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# Paleontological Data from Mud Creek

## Core 1, Southern Florida

by

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## INTRODUCTION

Vegetational changes from sawgrass marshes to mangrove stands during the last century have been documented previously in a core collected in the mangrove fringe along Taylor Creek near Florida Bay ([Willard and Holmes, 1997](#)). To determine whether this pattern is characteristic of the mangrove fringe as a whole, or whether it represents only a local effect, additional cores have been collected from sites in the mangrove fringe along Florida Bay. The core discussed below was collected at a site along Mud Creek, near Joe Bay, approximately 5 km east of the Taylor Creek sites. This core is one of several collected at the Mud Creek site and consists of alternating layers of peat and marl. Other cores collected nearby consist of varying amounts of peat and marl, and a more detailed study on the geology and sedimentology of the site is underway to understand the local depositional setting. The core described below, Mud Creek Core 1, was collected in a peat-accumulating site in a stand of dwarf mangroves (*Rhizophora*) in a lake at the north end of Mud Creek (25°13.191'N, 80°36.279'W: [Figure 1](#)). Mud Creek traverses the Buttonwood Embankment near Joe Bay and empties into a lake in the transition zone from dwarf mangrove stands to sawgrass marsh along Florida Bay.

## ACKNOWLEDGEMENTS

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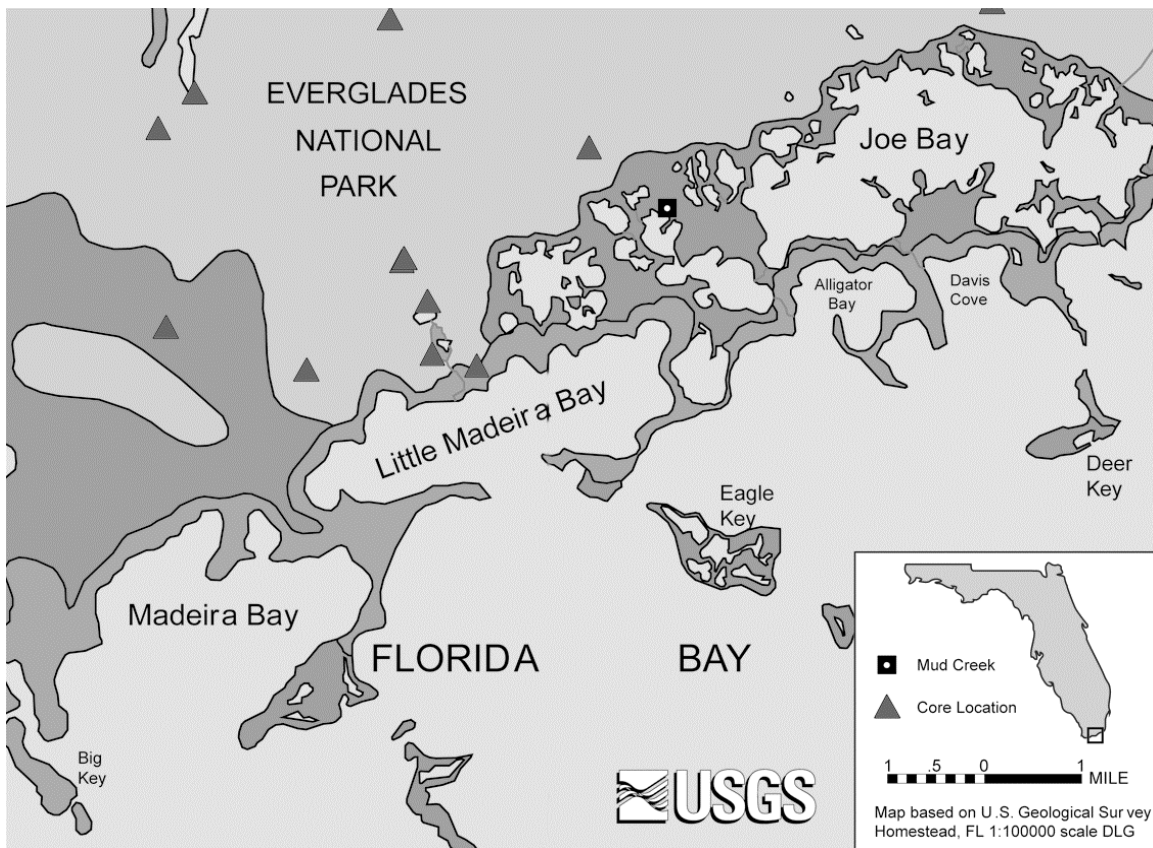


Figure 1. Location of Mud Creek Core 1 (square) and other cores (triangles) collected in the area.

