

SMITHSONIAN MISCELLANEOUS COLLECTIONS

VOLUME 82, NUMBER 8

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OF SOUTHERN FLORIDA

(WITH FIVE PLATES)

BY

E. W. NELSON



(PUBLICATION 3066)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
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FOUR NEW RACCOONS FROM THE KEYS OF SOUTHERN FLORIDA

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Between the last of February and late in March, 1930, the author visited the keys lying about the southern end of Florida and collected on them a series of 61 specimens of raccoons. The keys, or islands, visited proved to be segregated into four rather well-defined groups and the specimens collected show very definitely that each group is occupied by a subspecies of *Procyon lotor* peculiar to it, and all differing from *Procyon lotor elucus* of the neighboring mainland.

The main islands of each group are named below but, in addition, each group includes many smaller islets practically all of which are covered with mangroves.

1st. Ten Thousand Islands Group forms a broad compact belt of mangrove keys lying for about 100 miles along the southwestern coast of the peninsula, from a little south of Naples down to Shark River. The width of this belt varies from one to several miles, its exact width and some other details not being as accurate as desirable in published maps I have seen.

2d. Key Largo Group, as here considered, lies along the southeastern border of the peninsula and includes Virginia and Biscayne Keys just north of the entrance to Biscayne Bay, and Elliott Key, Key Largo, Plantation Key with Upper and Lower Matecumbe Keys to the south of the entrance.

3d. Key Vaca Group lies southwesterly from the preceding group and begins with Long Key on the north and extends south to include Duck, Grassy, and Fat Deer Keys, Key Vaca, and Knights Key.

4th. Big Pine Key Group still farther to the southwest includes No Name, Big and Little Pine Keys, Torch Keys, Ramrod, Cudjoe, Summerland, Saddlebunch, and Boca Chica Keys, and Key West.

The isolation of raccoons of the *Procyon lotor* type in islands on the Atlantic coast side of the continent from Cozumel Island, off the peninsula of Yucatan, to the Bahamas and the coast of southern Florida, has tended toward the production of depauperate forms as all of them are smaller than the animals of the adjacent mainland. On the Pacific side of the continent the raccoons of the Tres Marias

Islands are about the same size as the animals of the neighboring Mexican mainland. These islands are high and wooded and fresh water occurs on them.

Conditions are such, on practically all of the keys off the coast of southern Florida, that the raccoons living on them have no access to fresh water beyond the fortuitous opportunities that may occur during a heavy rain. To this circumstance, many of the local trappers believe, is due the smaller size of the animals of the islands, for they say the larger, better furred animal of the mainland occurs where permanent fresh water exists back from the shore. Along the southwestern shore of the peninsula these large fresh water "coons" are said usually to keep about the fresh water but to come down to the mangrove swamps along shore at certain seasons. The trappers agreed, however, that they never cross to the adjacent keys, even in the Ten Thousand Islands, some of which have only narrow, shallow channels cutting them off from shore.

In addition to their tendency to reduction in size the Key raccoons have a distinct tendency toward duller and paler colors than the animals of the mainland. The paleness is especially marked in the forms from the Key Vaca and Big Pine Key Groups.

The abundance of crabs, shellfish and other food provided by the sea for the raccoons, would appear to remove the possible factor of food shortage from the list of possible causes for the smaller size among these animals. At the same time the absence of natural enemies evidently gives favorable conditions for their increase and the accounts given me of the amazing number of them trapped on the keys, when the high prices of furs gave the incentive, make it apparent that they must have been excessively numerous for an animal of their size. Under natural conditions in the past, therefore, competition for food may have been very strenuous for long periods.

On the Ten Thousand Islands some of the trappers told me that when the high prices for fur began single trappers sometimes took the skins of more than 800 raccoons on the keys in a season but that, owing to this severe trapping, it is difficult now for a man to get even one-third of that number. Similar accounts of the former abundance of raccoons on other keys off the coast were given me by trappers elsewhere. Some of the trappers put out more than 100 traps and settings of from 40 to 60 are common. The total catch of raccoons for southern Florida and the keys must be very large.

