

MOLLUSCA OF THE "GLADES" UNIT OF SOUTHERN FLORIDA: PART I
INTRODUCTION AND OBSERVATIONSTHOMAS L. MCGINTY*
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In southern Florida there is a shell deposit lying above the Caloosahatchee Marl of late Tertiary age and below the Pleistocene Fort Thompson Formation. This paleontologically distinctive unit was temporarily designated as "Unit A" by Olsson (*in* Olsson and Petit, 1964, *Bulls. Amer. Paleontology*, v. 47, no. 217, p. 513, 521), pending its formal naming by Druid Wilson of the U. S. Geological Survey. To date this name has not been published and until it is formally proposed we must refer to it by some sobriquet. Appropriately, most local workers have been terming it the "Glades" for some time, so this name will continue to serve. To date, the deposit has been identified from the following south Florida counties: Glades, Indian River, St. Lucie, Martin, Palm Beach, Broward, and Hendry.

This "Glades" unit, while retaining a few upper Miocene species and some splendid forms from the Caloosahatchee Marl, also has a number of species peculiar to itself. Students of Recent shells should find it of particular concern for many mollusks living today in the Gulf and Caribbean appear to have evolved from this fauna.

One locality for the "Glades" is of special interest as it appears to be devoid of any mixture with the marine fauna from the Fort Thompson Pleistocene above or the older Caloosahatchee Marl below. This is the Belle

Glade Rock Pit (W $\frac{1}{2}$, NE $\frac{1}{4}$ Sec. 7, T44S, R37E) about a mile south of the city of Belle Glade, Florida, and just south of Florida Highway 80, in Palm Beach County. This rock pit is an artificial lake over a third of a mile long, north to south, and approximately 400 feet wide, east to west. Draglines have dredged to a depth of 30 feet and deposited highly fossiliferous spoil banks to the east and west, recently mostly on the western side. Extensive collecting by many fossil enthusiasts has been done, but special credit should be given to Mr. Robert C. Hoerle and his wife, Shirley, of West Palm Beach, Florida, who have assembled an amazing collection from this area. Mrs. Hoerle's list of the marine mollusks from the Belle Glade Rock Pit follows this section of the paper.

The writer has screened over a ton and a half of material from the pit and a careful search has made available a number of smaller shells in excellent condition. In addition to screening, two other methods of collecting, used by the author for many years, have proved very productive. The first consists of a careful examination of the contents of larger shells. Often many smaller species may be found, even such delicate things as *Cavolina* and *Haminoea*, and the contents of certain "marker" shells are a frequent aid in correlating each fauna. The second method is to split open fossil corals, which often yield pairs of the boring species in fine condition. These two methods may add 20% to a faunal list, and are worthy of recommendation.

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The spoil banks at the Belle Glade Rock Pit seem to indicate extremely varied ecological conditions through geologic time. The rich black surface earth is several feet thick, with blasting necessary in some areas to expose the shell marl below. A fresh water facies later appears, exact position undetermined, but perhaps 3 feet in depth, for chunks of 20 inches have been observed on the spoil banks. Such marl has vast numbers of several species of *Planorbella*, *Viviparus georgianus* (Lea), fine large *Pomacea*, plus *Notogillia* and *Fontigens*. This fresh water layer is thought to be "Unit 9" of DuBar (1958, Fla. Geol. Survey Bull. 40, p. 75). A land fauna is also associated, perhaps thin but important. Specimens, scarce or rare, include *Succinea*, *Euglandina rosea* (Férussac), *Polygyra*, and fine large *Bulimulus dealbatus* (Say). Several of these large *Bulimulus* have been taken, the largest 1¼ inches long and in good condition. It appears to be a new Florida record, for today only smaller races live much further north, mostly inland from the Gulf coast. The presence of *Bulimulus* is of particular interest, for it seems to indicate land at least 10 feet above sea-level. Below this fresh water and land fauna, under more typical marine conditions, the "Glades" fauna appears, occupying more than ⅔ of the pit depth as dredged to date. It is of interest to note that a brackish-water fauna is also present with *Vermicularia recta* Olsson and *Harbison* appearing frequently on the spoil banks, perhaps "Units 4 and 3" of DuBar (1958, Fla. Geol. Survey Bull. 40, p. 75). The writer has observed at Cochran Rock Pit, near La Belle, in Hendry County, Florida, an exposed "test pit" with *Mitra heilprini*, typical of the Caloosahatchee Marl, appearing in position only inches below a fine large colony of *Vermicularia recta*. This would indicate that the dredgings at the Belle Glade Rock Pit have reached the extreme lower level of the "Glades" age.