## **METHODS**

Because the sediment composition varied at nearby sites, several cores were taken to clarify the depositional setting of the area. Mud Creek Core 1 consists of alternating layers of peat and marl and is the first core to be analyzed from this area. Cores were collected with a modified piston core 10.16 cm (4 inches) in diameter which was capable of taking a 1 meter core. We sampled only the "peat" by physically moving the surface vegetation aside and beginning the coring at the "soil level" with minimal disturbance to the surface vegetation and peat. Upon completion of coring, the core was capped and transported to the laboratory. In the laboratory, cores were extruded at 2-centimeter increments, weighed, and placed in bags. Because of the extremely permeable nature of the material, wet bulk density could not be accurately measured, and only dry bulk density was determined. In sampling for radiometric analyses, roots were removed physically prior to chemical dissolution, and bulk samples were submitted for analysis. Dates presented on [Figure 2](#) represent the conventional radiocarbon age with 1 sigma standard deviation.

### ***Pollen***

Peat samples weighing approximately 0.5 g and marl samples weighing 20-50 g were used for pollen preparation. Marl samples were treated with HCl to remove carbonates and with HF to remove silicates before being acetolyzed. For acetolysis, samples were rinsed twice with glacial acetic acid to dry the material before being acetolyzed in a hot water bath for 10 minutes, neutralized, and treated with 10% KOH in a hot water bath for 15 minutes. After neutralization, the samples were sieved with 149  $\mu\text{m}$

and 10 µm nylon mesh to remove extraneous plant material and clay-sized particles. Some samples were run through a heavy-liquid separation with ZnCl<sub>2</sub> (S.G. = 2.1) to further clean samples. The pollen residue was mixed with warm glycerine jelly and mounted on microscope slides for examination.

To calculate percent abundance, at least 100 grains were counted per sample. Ideally, 300 grains were counted, but in some samples sparse pollen in the preparations made acceptance of lower numbers necessary. Results of the counts are presented in [Table 1](#).

#### ***Molluscs and Benthic Foraminifers***

The samples were washed through a 63 µm sieve and dried at <50° C. Molluscs were picked from the >850 µm size fraction. Low-temperature ashing was used to remove the high content of vegetative material from the >63 µm size fraction. The ashed samples were picked for benthic foraminifera, and molluscs were picked from the >850 µm size fraction. When possible, a total of 300 specimens were picked from the sample and mounted on gridded micropaleontologic slides. For samples containing fewer than 300 individuals, all of the specimens present were picked. Results from molluscan analyses are presented in [Table 2](#).

## RESULTS

### *Pollen*

Pollen assemblages are separated into three zones based on percent abundance of taxa. The bottom zone (81-50 cm) includes samples from both peat and marl sediments and is characterized by the highest abundances of pollen of the Cyperaceae (sawgrass family), which comprise up to 83% of the assemblages (Figure 2). *Pinus* (pine) pollen is abundant, usually comprising 50-90% of the assemblages, and *Myrica* (wax myrtle) pollen also is common (2-18%), decreasing upward in the zone. *Ovoidites*, the zygospore of zygnematacean green algae such as *Spirogyra* (Rich et al., 1982), is common from the bottom of the core up to 64 cm.

The middle zone (50-32 cm) consists entirely of marl and is dominated by *Pinus* pollen (60-97%). *Myrica* pollen is common, comprising 5-10% of the assemblages. Most other taxa are present only rarely. Microforaminifers, the chitinous lining of foraminifers, which are preserved in palynological preparations, are present from 48 cm to the top of the core, indicating that foraminifers were present in most samples from that part of the section.

The upper zone (32-0 cm) consists entirely of peat and is dominated by *Myrica* pollen (10-32%), with *Pinus* pollen much less abundant (26-58%). The mangrove taxa *Rhizophora* (red mangrove), *Avicennia* (black mangrove), and *Conocarpus* (buttonwood)) are markedly more abundant in this zone than in the lower zones of the core, as are some tropical hardwoods such as *Bumelia* and *Bursera* (Figure 2). Pollen of the Cyperaceae is relatively rare (usually <2%), but pollen of the Asteraceae (aster family) is more abundant in this zone than elsewhere in the core.