The measurements and weights in the flesh of the series collected by me gave direct evidence that the female raccoons of that region, in the flesh, weigh more than 20 per cent less than the males, and

the more smoothly rounded, smaller skulls of the females give the same evidence. Measurements, weights, and skulls of the series collected by Dr. E. A. Mearns in Polk County, the type region of *P. l. elucus*, show similar size differences between the sexes of that form.

The study of my series of specimens and comparisons with a large number of specimens of *Procyon lotor elucus* from the Florida mainland and of representatives of *P. maynardi* and *P. minor* from the Bahamas makes it appear that a natural laboratory of evolution is obviously at work on the Florida Keys with the generally distributed and abundant raccoons as, at least, one of the principal subjects.

It is a pleasure to acknowledge my indebtedness to Dr. Thomas Barbour and to Mr. H. E. Anthony for the use of material under their charge in the Museum of Comparative Zoology and the American Museum of Natural History, respectively.

THE RACCOON OF THE TEN THOUSAND ISLANDS

More than two years ago a friend told me that a raccoon smaller than that of the mainland was reported to exist on the chain of keys bordering the southwest coast of Florida, known as the "Ten Thousand Islands." This suggestive information was kept in mind and the last of February, 1930, I arrived at Fort Myers, on my way to investigate the rumor. Being delayed there for a day I located a fur buyer and in reply to my inquiries he promptly confirmed the truth of the statement which had caused my quest. He said that a very small, rather pale colored, raccoon is well known to the trappers and fur buyers of this region, where it occupies the islands, or "keys" along the coast. He added that owing to its small size and the inferior quality of its fur "key coon" skins bring only about one-half to two-thirds the price paid for the larger, better furred skins from the mainland. The trader then produced about 30 "key coon" skins from Marco Island, which he had recently purchased, and I was delighted to note their distinctive peculiarities.

The next morning I proceeded by rail to Marco Island, one of the larger of the Ten Thousand Islands, near the northern end of the group. It is several miles in both length and breadth and is bordered by a belt of mangrove swamp where the raccoons live. The interior is sandy, several feet above high tide mark, and covered with a thin forest of scrubby, slender pines with scattered undergrowth.

Soon after my arrival I found resident trappers who agreed that "key coons" were common on the island, but that those found on the keys near Chokoloskee Bay farther south were the smallest of all.

Desiring to secure the most marked expression of this scientifically unknown form, I left Marco Island at once and proceeded by auto-stage to the town of Everglades, located about the middle of the east side of Chokoloskee Bay.

The next morning I went to the fishing village of Chokoloskee, near the southern end of the bay, where a trapper with a small motor boat was employed and at the expiration of about ten days we had a series of 16 specimens, all taken on the small mangrove keys lying between Chokoloskee Bay and the open waters of the Gulf of Mexico. The delay in getting these animals was due to the fact that I had arrived at the end of the trapping season and the number left was comparatively small.

Previously I had always thought of raccoons as animals dependent on available fresh water and it surprised me to find them living in great numbers among the mangrove islands, both in the Ten Thousand Islands and on other Florida keys, without any possible source of such water. Their food consisted of an abundant supply of fish, crustaceans, and shellfish left exposed on the mud at each low tide.

The haunts of the raccoons among the mangrove roots of the Ten Thousand Islands were shared by great numbers of roof rats (*Rattus rattus alexandrinus*). These were so numerous that they interfered with our success in trapping the raccoons, dozens of them being caught. Another interference was the frequency with which fish and crabs ate the bait above the traps while they were submerged during high tide. As a result of these marine visitants the traps sometimes capture curious prey. Several kinds of fish and crabs, in wallowing about when tugging at the bait, now and then spring the trap and are caught. My trapper said that on one occasion he caught a small shark about 18 inches long. His method of trapping, which he informed me was the regular practice among these keys, was to make a little U-shaped enclosure by sticking pieces of dead mangrove roots into the mud in a small opening among the mangrove roots at the head of small bay-like indentations of the shore line, where the animals patrolling the bare mud at low tide would find it on their way from point to point. A piece of fish for bait was impaled on a small stick, the other end being stuck in the mud at the inner part of the enclosure. The steel trap was then set on the bare mud at the entrance of the enclosure guarding the bait, without the slightest effort to conceal it—a stick thrust through the ring at the end of the chain and deep in the mud serving to hold any animal caught (see pl. 1, fig. 2).

