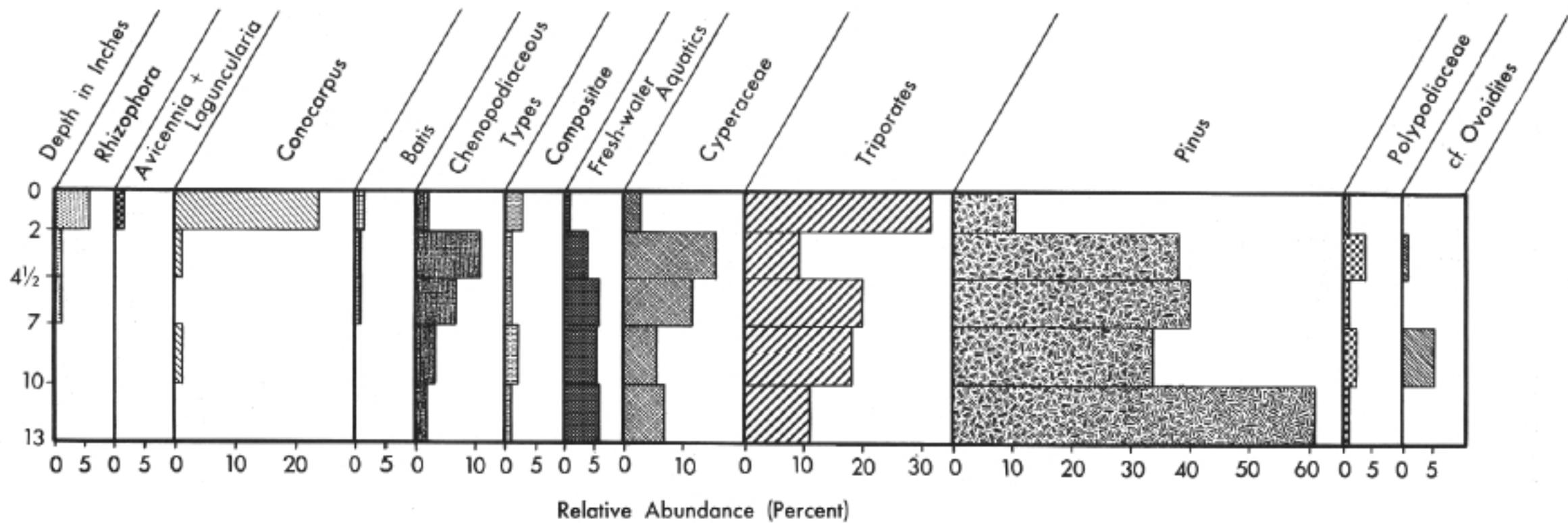
Objectives:

- A. Demonstration of sample collecting techniques.
- B. Inspection of red mangrove peat.
- C. Discussion of the form and composition of Whitewater Bay islands.
- D. Discussion of island destruction..