# Floral and Faunal Record - Mud Creek Core 1

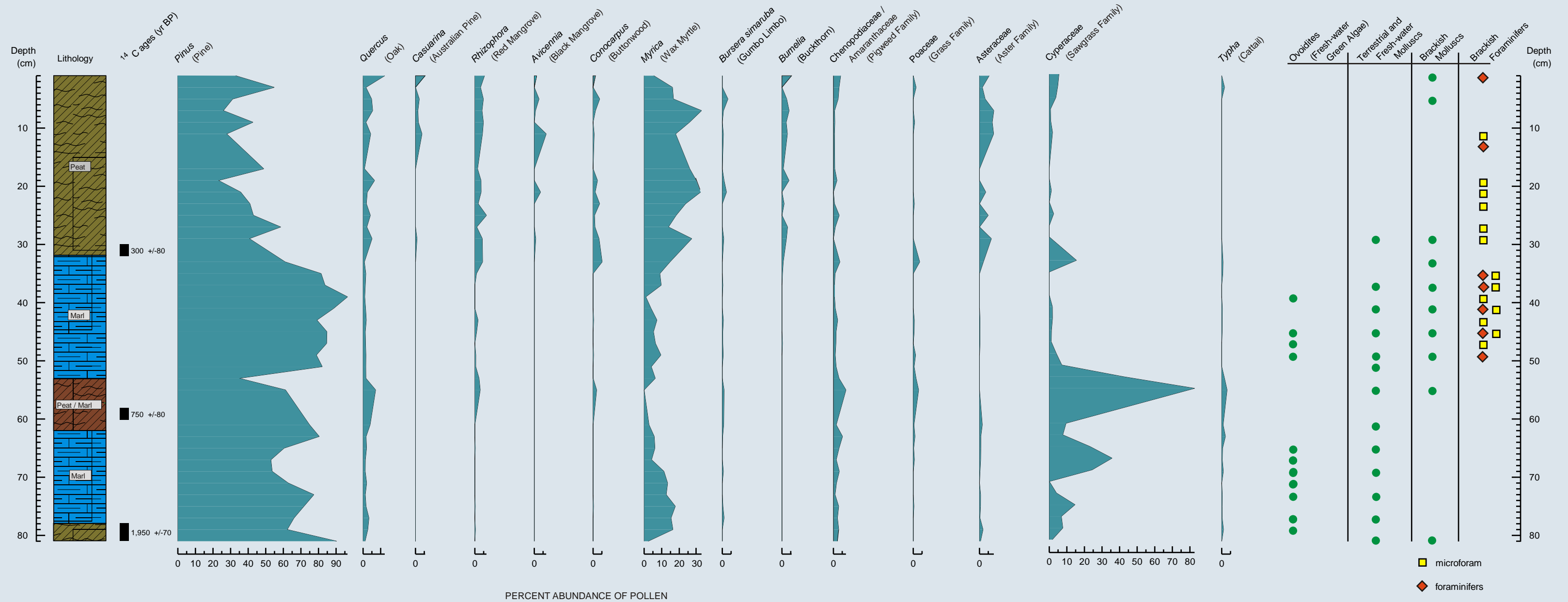


Figure 2. Percent abundance of pollen of major plant taxa and occurrence of *Ovoidites*, terrestrial and fresh-water molluscs, brackish molluscs, and foraminifers in Mud Creek Core 1, southern Florida

## *Molluscs*

Mollusc assemblages may be divided into two zones, a lower zone (82-60 cm) consisting exclusively of freshwater gastropods, and an upper zone (56-0 cm), consisting both freshwater and brackish taxa (Table 2). In the lower zone, three groups of freshwater gastropods are predominant: *Physa* cf. *heterostropha*, *Planorbella duryi*, and the Hydrobiidae. The Hydrobiidae group consists of large numbers of minute high-spined gastropods and may include some individuals from other freshwater molluscan families and potentially two brackish water species. However, confident identification of species of the Hydrobiidae can be made only from soft-part morphology, so these specimens have not been further divided taxonomically. A freshwater limpet, *Ferrissia hendersoni*, also is found in the lower part of the core.