At high tide this trap would be more than two feet under water. Trapping among these keys is practically all done by using small boats with outboard motors, or small gasoline engines.

The common name for this group well indicates the great number of little keys of which it is formed. They are closely grouped and of most irregular outlines, being separated from one another, and from the mainland, by a network of tortuous, shallow tide channels varying in width from a few yards to several hundred yards. Enclosed within this mass lie Chokoloskee and other narrow land locked bays. Chokoloskee Bay is the largest, having a length of about eight miles and a width of from a half mile to a mile and a half. Nearly all the keys of the group, like those where we trapped the raccoons, are overgrown with tangled masses of the aerial roots of the red mangrove above which rises the low wall of their dense, green tops.

These keys, in general, are covered with from one to about three feet of salt water at the daily high tide and are devoid of fresh water. The Ten Thousand Islands form, in fact, a great mangrove swamp based mainly on the flat tops of old oyster beds. The red mangrove thickets rise about 25 feet and are interspersed with larger black mangroves and a few other salt loving small trees or bushes. In the Shark River section, to the south, the mangroves are the largest I have ever seen, forming closely set forests of trees 40 to more than 60 feet high. The mainland adjacent to these keys is bordered by a fringe of mangrove swamps limited by the end of salt water. The accompanying photograph gives an idea of the typical water front of the mangrove islets near Chokoloskee (see pl. 1, fig. 1).

I have included the mangrove keys of the Shark River area within the range of the small Chokoloskee raccoon wholly on statements of several trappers that the raccoons there are the same as those about Chokoloskee Bay. No specimens have been seen from there but several from the mainland a few miles away at Cape Sable and Flamingo are unmistakably *P. l. elucus*.

RACCOONS AND THE FLORIDA KEYS

After observing the effect of environment on the raccoons of the "Ten Thousand Islands" it appeared probable that similar influences may have produced modifications of the animals living on the great series of islands or "keys" extending from Biscayne Bay to Key West, commonly known as the Florida Keys. To determine the facts concerning this I crossed the Everglades, over the motor highway, from the town of Everglades to Miami. There, through the friendly assistance of Mr. E. J. Brown, some trappers were promptly located who were well acquainted with all the keys. The information they gave confirmed my belief that the raccoons there would differ from those of the mainland. Two trappers were employed as field assistants

and by the use of motor boats and an automobile we made a rapid reconnaissance of the entire chain of keys to Key West. Raccoons occur abundantly on all the keys and we obtained a sufficient series to indicate their characteristics. As at the Ten Thousand Islands this work was done soon after the close of the regular trapping season, during which thousands of raccoons had been caught, so that much more time was required to capture the animals needed than would have been necessary earlier in the year.

These keys are connected by the Over-Seas Railway from Miami uniting them by fills where the channels are narrow and shallow and by cement viaducts and bridges where they are more broadly and deeply separated. In recent years the Over-Seas motor highway has been constructed parallel to the railway from Miami, striking the middle of Key Largo and extending thence down the keys to the southern point of Lower Matecumbe, whence a ferry carries passengers and motor cars across about 40 miles of water to the northern end of No Name Key. There the motor road begins again and continues southward crossing various keys to Key West. In addition to the railway fills which unite some of the keys in this chain, other fills made for the highway broaden the land bridge made by the railway embankments uniting a number of keys, thus destroying their individuality.

About midway in the 40-mile gap between the northern and southern groups of keys lies a smaller group, the main one of which is Key Vaca. A practically disused motor highway, extending north and south about 12 miles, joins the main keys of this group except Long Key which lies isolated by sea channels nearly midway between Key Vaca and Lower Matecumbe. As shown below, the raccoons living on each of these natural groups of keys, the northern, the middle, and the southern, has its local subspecies.

The Florida Keys differ very much in formation and vegetation from the Ten Thousand Islands. Most of these keys, except the more recent small ones, are of limestone with nearly level surfaces, elevated well above tide water, with borders of varying width of mangrove swamp which are covered at high tide. Back of the tidal area on the Key Largo and Key Vaca Groups is a strong growth of deciduous tropical shrubs and trees often forming a dense and almost impenetrable jungle, from 15 to 30 feet high, where it has not been destroyed by man. The northern half of Key Largo has the heaviest forest growth I saw on the keys, rising to 50 or 75 feet high, or perhaps more, in places. The trees appear to be the same species as those elsewhere but grow on a better soil.

