



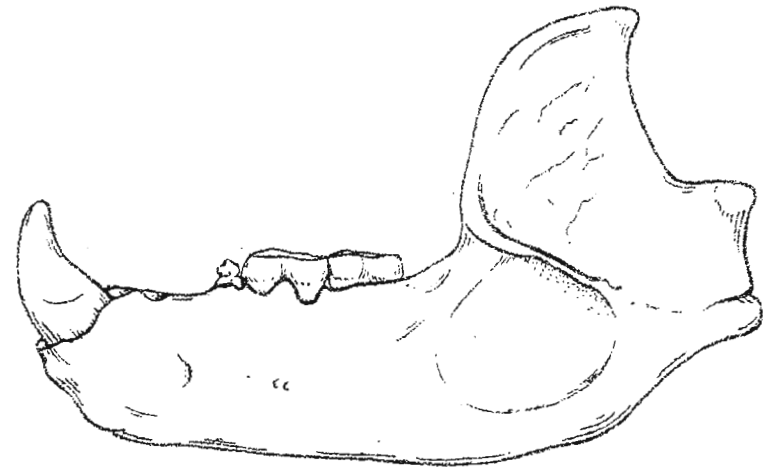
THE PLASTER JACKET

The *PLASTER JACKET* is a newsletter. Questions, announcements, and other communications are solicited from all readers. Information of general interest will be included in future issues.

It is our intent to produce this series at the rate of three to six issues per year. We hope to add as many genuinely interested paleontologists as possible to our mailing list. If you are interested please send your name and address to the *PLASTER JACKET*. The issues are distributed free of charge to all interested people.

This public document was promulgated at an annual cost of \$3000 or \$0.20 per copy to circulate authoritative material on Florida paleontology and to foster communication among enthusiasts of this subject.

THE PLASTER JACKET
Florida State Museum
University of Florida
Gainesville FL 32611



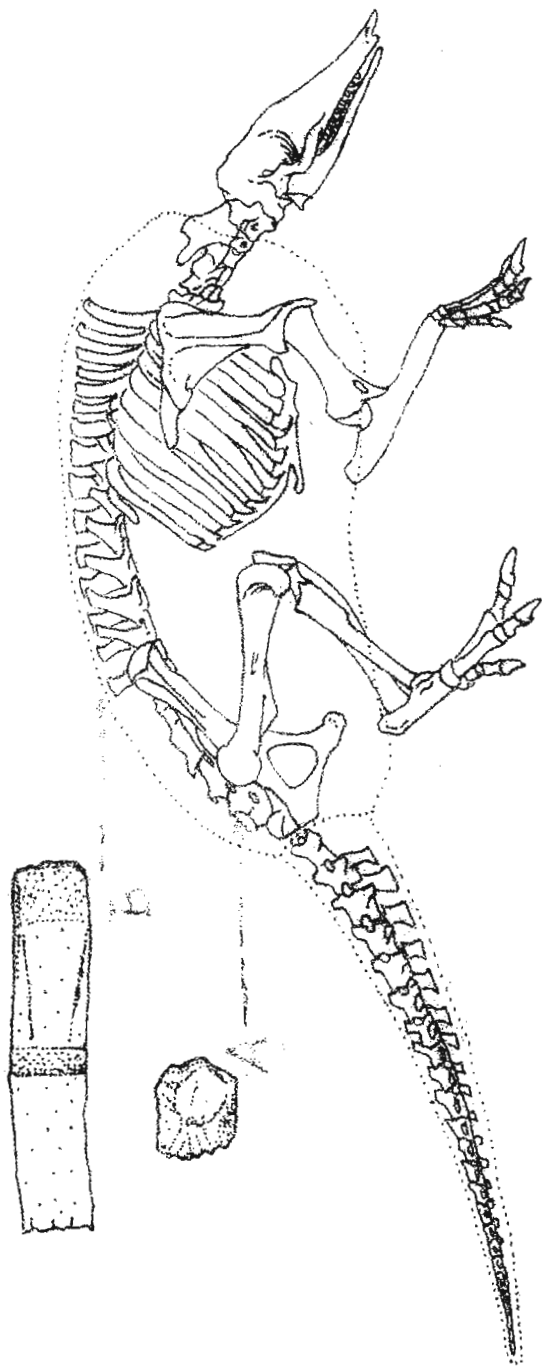


Figure 1.--- Dasyops bellus (UF 2478) skeleton from Mefford Cave, with (A) rosette plate from immovable part of shell, and (B) rectangular plate from moveable band.