The upper zone includes both the freshwater taxa discussed above and three species of brackish water clams: *Anomalocardia* sp., *Cyrenoida floridana*, and *Polymesoda* sp. Juveniles of *Anomalocardia* sp. are present in only minor amounts from 42-36 cm in the core. A modern monitoring study of 20 sites in Florida Bay has recorded this species present in salinities ranging from 12-30 ppt (21.86 ppt average) (Brewster-Wingard, et al., 1996, table 4), although juveniles have been reported under lower salinity conditions. *Polymesoda* sp. is present in minor amounts from 42-36 cm in the core. Our studies have recorded salinities of 12-24 ppt (18.10 ppt average) for this species, but Andrews (1977) indicated that the genus can tolerate salinities ranging from fresh to hypersaline. *Cyrenoida floridana* is present in significant amounts from 56-54 cm and from 46-36 cm. It is considered “a brackish to rather fresh” water species (Abbott, 1974), and it has been recorded at localities ranging from 12-17.5 ppt (14.75 ppt average) at our



sites. Additionally, one individual of the freshwater gastropod *Pomacea paludosa* was present at 40-42 cm. *Pomacea paludosa*, the Florida Applesnail, is of particular interest as the primary food source for the endangered Everglades Snail Kite.

### ***Benthic Foraminifers***

Six samples (0-2, 12-14, 34-36, 40-42, 44-46, and 48-50 cm) yielded benthic foraminifers. Only one species was recovered, *Ammonia parkinsoniana*, which is typical of oligohaline (0-5 ppt) environments. The interval from 50-34 cm appears to mark the horizon when the environment made the transition from fresh to saline waters.

## **DISCUSSION**

Biotic assemblages at the Mud Creek site record a change from a freshwater regime to brackish conditions at about 50 cm depth. In the vegetation, this is reflected in the change from predominantly sawgrass vegetation to one dominated by trees, including red mangroves, wax myrtle, buttonwood, and buckthorn. Faunal assemblages indicate fluctuations in salinity over time. The occurrence of *Cyrenoida floridana*, the brackish to nearly freshwater pelecypod, in the 56-54 cm sample and foraminifers in the 50-36 cm samples indicates increased salinities at the site at that time. The highest salinities (perhaps as great as 17 ppt) are recorded from 42-36 cm by the presence of *Anomalocardia* sp. and *Polymesoda* sp. The additional presence of freshwater gastropods in this interval indicates a continuous supply of freshwater to the depositional area during that interval, even as salinity at the site was increasing.

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Table 1. Percent abundance of taxa in Mud Creek Core 1, southern Florida.