The western, or Gulf, shores of all the large keys are bordered by a practically continuous fringe of mangrove swamp but on the Atlantic side occur sandy beaches often bordered by irregular series of coconut palms, while scattered fan palms, often with trunks ten to more than 25 feet long, are generally distributed in the interior.

A large part of Big Pine Key is covered with a thin growth of slender dwarfed pines and palmettos with scattered areas of deciduous trees and bushes. The neighboring Little Pine, No Name, Torch, and Ramrod Keys have smaller areas of pine forest. The interior of the other keys to Key West have the deciduous species common to the entire chain of keys, with the usual marginal mangrove swamps and occasional sand beaches.

The trappers informed me that the raccoons of the Florida Keys go back inland from the mangrove swamps, where they generally live, to feed on any ripening fruit that occurs. At the time of my visit to Key Largo, a shrub about three feet high was laden with clusters of dark fruit appearing, in color and shape, like huckleberries. Raccoons were feeding extensively on it.

PROCYON LOTOR MARINUS subsp. nov.

Chokoloskee Raccoon

Type.—From near Chokoloskee, Florida. No. 254989, ♂ adult, U. S. National Museum, collected by E. W. Nelson, February 28, 1930.

General characters.—A very small subspecies, the largest old male in the series taken weighing 8 pounds. Duller grayish than *P. l. elucus*, of adjacent mainland, with skull much smaller, more depressed on frontal area and molariform teeth proportionately much heavier.

Color.—Not very different from typical *elucus* but averaging duller, more grayish on upperparts owing to smaller amount of black tips to overlying hairs; rusty buffy nape patch averaging less strongly marked, often obsolescent; light rings on tail paler, less buffy yellowish; black mask more restricted with remainder of top and sides of head paler. No indication of the generally rusty or dark buffy suffusion covering entire upperparts frequently present, and sometimes strongly marked, in specimens of *elucus* from the type region.

Skull.—Much smaller and more delicately proportioned than in *elucus*; frontal area much more depressed, braincase more rounded; last upper premolar and carnassial relatively, and sometimes actually, larger; palatal shelf about the same.

Measurements.—*Type*: Total length, 665 mm.; tail vertebrae, 222; hind foot, 105. *Skull* (type): Greatest length, 105.9; condylo-basal length, 101.8; zygomatic breadth, 64.8; interorbital breadth, 22.3; least width of palatal shelf (between last molar and interpterygoid fossa), 13.9; upper canine-molariform tooth row (alveolar length), 40; weight of type in flesh, 7 pounds. See page 12 for tables of measurements and weights.

Remarks.—This is one of the smaller subspecies of raccoons that have developed on the keys about the southern end of the peninsula of Florida, not differing much in size from the form on the Key Vaca Group. It appears to be limited to the great mass of mangrove covered or bordered islands, or keys, known as the "Ten Thousand Islands" where they exist in great numbers. Most of these islets are completely covered by the sea to a depth of from about one to three feet at each high tide, and are totally devoid of fresh water. As most of these keys have no large trees to afford hollows and no dry land the raccoons must make their homes on top of the mangrove roots where they are forced to retreat by the incoming tide.

Specimens examined.—17; from type locality, 16; from Ten Thousand Islands (exact locality unknown), 1.

PROCYON LOTOR INESPERATUS subsp. nov.

Matecumbe Raccoon

Type.—From Upper Matecumbe Key, Florida. No. 255037, ♂ adult, U. S. National Museum, collected by E. W. Nelson, March 19, 1930.

General characters.—In weight and color resembling typical *P. l. elucus* of adjacent mainland but both body and skull measurements smaller, especially length of hind foot; frontal area of skull much more depressed.

Color.—Much as in typical *elucus*, strongly washed with black on upperparts and well marked nuchal patch of dark rusty or buffy, dark rings on tail well marked and light rings often strongly buffy.

Skull.—Differs from that of *elucus* in smaller size and marked depression of frontal area. From *P. l. marinus* skull may be distinguished by its much larger size, more massive proportions and smaller molariform teeth.