THE MONKEY JUNGLE,
A LATE PLEISTOCENE FOSSIL SITE
IN SOUTHERN FLORIDA

Lewis. D. Ober*

In Florida vertebrate fossil sites are quite numerous from the latitude of southern Lake Okeechobee northward. Prior to 1968, however, very little evidence existed that vertebrate fossil material was to be expected south of Lake Okeechobee. Only a few fragments of information were available in the literature or in the form of rumors.

The first hint that vertebrate fossil sites were present in this area came to light in the early 1950's. Roland T. Bird (1953) reported the excavation of fossilized bones of Recent deer, vultures, wolf, and assorted smaller animals from a sinkhole near Homestead. He did not encounter remains of any extinct vertebrates, but neither did he dig to the bottom of the sink. Digging stopped when the excavators were "knee-deep in muck" with no evidence that they had exhausted the site.

DuBar (1958) reported on a vertebrate site "two miles upstream from Fort Denaud" (northwestern Hendry County, near LaBelle, Florida). He listed 3 species of mammals, 7 species of turtles, and alligator from this site.

Hirschfeld (1968) reported on an excavation of a site at Nichol's Hammock in the area west of Coulds, Florida. From a sinkhole in the Miami Oolite she recorded 15 species of mammals, 6 species of birds

* The author is chairman of the Department of Biology, Miami-Dade Junior College, North Campus, 11380 N.W. 27th Avenue, Miami, Florida 33167.

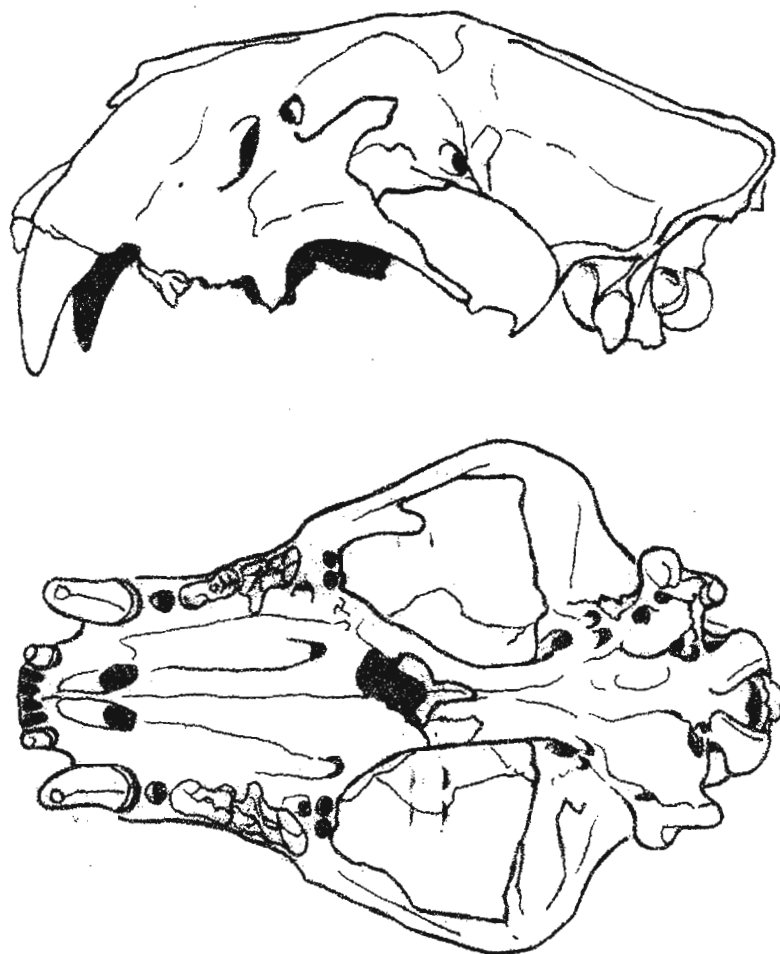


Figure 2.-- Lateral and palatal views of Felis atrox (UF 9076) skull from Ichetucknee River.