DEPTH (cm)	TREES AND SHRUBS																				
	<i>Alnus</i>	<i>Avicennia</i>	<i>Betula</i>	<i>Bumelia</i>	<i>Bursera simbaruba</i>	<i>Carya</i>	<i>Casuarina</i>	<i>Celtis</i>	<i>Cephalanthus</i>	<i>Coccoloba</i>	<i>Conocarpus</i>	<i>Cornus</i>	<i>Cyrilla</i>	<i>Fraxinus</i>	<i>Ilex</i>	<i>Juglans</i>	<i>Liquidambar</i>	<i>Melaleuca</i>	<i>Myrica</i>	<i>Ostrya/Carpinus</i>	
0-2	0.00	1.37	1.37	5.48	0.00	0.00	5.48	1.37	0.00	0.00	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	0.00	
2-4	0.00	0.00	0.00	0.00	0.00	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61	0.00	16.13	0.00	
4-6	0.54	2.69	0.00	2.69	3.23	1.08	2.15	0.54	0.00	0.00	3.76	0.00	0.00	0.00	1.08	0.00	0.00	0.00	16.67	0.00	
6-8	0.00	0.68	0.00	4.08	0.68	0.00	1.36	0.00	0.00	0.00	1.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.65	0.00	
8-10	0.81	0.00	0.00	2.42	0.00	0.00	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	25.81	0.00	
10-12	0.62	6.79	1.23	3.09	0.62	0.62	3.70	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.90	0.00	
12-14	0.00	5.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	
14-16	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.00	
16-18	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.95	0.00	
18-20	0.50	0.00	0.00	4.02	1.01	0.00	0.00	0.00	0.00	1.01	2.51	0.50	0.00	0.00	0.00	0.00	0.00	0.00	29.65	0.00	
20-22	1.19	3.57	0.00	0.00	2.38	0.00	0.00	0.00	0.00	0.00	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.14	0.00	
22-24	1.24	0.00	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	3.73	0.00	0.00	0.00	0.62	0.00	0.00	0.00	23.60	0.00	
24-26	2.48	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.18	0.00	
26-28	0.00	0.00	0.00	3.19	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.83	1.06	
28-30	0.00	0.85	0.00	2.54	0.85	0.00	0.85	0.00	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.12	0.00	
32-34	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.74	0.00	5.15	0.00	0.00	0.00	0.00	0.00	0.74	0.00	14.71	0.00	
34-36	0.62	0.00	0.31	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.31	0.00	0.00	8.95	0.00	
36-38	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	9.72	0.00	
38-40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	
40-42	0.36	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.93	0.00	
42-44	0.00	0.00	0.00	0.00	0.61	0.30	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.30	0.00	0.30	0.00	7.27	0.00	
44-46	0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.00	5.33	0.00	
46-48	0.00	0.00	0.00	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.56	0.00	0.00	0.00	6.42	0.00	
48-50	0.27	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.27	0.00	0.27	0.00	9.55	0.00	
50-52	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	4.08	0.51	
52-54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.00	6.35	0.00	
54-56	0.00	0.00	0.00	0.00	1.02	0.00	0.00	5.10	0.00	0.00	2.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
60-62	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	0.00	2.79	0.00	
62-64	0.00	0.00	0.00	0.00	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.00	5.76	0.00	
64-66	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	6.14	0.00	
66-68	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.22	0.00	
68-70	0.30	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.61	0.00	0.30	0.00	11.28	0.00	
70-72	0.29	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.29	0.00	13.37	0.00	
72-74	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.31	0.00	0.00	0.00	12.58	0.00	
74-76	0.48	0.00	0.00	0.00	0.36	0.00	0.00	0.24	0.00	0.00	0.24	0.00	0.00	0.00	1.32	0.00	0.12	0.00	17.75	0.00	
76-78	0.51	0.00	0.00	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.26	0.00	15.31	0.26	
78-80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	0.00	0.00	0.00	16.39	0.00	
80-82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	0.00	

\* TCT = Taxodiaceae/Cupressaceae/Taxaceae

Table 1. Percent abundance of taxa in Mud Creek Core 1, southern Florida.