Measurements.—*Type*: Total length, 730 mm.; tail vertebrae, 250; hind foot, 115. *Skull* (type): Greatest length, 110.4; condylo-basal length, 108.1; zygomatic breadth, 68.2; interorbital breadth, 23.1; least width palatal shelf, 15.2; upper canine-molariform tooth row, 41. Weight of type in the flesh, 8.5 pounds. See page 12 for tables of measurements.

Remarks.—The present subspecies occupies the group of keys beginning with Virginia and Biscayne Keys on the north side of the entrance to Biscayne Bay and ranges south to the southern point of Lower Matecumbe Key. Key Largo, the median island, is by far the largest of this group and broad mangrove swamps bordering its western side extend out, about the middle of its length, until only a comparatively narrow channel separates them from the similar swamps which extend eastward from the mainland, at the south end of Biscayne Bay. The railroad and motor highway fills, and viaducts extend across these swamps, from Miami to the middle of Key Largo on their way down the keys to Key West.

The comparatively short distance separating the raccoons living on these keys from those of the adjacent mainland, with the size and color of the island animals, made me doubt any strong differentiation when I was collecting them. Fortunately I was able to secure two good males and a female on the adjacent shore of the mainland to determine the question. The skulls of these specimens are typical *P. l. elucus*, with characteristic high arched frontal areas from which all the skulls of the series from the various keys of this group may at once be distinguished by their appreciable smaller size and more flattened frontals.

The largest male taken on Key Largo weighed 12 pounds in the flesh, the same as old males collected and weighed by Dr. E. A. Mearns in Polk County, the home of typical *elucus*, but the skull of the present form is smaller and flatter. It may be added also that specimens taken on Upper Matecumbe and especially those from Lower Matecumbe Key, the farthest point in the group from the mainland, show gradation toward a smaller animal than those of Virginia Key and Key Largo.

Specimens examined.—15, all from the Key Largo Group, as follows: Virginia Key, 2; Key Largo, 3; Plantation Key, 2; Upper Matecumbe Key, 1; Lower Matecumbe Key, 7.

PROCYON LOTOR AUSPICATUS subsp. nov.

Key Vaca Raccoon

Type.—From Marathon, Key Vaca, Florida. No. 255080, ♂ adult, U. S. National Museum, collected by E. W. Nelson, March 28, 1930.

General characters.—Very small, about the same size as *marinus* from which it may be distinguished by its grayer upperparts, more brownish yellow pale rings on tail, more depressed frontal area on skull and shorter palatal shelf. Its small size distinguishes it at once from the other forms described here from the Florida Keys.

Color.—General coloration rather paler grayish than in *marinus* with tendency to a smaller black mask and more whitish head, rusty nape patch brighter, light rings on tail broader, more brownish buffy, black rings relatively narrower.

Skull.—Similar in its delicate proportions to that of *marinus* but more flattened over frontal area, braincase more rounded, and palatal shelf shorter.

Measurements.—*Type*: Total length, 644 mm.; tail vertebrae, 214; hind foot, 99. *Skull (type)*: Greatest length, 99.8; condylobasal length, 95.5; zygomatic breadth, 65.5; interorbital breadth, 19.4; least width palatal shelf, 13.9; upper canine-molariform tooth row, 37.4; weight of type in the flesh, 5.5 pounds. See page 12 for tables of measurements and weights.

Remarks.—The small raccoon from the Key Vaca group in connection with other raccoons of Florida requires comparison only with *P. l. marinus*. It is abundant in the mangrove swamps of Key Vaca and the immediately adjacent keys. The range occupied by the Key Vaca raccoon is the smallest and most compact of that of any of the forms I found among the keys.

Specimens examined.—13, all from type locality.

PROCYON LOTOR INCAUTUS subsp. nov.

Torch Key Raccoon

Type.—From Torch Key, Big Pine Key Group, Florida. No. 255060, ♂ adult, U. S. National Museum, collected by E. W. Nelson, March 24, 1930.

General characters.—Slightly smaller than *inesperatus*, upperparts palest, most dingy gray of any of the forms described here; skull comparatively narrow interorbitally with elevated frontal area more like *elucus* than in the other key forms described here.