(plus material of 2 additional families), 4 species of amphibians, and 2 species of fishes. All are living species with the exception of *Canis niger* Bartram, the Red Wolf, the southeastern subspecies of which is believed to have become extinct about 1900. She reported that only the top 3 feet of the deposit in the sinkhole was excavated. Before they could excavate further, the sinkhole was destroyed by building activity.

In 1969 a large assemblage of Pleistocene material was uncovered in Palm Beach County, "2 miles west of Florida's Turnpike, off Okeechobee Road." A large amount of American Mastodon material was found there, a skeleton of which has been reconstructed and is on display at the museum in West Palm Beach. Howard H. Converse, Jr., reported on this site in *PLASTER JACKET NO. 21*.

Spurred by these reports and encouraged by members of the Florida State Museum staff, William G. Weaver and I determined to look for vertebrate fossils in the area south of Lake Okeechobee. Our incentive was supplied by Dr. Walter Auffenberg and the staff of the Florida State Museum, who pointed out that the crucial transition period from late Pleistocene to Recent might be recorded in the peaty deposits of South Florida.

Dr. F. Wayne King, who worked with Hirschfield on the Nichol's Hammock excavation, suggested (in personal conversation) that the sinkholes of Monkey Jungle and the nearby area be investigated.

Frank DuMond, General Manager of Monkey Jungle, was very sympathetic to our appeal and made his property available to us. We were successful in discovering an excellent fossil site there. Much credit is due Mr. DuMond for his cooperation, without which our task would have been almost impossible.

Monkey Jungle is located on the Miami Oolite facies of the Miami Limestone Formation. The Miami Limestone Formation (see Hoffmeister, Stockman, and Moulter 1967)

is thoroughly punctured by numerous solution holes which, after the water table drops, gradually erode into "sinkholes" of various shapes and size. Surrounded by vegetation, these sinkholes function as traps into which unwary animals stumble or are drawn by carrion-eating habits. These animals eventually die and the harder parts of their bodies contribute to the growing deposit on the floor of the sink. Seepage from the surrounding limestone induces rapid mineralization of these organic structures and insures their further preservation. See Figure 1 and *PLASTER JACKET NO. 20*.

We were most fortunate to find at Monkey Jungle a sinkhole, now the "Alligator Hole," that had already been excavated and the deposit neatly piled nearby. We were able to establish immediately that South Florida sinkholes do contain extinct Pleistocene vertebrates.

If the bottom of the sinkhole contains Pleistocene material, the zone above might be expected to show a gradual faunal transition through succeeding periods of time. If so, the sinkhole would yield valuable information about the poorly known Pleistocene to Recent transition period, if properly excavated. Test bores in several sinks showed layers of organic matter (peat) separated by layers of inorganic limestone debris. Thus various levels can be dated by (carbon-fourteen) analysis, possibly yielding absolute dates for late Pleistocene events in South Florida.

Excavating a sinkhole and maintaining an accurate stratigraphic control was our ultimate endeavor. First, we needed to become familiar with the fossil material, so we decided to work the refuse piles from the Alligator Hole. The working of these refuse piles was undertaken in earnest. The contents of the sinkhole were lifted out by a clam bucket shovel, dumped into a truck, and hauled to a back

corner of the property, where each load was dumped in a separate pile. After that, rain leached out much of the organic material and fine-grained calcareous "sand," leaving only the coarser material and a very high concentration of fossils.