DEPTH (cm)										HERBACIOUS PLANTS										
	<i>Pinus</i>	<i>Quercus</i>	<i>Rhizophora</i>	<i>Salix</i>	<i>Schinus</i>	<i>Sophora</i>	TCT*	<i>Trema</i>	Asteraceae	Chenopodiaceae/ Amaranthaceae	<i>Cladium</i>	Cyperaceae	<i>Decodon</i>	Ericaceae	Euphorbiaceae	<i>Hippocratea</i>	Leguminosae	<i>Nymphaea</i>	Poaceae	Polygonaceae
0-2	32.88	12.33	5.48	1.37	0.00	1.37	0.00	0.00	5.48	4.11	0.00	5.48	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-4	54.84	1.61	3.23	0.00	0.00	0.00	0.00	0.00	1.61	3.23	3.23	1.61	0.00	0.00	0.00	0.00	4.84	0.00	1.61	0.00
4-6	31.18	4.84	4.84	0.00	0.54	0.54	0.00	0.00	3.23	2.69	0.54	3.23	2.69	0.00	3.76	0.00	4.84	0.00	0.00	0.00
6-8	25.85	5.44	4.08	1.36	0.00	0.00	0.00	0.00	8.16	0.68	0.68	0.00	0.00	0.00	4.08	0.68	4.08	0.00	0.00	0.00
8-10	42.74	1.61	4.84	0.00	0.81	0.00	0.00	0.00	7.26	0.81	0.81	0.00	0.81	0.00	3.23	0.00	1.61	0.00	0.81	0.00
10-12	27.78	4.32	4.32	0.00	0.00	0.00	0.00	0.00	8.02	0.62	0.00	1.85	0.00	0.00	5.56	0.00	3.09	0.00	0.00	0.00
12-14	35.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	5.00	0.00	0.00	0.00	0.00	0.00
14-16	29.17	8.33	12.50	0.00	0.00	0.00	0.00	0.00	8.33	0.00	0.00	0.00	4.17	0.00	8.33	0.00	0.00	0.00	0.00	0.00
16-18	48.85	0.76	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.00	2.29	0.00	0.00	1.53	0.76	7.63	0.00	0.00	0.00
18-20	23.12	6.53	3.52	0.00	0.00	0.00	0.00	0.00	0.00	2.01	1.51	1.51	0.00	0.00	2.51	0.50	5.03	0.00	0.00	0.00
20-22	35.71	2.38	3.57	0.00	0.00	0.00	0.00	0.00	3.57	0.00	0.00	1.19	0.00	0.00	1.19	0.00	4.76	0.00	0.00	0.00
22-24	40.99	1.86	1.86	0.00	0.00	0.00	0.00	0.62	0.00	0.62	2.48	1.86	0.62	0.62	1.86	0.62	5.59	0.00	0.62	0.00
24-26	42.98	4.13	6.61	0.00	0.00	0.00	0.00	0.00	4.96	3.31	2.48	0.00	2.48	0.00	0.00	0.83	7.44	0.00	0.00	0.00
26-28	58.51	2.13	1.06	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	3.19	0.00	0.00	0.00
28-30	40.68	5.08	4.24	0.00	0.00	0.85	0.00	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.85	5.08	0.00	0.00	0.00
32-34	61.03	0.74	4.41	0.00	0.00	0.00	0.00	0.00	2.21	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.68	0.00
34-36	81.48	1.54	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.62	0.00	0.00	0.00	0.00	0.00	1.85	0.00	0.00	0.00
36-38	83.70	1.25	0.00	0.00	0.00	0.63	0.00	0.63	0.00	0.63	0.00	0.00	0.94	0.00	0.00	0.00	0.94	0.00	0.00	0.00
38-40	96.51	0.95	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00
40-42	88.57	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	1.43	0.36	0.00	0.00	0.36	0.00	1.07	0.00	0.00	0.00
42-44	79.09	1.82	1.82	0.30	0.00	0.00	0.00	0.00	0.30	2.42	1.82	0.00	0.30	0.00	0.00	0.00	2.12	0.00	0.61	0.00
44-46	84.77	1.27	1.02	0.00	0.00	0.51	0.25	0.25	0.25	1.52	1.27	0.00	0.00	0.00	0.00	0.00	1.27	0.00	0.51	0.25
46-48	84.64	1.40	0.00	0.00	0.00	0.56	0.56	0.00	0.28	1.40	0.56	0.56	0.56	0.00	0.00	0.00	0.84	0.00	0.00	0.00
48-50	78.78	1.59	0.53	0.00	0.00	0.27	0.00	0.00	0.00	1.06	3.18	0.80	0.00	0.00	0.27	0.00	1.06	0.00	1.33	0.00
50-52	82.14	1.53	0.51	0.00	0.00	0.00	0.00	0.00	0.00	1.53	7.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00
52-54	34.92	1.59	2.38	0.00	0.00	0.00	0.79	0.00	0.00	3.17	39.68	2.38	1.59	0.00	0.00	0.00	2.38	0.00	1.59	0.00
54-56	61.22	7.14	3.06	0.00	0.00	0.00	0.00	0.00	0.00	7.14	0.00	0.00	0.00	0.00	1.02	0.00	2.04	0.00	3.06	0.00
60-62	74.90	3.98	0.00	0.00	0.00	0.00	0.00	0.00	1.59	1.59	0.00	9.56	0.40	0.00	0.00	0.00	0.80	0.00	0.40	0.40
62-64	80.42	1.73	0.00	0.00	0.00	0.00	0.00	0.00	0.77	5.18	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.38	0.96	0.00
64-66	60.44	1.97	0.25	0.25	0.00	0.25	0.00	0.00	0.74	3.19	23.10	0.00	0.00	0.00	0.00	0.00	1.47	0.00	0.25	0.25
66-68	52.92	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.65	1.62	35.39	0.32	0.00	0.00	0.32	0.00	0.32	0.00	0.65	0.00
68-70	53.66	1.22	0.00	0.00	0.00	0.00	0.00	0.30	0.30	3.35	24.39	0.00	0.00	0.30	0.00	0.00	1.22	0.00	0.00	0.00
70-72	62.79	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	16.86	0.00	0.00	0.00	0.58	0.00	0.58	0.00	0.00	0.00
72-74	77.36	1.26	0.00	0.00	0.00	0.00	0.31	0.00	0.63	0.94	4.09	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00
74-76	71.70	1.68	0.24	0.00	0.00	0.00	0.00	0.00	0.60	3.00	0.00	0.00	0.36	0.00	0.72	0.00	0.36	0.00	0.36	0.00
76-78	66.07	3.32	0.00	0.00	0.00	0.00	0.26	0.00	0.26	2.30	6.63	0.26	0.26	0.00	0.00	0.00	2.04	0.00	0.00	0.00
78-80	62.21	2.68	0.33	0.33	0.00	0.00	0.00	0.00	2.01	3.01	0.00	7.69	0.33	0.00	0.33	0.00	0.00	0.00	0.00	0.00
80-82	90.34	1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.57	2.27	0.00	1.70	0.00	1.14	0.00	0.00	0.00	0.00	0.00	0.00