Environmental conditions during the "Glades" period must have been similar to those existing today off the ocean side of the Florida Keys. The greater portion was likely soft mud or marl with 1 or 2 fathoms of seawater and large beds of *Thalassia* or "turtlegrass." Sand bars, indicated by vast numbers of *Oliva* in the deposit, must also have existed, for *Oliva* would only have lived in

such a situation. Rocky or reef bottom would appear to have been restricted, for species which require such an ecological situation prove scarce or rare, but the discovery of a few large *Cyphoma intermedium* (Sowerby) surely indicates some reef bottom supporting living gorgonians, but likely in limited numbers. The finding of *Cyphoma* and *Cavolina*, as well as great numbers of *Macrocallista maculata* (Linné), suggests an open sea, not bay conditions.

As early as 1935, during construction of dikes adjacent to Lake Okeechobee, considerable fossil collecting was done by Dr. Maxwell Smith, Dr. Henry A. Pilsbry and family, the McGinty family, and numerous other friends. The levee only a short distance northwest of Belle Glade appeared to be of a different age so frequent visits were made. Publication in the "Nautilus" of several new species resulted, including *Fusinus watermani* (M. Smith), *Murexiella graceae* (McGinty), and *Latirus jucundus* McGinty, all taken from this Belle Glade levee. Other "Glades" fossils were taken at Clewiston, and on the south side of the Caloosahatchee River from spoil banks just west of the railroad bridge near Ortona Lock. Several new species from this last locality were described in the "Nautilus," including *Murex anniae* M. Smith, *Latirus maxwelli* Pilsbry, and *Vasum floridanum* McGinty, all now to be placed in the "Glades" unit.

In 1967 a huge dragline, locally known as "Uncle Luke," widened the Caloosahatchee River and made extensive new areas available for collecting. A splendid "Glades" fauna was revealed about 2 miles west of Ortona Lock, appearing on both sides of the river. Dredging to a depth of 23 feet did not penetrate into the Caloosahatchee Marl, but showed a far better representation of the species that would have lived in a rocky situation during the "Glades" period than was available at the Belle Glade Rock Pit. A short list of some of these species is included at the end of this paper. It is not thought that these deposits differ greatly in age, but far more likely slight variations result from differing ecological conditions. Near the surface at these Ortona Lock stations the first 6 feet is composed largely of Fort Thompson Pleistocene, evident by countless numbers of characteristic *Chione cancellata* (Linné),

such material usually being of a cream color. Below, the "Glades" deposit may often be distinguished by a more whitish coloration of the shell specimens.

Finding of land shell *Cerion incanum* (Binney) in this area is of considerable importance. This curious mollusk is known to live only within a few hundred yards of open sea upon land elevated above highest tide. The first fossil specimen was found one mile east of Ortona Lock by the writer's brother, Paul L. McGinty, in 1937. Recent collecting has provided two more specimens taken from an area 5.2 miles west of Ortona Lock, one from each side of the Caloosahatchee River. This would indicate adjacent land running parallel to the course of the present river for at least 6.2 miles, perhaps existing soon after the "Glades" age. *Cerion* has not been found from Belle Glade, nor has *Bulimulus* been taken near Ortona Lock.

The Ellobiid and rocky shore fauna is missing from these "Glades" stations, but would be of great interest if ever discovered. Ellobiids from one station in the Pinecrest Beds near Kissimmee proved quite sensational.

Key or marker fossils are extremely useful for estimating the age of any deposit, for often a mixed and confusing situation exists on the spoil banks where at least three different layers may be jumbled together. Excellent key fossils for the "Glades" are:

Fusinus watermani (M. Smith)

Murex anniae M. Smith

Strombus mayacensis Tucker & Wilson

Anadara aequalitas (Tucker & Wilson)

Chicoreus dilectus (Adams)

(All found only in the "Glades")

For the Caloosahatchee Marl deposits useful markers are:

Conus adversarius tryoni Heilprin.

(sinistral)

Siphocypraea problematica (Heilprin)

Mitra heilprini Cossmann

Chicoreus floridanus E. H. Vokes

(Not found in the "Glades")

Jenneria loxahatchiensis (Maxwell Smith, 1936) and *Morum (Cancellomorum) mcgintyi* M. Smith, 1937, are thought to belong to the "Glades," but have not yet been found at the Belle Glade Rock Pit or the stations 2 miles west of Ortona Lock, so their exact stratigraphic position remains uncertain.