With the help of interested students we worked these piles thoroughly. We shoveled loose material onto a 1/2-inch-mesh hardware cloth screen, which was supported over a fine mesh copper window screen. Using a stream of water from a garden hose, the fossiliferous matrix was washed through the coarse screen onto the finer screen. The residual material on the coarse screen was examined carefully for macro-fossil material, and the non-fossil material discarded. The material on the lower screen was again washed carefully and slowly to eliminate as much of the matrix as possible. The contents of this tray were then dumped into a bucket of water, and any extraneous material that would float was gently "floated off." The water was drained off and the residual material, about 60% matrix and 40% fossil, was dried, bagged, and returned to the laboratory. Here, with the help of students and interested faculty and staff, the material was carefully sorted into fossil and matrix components.

Finally, the material designated "fossil" was sorted by either Bill Weaver or me into various categories, such as frog pelves, snake vertebrae, toe bones, mammal teeth, etc. Many boxes of material remain no further identified than that. (Bill Weaver is working on the turtle material and I am working on the lizard material). Anyone interested in subdividing some of the assemblages is invited to contact me.

With the help of the staff of the Florida State Museum and other interested authorities among our colleagues and friends, we have managed to identify the following material (species marked with an asterisk* are extinct):

MAMMALS

MARSUPIALS:

Didelphis virginiana - Virginia Opossum

INSECTIVORA:

Blarina cf breviceauda - Short-tailed Shrew

EDENTATA:

Dasypus novemcinctus - Nine-banded Armadillo
*Dasypus bellus** - large, extinct
 Armadillo

LAGOMORPHA:

Sylvilagus sp. - Rabbit

RODENTIA:

Sciurus carolinensis - Gray Squirrel
Sigmodon hispidus - Cotton Rat
Peromyscus floridanus - Florida Mouse
Glaucomyus volans - Southern Flying
 Squirrel
Neotoma floridana - Eastern Wood Rat
Neofiber alleni - Round-tailed Muskrat
Rattus norvegicus - Norway Rat
 (introduced)

CARNIVORA:

*Felis atrox** - Giant extinct lion
Felis concolor - Panther (Cougar)
Felis rufus - Bobcat
*Canis dirus** - Dire Wolf
Canis cf familiaris - Dog
Canis latrans - Coyote
Vulpes fulva - Red Fox
Urocyon cinereoargenteus - Gray Fox

*Tremarctos floridanus** - Florida Spectacled Bear
Procyon lotor - Raccoon
Spilogale putorius - Spotted Skunk

PERISSODACTYLA:

*Equus cf fraternus** - Extinct Pleistocene
 horse

ARTIODACTYLA:

Sus sp. - Pig (European)
Mylohyus sp. - Fossil Peccary
*Platygonus compressus** - Fossil Peccary
*Hemiauchnia macrocephala** - Extinct Long-limbed
 Llama
*Palaeolama mirifica** - Extinct Short-limbed
 Llama
Odocoileus virginianus - White-tailed Deer

FISH

Amia calva - Mudfish
Caranx sp. - Jack
 Unidentified - Catfish
 Unidentified - "Percomorph"

BIRDS

cf *Anas* - Duck
Meleagris gallopavo - Turkey

TURTLES

Kinosternon - Mud Turtle
Terrapene carolina - Eastern Box Turtle
Gopherus polyphemus - Gopher Tortoise
*Geochelone crassiscutatta** - Giant Extinct Tortoise

TURTLES (CONTINUED)

<i>Deirochelys reticularia</i>	-	Chicken Turtle
<i>Chrysemys scripta</i>		Extinct Pond Turtle
<i>petrolii</i> *	-	Extinct Pond Turtle
<i>Chrysemys</i> sp.	-	Pond Turtle

LIZARDS

<i>Anolis carolinensis</i>	-	Carolina Anole
<i>Eumeces cf. inexpectatus</i>	-	Eastern-Southern Blue-tailed Skink

SNAKES

<i>Agkistrodon piscivorus</i>	-	Water Moccasin
<i>Crotalus adamanteus</i>	-	Diamondback Rattlesnake
<i>Drymarchon corais</i>	-	Indigo Snake

Comments on some of this material seem in order.