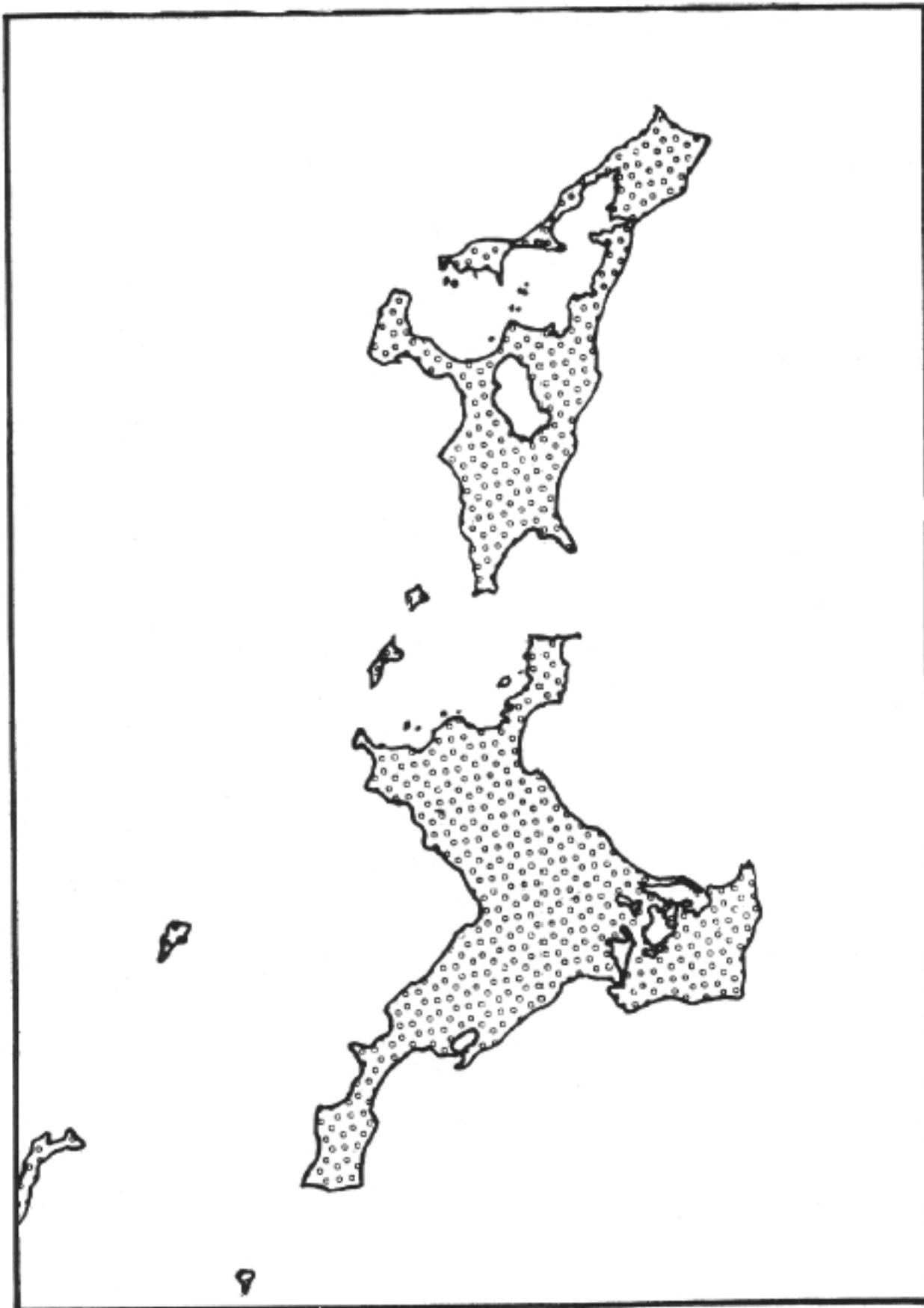
Discussion:

Reference to the trip map (Trip Map No. 1) will show that Stop 8 is located near the center of the shallow open water area known as Whitewater Bay. Comparison of the map (Figure 20) with the photograph of the site (Plate IXb) will show that the small isthmus depicted on the map on the east side of the large north island (the map was taken from a 1953 aerial photograph) has been destroyed within the last ten years. A similar event can be documented in the case of several other islands. This suggests that island dissection may be another erosional process associated with the aforementioned marine transgression.

Whitewater Bay contains a large number of islands, varying in size from a few square yards to many acres. These islands are blocks of peat standing either on the bedrock floor or on a thin layer of marl. The



POLLEN AND SPORE FREQUENCIES IN THE UPPER SECTION OF A MANGROVE POND CORE
Figure 19



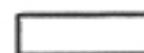
LEGEND

$\frac{1}{2}$ mile

DWARF MANGROVE



OPEN WATER



MAP OF ENVIRONMENTS IN THE MIDWAY KEY AREA

Figure 20

peat block is usually six to eight feet in thickness. The blocks tend to be steep sided. In some instances the sides are essentially vertical, as they are in the small Cormorant Pass island shown in Figure 21. Even more extreme cases can be observed in which the block is actually undercut to some degree. As might be expected, the vertical sides and undercut conditions are encountered where the islands are located in areas swept by the higher velocity currents. A more typical island is the one lying just to the east of Midway Pass (Figure 22). The sides of this island are clearly erosional features but they dip more gently into the water and under the recently deposited bay sediments.

No evidence has been found indicating that the area occupied by the islands is increasing. Instead, the opposite appears to be occurring. Not only are islands being dissected as suggested above, but several shown on the 1953 charts and aerial photographs of the area have been reduced in area and a few have been completely destroyed. A cruise through Whitewater Bay will reveal islands in all stages of destruction.

The surface peat at Stop 8 is a good example of red mangrove peat. It is unlikely that peat is accumulating at this site at the present time. Although no radiocarbon dates have been obtained from the surface peat on Midway Key, it is estimated that this material would be found to be 500 to 1000 years old. The roots of the red mangrove appear to make an important contribution to the peat mass. This may be the result of the tidal wash that bathes the surface twice a day removing large quantities of surface litter. If protected from effective tidal wash, a somewhat different type of peat might result.

The peats and other sediments of this area can be sampled in a variety of ways. For pollen studies either the Hiller or Davis Borer has proved satisfactory. If uncompressed core samples are required, an aluminum or plastic tube is forced into the sediment while maintaining an air-tight plunger in the tube at the ground level (Plate X).

STOP 9: Tarpon Creek Site

Objectives:

- A. Inspection of marine marl, peat, fresh-water marl stratigraphic sequence.