In conclusion the writer wishes to express gratitude to his brother, Paul L. McGinty, for our work has been a team effort and without his help might never have been done. Many others have assisted and special thanks are due to friends, property owners and construction contractors for facilitating this study.

An abbreviated list of species from the Belle Glade Rock Pit for comparison with the area two miles west of Ortona Lock follows:

SOME MOLLUSCAN SPECIES OF THE "GLADES"

Pelecypoda

* <i>Anadara aequalitas</i> (Tucker & Wilson)	Belle Glade	Ortona Lock
† <i>Barbatia tenera</i> (C. B. Adams)	Belle Glade	Ortona Lock
<i>Trachycardium emmonsii</i> (Conrad)	Belle Glade	Ortona Lock
<i>Semele perlamellosa</i> Heilprin	Belle Glade	Ortona Lock
<i>Corbula scutata</i> Gardner	Belle Glade	Ortona Lock

Gastropoda

<i>Pyrazus scalatus</i> (Heilprin)	Belle Glade	Ortona Lock
† <i>Cypraea cervus</i> Linné	Belle Glade?	Ortona Lock
† <i>Cyphoma intermedium</i> (Sowerby)	Belle Glade	
* <i>Strombus mayacensis</i> Tucker & Wilson	Belle Glade	Ortona Lock
<i>Tonna galea</i> (Linné)	Belle Glade	
<i>Morum oniscus</i> (Linné)	Belle Glade	Ortona Lock
<i>Phalium inflatum</i> (Shaw)	Belle Glade	Ortona Lock
† * <i>Murex anniae</i> M. Smith		Ortona Lock
<i>Murex bellegladeensis</i> E. Vokes	Belle Glade	
† <i>Murexiella glyptus</i> (M. Smith)	Belle Glade	Ortona Lock
† * <i>Murexiella graceae</i> (McGinty)	Belle Glade	
† <i>Tripterotyphis triangularis</i> (A. Adams)		Ortona Lock

† <i>Bailya intricata</i> (Dall)	Belle Glade	Ortona Lock
† * <i>Monostiolum thomasi</i> Olsson	Belle Glade	Ortona Lock
<i>Melongena bispinosa</i> (Philippi)	Belle Glade	Ortona Lock
<i>Fasciolaria okeechobensis</i> Tucker & Wilson	Belle Glade	Ortona Lock
† * <i>Latirus jucundus</i> McGinty	Belle Glade	Ortona Lock
† * <i>Latirus maxwelli</i> Pilsbry		Ortona Lock
* <i>Fusinus watermani</i> (M. Smith)	Belle Glade	Ortona Lock
* <i>Vasum floridanum</i> McGinty		Ortona Lock
<i>Trigonostoma rugosa</i> (Lamarck)	Belle Glade	Ortona Lock

* Species peculiar to the "Glades" fauna.

† Species which lived in rocky situations.

MOLLUSCA OF THE "GLADES" UNIT OF SOUTHERN FLORIDA: PART II
LIST OF MOLLUSCAN SPECIES FROM THE BELLE GLADE ROCK PIT,
PALM BEACH COUNTY, FLORIDA

SHIRLEY E. HOERLE

WEST PALM BEACH, FLORIDA

This report is a listing of 434 species collected over a period of five years, January, 1964 to January 1969, from a borrow pit south of the town of Belle Glade, Palm Beach County, Florida. The material is believed to be lower Pleistocene in age. Of the 165 species of Pelecypoda, 8 species of Scaphopoda and 261 species of Gastropoda only about 15% are extinct. The remaining 85% are found living today in Florida and Caribbean waters. Those species marked with an asterisk are thought to be extinct.

After each species is an abbreviated reference to a published figure of the form. Complete references are given at the end of the paper. Frequency of the species is coded as follows:

R = Rare (1-5 specimens)

U = Uncommon (5-20 specimens)

C = Common (20-100 specimens)

A = Abundant (over 100 specimens)

Class PELECYPODA

Family NUCULIDAE

Nucula proxima Say U Smith, p.25, pl.2, fig.1

Family NUCULANIDAE

Nuculana acuta (Conrad) U Smith, p.26, pl.2, fig.2

Family ARCIDAE

Arca imbricata Bruguière U W & A, p.158, pl.30, fig.e

Arca zebra Swainson C W & A, p.157, pl.30, fig.l

Barbatia tenera (C. B. Adams) C W & A, p.158, pl.30, fig.g

Barbatia tenera (C. B. Adams) var. U

Barbatia candida (Helbling) U W & A, p.158, pl.30, fig.i

Barbatia domingensis (Lamarck) R W & A, p.158, pl.30, fig.d

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