The *Dasypus bellus* material consists of considerable "armour" and foot and leg bones. *D. bellus* is about twice as large as the Recent armadillo, *D. novemcinctus*. Some of the material recovered is large, even for typical *D. bellus*, and implies that the South Florida form may have attained unusually large size.

Prior to the discovery of *Felis atrox* material at this site, only one item, a well preserved skull now in the Florida State Museum, had been described from Florida. From the Alligator Hole we collected a number of teeth (which are positively identified) and a large number of foot bones (which we believe belong to this large cat). They are much too large for *Felis concolor* and are certainly not *Smilodon*, the saber-tooth cat. In addition to *Felis atrox*, material attributed to *Felis concolor*, the panther, and *Felis (Lynx) rufus*, the bobcat, was recovered.

Another large carnivore found here during the late Pleistocene was *Canis dirus*, the dire wolf, which is much larger than the Recent North American wolves. Again, diagnostic teeth and many toe and foot bones appear to make up the bulk of the recovered material that can be assigned to this large wolf.

The preponderance of teeth and foot bones and the absence or paucity of other skeletal elements has led us to wonder if this site represents a disposal site of primitive hunters. The broken skull and meatless pedal extremities would be the parts of an animal quickly disposed of by a hunting group. On the other hand, the large mass of broken and unidentifiable bone fragments that we have accumulated could represent the fragmented bones of the legs and trunk of the animal. Conspicuous by their absence are vertebrae. However, any such conclusions would be premature at this time.

In addition to *Canis dirus*, materials thought to represent *Canis latrans*, the coyote, and one or both of the foxes, *Vulpes* and *Urocyon*, were recovered.

A fair amount of material has been collected that can be identified as *Tremarctos floridanus*, the Florida Spectacled Bear. Over a dozen teeth are on hand, including characteristic molars and very large canines. Again there is considerable foot material, as well as a proximal fragment of the ulna and proximal fragments of two radii. This species has been thoroughly studied by Kurtén (1966).

In addition to the larger carnivores, two smaller species have been collected. Teeth of both *Procyon lotor*, the Raccoon, and *Spilogale putorius*, the Spotted Skunk, have been identified, as well as a mandible and humerus of *Procyon*.

Herbivores are very common at this site. *Palaeolama cf. mirifica*, an extinct long-limbed llama, is represented by teeth and foot bones. *Hemiauchenia*



Figure 3.-- Left mandible of *Tremarctos floridanus*.

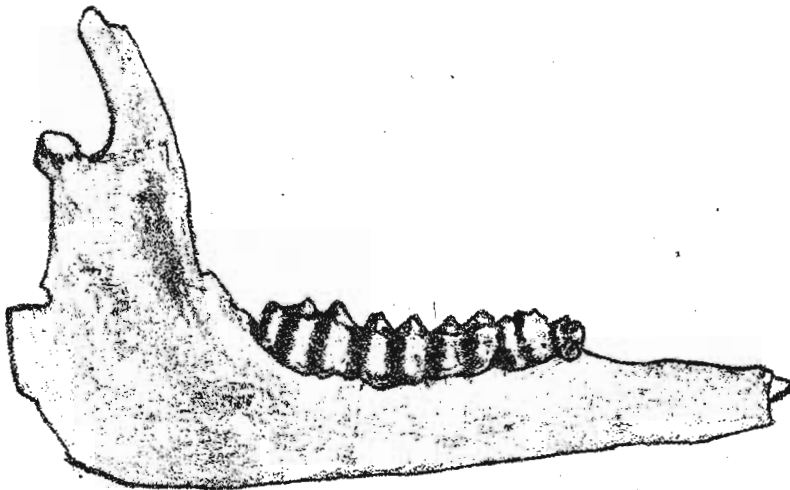


Figure 4.-- *Hemiauchenia mirifica* mandible (after Webb, 1974).

macrocephala, a large but short-limbed llama, is represented by two teeth. These fossil llamas have been reviewed by Webb (1974).