\* TCT = Taxodiaceae/Cupressaceae/Taxaceae

Table 1. Percent abundance of taxa in Mud Creek Core 1, southern Florida.

DEPTH (cm)	<i>Sagittaria</i>	<i>Typha</i>	<i>Utricularia</i>
0-2	0.00	0.00	0.00
2-4	0.00	1.61	0.00
4-6	0.00	0.00	0.00
6-8	0.00	0.00	0.00
8-10	0.00	0.00	0.00
10-12	0.62	0.00	0.00
12-14	5.00	0.00	0.00
14-16	0.00	0.00	0.00
16-18	0.00	0.00	0.00
18-20	0.00	0.00	0.00
20-22	0.00	0.00	0.00
22-24	0.00	0.00	0.00
24-26	0.00	0.00	0.00
26-28	0.00	0.00	1.06
28-30	0.00	0.00	0.00
32-34	0.00	0.74	0.00
34-36	0.00	0.62	0.00
36-38	0.00	0.00	0.00
38-40	0.00	0.00	0.00
40-42	0.00	0.36	0.00
42-44	0.00	0.30	0.00
44-46	0.00	0.25	0.00
46-48	0.00	0.00	0.00
48-50	0.00	0.00	0.00
50-52	0.00	0.00	0.00
52-54	0.00	1.59	0.00
54-56	0.00	3.06	0.00
60-62	0.00	0.80	0.00
62-64	0.00	2.11	0.00
64-66	0.00	0.49	0.00
66-68	0.65	0.32	0.00
68-70	0.00	0.91	0.00
70-72	0.00	0.00	0.00
72-74	0.31	0.31	0.00
74-76	0.00	0.24	0.00
76-78	0.00	0.26	0.00
78-80	0.33	1.00	0.00
80-82	0.00	0.00	0.00

\* TCT = Taxodiaceae/Cupressaceae/Taxaceae

Table 2: Molluscan faunal occurrence in Mud Creek Core #1.

Species	Salinity Preferences	0-2 cm	4-6 cm	NO SHELL MATERIAL PRESERVED 6-28	28-30 cm	32-34 cm	36-38 cm	40-42 cm	44-46 cm	48-50 cm	50-52 cm	54-56 cm	56-58 cm	58-60 cm	60-62 cm	64-66 cm	68-70 cm	72-74 cm	76-78 cm	80-82 cm	
<b>Gastropods:</b>													SAMPLES NOT EXAMINED								
<i>Ferrissia hendersoni</i> ?	Freshwater								R	P						R	R		R		
<i>Physa hetrostropa</i> ?	Freshwater						A	A	A	C	C				C	A	A	A	A	A	A
<i>Planorbella duryi</i>	Freshwater				R?		C	C	A	A	A	C			A	A	A	A	C	C	
<i>Pomacea paludosa</i>	Freshwater							P													
Hydrobiidae [May include other minute high spired gastropods]	Predominantly freshwater [May include some brackish]	R					A	A	A	A	A	A				A	A	A		C	A
Gastropod fragments, sps unrecognizable	?	R	P		P	R?				P									P		
<b>Pelecypods:</b>																					
<i>Anomalocardia</i> sp.	Brackish to marine						P	R													
<i>Cyrenoida floridana</i>	Brackish to nearly fresh				P		A	A	C	P		A								P	
<i>Polymesoda</i> sp.	Brackish						P	R													

P = Present (1 specimen)  
 R = Rare (2-5 specimens)  
 C = Common (6-15 specimens)  
 A = Abundant ( >15 specimens)