Material of the horse *Equus cf. fraternus* is rather plentiful, being represented by several teeth, astragali, metapodials, and a calcaneum.

The most abundant species is the deer *Odocoileus virginianus*. We have recovered much antler material, some with skull fragments attached, loose teeth, and bone fragments with teeth in place, all the bones of the pes, and some long bones. In addition, some material presently labeled "rib bones" probably represents this species. The great abundance of deer material undoubtedly reflects the longer and more recent association of this species with the site area.

Two extinct peccaries, *Platygonus cf. compressus* and *Mylohyus* sp., are represented by tusk, teeth, and toe bones.

A large amount of rodent material has been recovered, much of which is still unworked. The most interesting of the material so far identified has been *Neotoma floridana*. The present range of this species includes the northern portion of the Florida peninsula down to Punta Corda on the west coast and Vero Beach on the east. It reappears on Upper Key Largo, but not in the intervening southern third of the peninsula. The establishment of this species on the southern part of the peninsula strengthens the theory that its range was at one time continuous down the peninsula to the Upper Keys.

A word of caution must be injected. Some Recent material is unquestionably mixed in with fossil material. For example, *Rattus norvegicus*, *Canis familiaris*, and *Sus* are Old World animals introduced in the area by European man. In the process of removal and transport, this Recent material has become associated with the fossil material. We have recovered a monkey skull and, from a nearby sink, a chim-

panzee skeleton. A few pieces of material, questionably human, have been found. Nothing has been recovered that would imply fossil man is represented. Much work remains to be done at this and nearby sites.

REFERENCES

- BIRD, ROLAND T. 1953. Death trap in a jungle paradise. *Everglades Nat. Hist.* 1(4):157-165.
- DUBAR, JULES R. 1958. Stratigraphy and paleontology of the late Neogene strata of the Caloosahatchee River area of southern Florida. *Florida Geol. Surv. Bull.* 40.
- HIRSCHFELD, SUE E. 1968 (1969). Vertebrate fauna of Nichol's Hammock, a natural trap. *Quart. J. Florida Acad. Sci.* 31(3):177-189.
- HOFFMEISTER, J. E., K. W. STOCKMAN, and H. G. MOULTER. 1967. Miami Limestone of Florida and its Recent Bahamian counterpart. *Geol. Soc. Amer. Bull.* 78:175-190.
- KURTEN, BJORN. 1965. The Pleistocene Felidae of Florida. *Bull. Florida State Mus., Biol. Sci.* 9(6):215-274.
- WEBB, S. DAVID. 1974. *Pleistocene Mammals of Florida*. State Univ. Presses of Florida, Univ. of Florida, Gainesville.

NEWS

One of the purposes of the *Plaster Jacket* is to aid people in fossil identifications. A second purpose is to help paleontologists preserve unusual and interesting specimens with the relevant data. A third purpose is to encourage paleontologists to deposit specimens of scientific significance in a permanent collection. It is difficult to measure how well the first two purposes are being fulfilled, but the success of the third purpose may be partly measured by the new fossil accessions that come to the Florida State Museum from readers of the *Plaster Jacket*.

The Accession File in the Vertebrate Paleontology Collection (for Florida donations) shows the following growth:

1975 -	8 accessions
1976 -	13 accessions
1977 -	21 accessions

The size of an accession varies greatly. One of the largest Accession Number 190. It consists of 13 large boxes of fossils donated by Mrs. Margaret Thomas (well known to most Florida paleontologists) when she retired from Venice, Florida, to North Carolina in 1976. Others are single items. A good example is Accession Number 196, a jaw of a probable new species of *Smilodon* from the Bone Valley, donated by William F. MacDonald of Tampa.

In the next issue we will continue this column by citing the individuals who thus helped build the State Museum in 1977.