Color.—The palest gray of the key raccoons, black mask more restricted, sometimes obsolescent, and elsewhere top and sides of head whiter; pale rings on tail broader, dark ones narrower and usually dusky brown; rusty rufous nape patch usually present and sometimes strongly marked. As the season advances the colors commonly bleach until many are wholly dirty yellowish or dingy whitish.

Skull.—Differs from other key forms described here by greater interorbital compression and distinctly more highly arched frontal area, resembling that of *elucus* but less strongly arched; zygomatic breadth widest of the key forms; molariform teeth smaller proportionately.

Measurements.—*Type*: Total length, 694 mm.; tail vertebrae, 263; hind foot, 118. *Skull* (type): Greatest length, 110; condylobasal length, 105.3; zygomatic breadth, 67.3; interorbital breadth, 19.8; least width palatal shelf, 15.1; upper canine-molariform tooth row, 38.8; weight of type, 8.5 pounds. See page 12 for tables of measurements and weights.

Remarks.—The home of this form of raccoon is on the group of Florida keys farthest from the mainland. As in the case of the other forms described here they live mainly, and sometimes entirely, in mangrove swamps without access to fresh water except during rains. The brilliant light of their environment has affected their general color more than in the others, as shown by their pale, faded tints.

Specimens examined.—20, all from the keys of the Big Pine Group, as follows: No Name Key, 5; Big Pine Key, 6; Torch Key, 2 (type locality); Ramrod Key, 1; Boca Chica Key, 2; Stock Island 2; Key West, 1.

ADULT ♂ RACCOONS FROM THE PENINSULA AND KEYS OF SOUTHERN FLORIDA

COMPARATIVE TABLE OF AVERAGE MEASUREMENTS AND WEIGHTS IN THE FLESH

Names of subspecies and localities	No. of specimens	Total length— extremes	Length of tail vertebrae— extremes	Length of hind foot—extremes	Weight in pounds— extremes
<i>Procyon lotor eluctus</i> , Polk County (typical).....	4	812 (790-850)	261 (210-286)	127 (125-129)	11 (10-12)
<i>Procyon lotor marinus</i> , Chokoloskee (type locality).....	7	651 (625-605)	206 (186-222)	101 (95-105)	6.68 (6-8)
<i>Procyon lotor hesperatus</i> , Key Largo Group of Keys (including type locality).....	4	730 (730-795)	236 (220-232)	117 (113-124)	9.68 (7.75-12)
<i>Procyon lotor aspicratus</i> , Marathon, Key Vaca (type locality).....	4	603 (644-700)	235 (214-275)	101 (97-107)	5.6 (5-6)
<i>Procyon lotor incantus</i> , Big Pine Key Group of Keys (including type locality).....	7	713 (656-752)	254 (216-278)	113 (108-118)	8.1 (7-8.5)

ADULT ♂ RACCOONS FROM THE PENINSULA AND KEYS OF SOUTHERN FLORIDA

COMPARATIVE TABLE OF AVERAGE SKULL MEASUREMENTS

Names of subspecies and localities	No. of specimens	Greatest length— extremes	Condylobasal length—extremes	Zygomatic breadth— extremes	Interorbital breadth— extremes	Least width palatal shelf— extremes	Upper canine- molariform tooth row—extremes
<i>Procyon lotor eluctus</i> , Polk County (typical).....	4	120.3 (117.9-122.8)	115.7 (113.3-117.5)	74.5 (72-76.8)	23.9 (23.2-25)	16.2 (15-17.3)	43.7 (42.8-44.7)
<i>Procyon lotor marinus</i> , Chokoloskee (type lo- cality).....	8	102.8 (97.6-105.9)	98.9 (93-101.8)	64.3 (59.1-69.6)	21.1 (19.6-23.9)	14.3 (13.9-15.1)	39.7 (38-40.3)
<i>Procyon lotor hespera- tus</i> , Key Largo Group of Keys, (including type locality).....	4	108.5 (105.2-110.4)	105.1 (100-108.1)	67.5 (63-72.9)	23 (21.5-24.8)	15.5 (15.2-16.1)	41 (39-42.4)
<i>Procyon lotor aspicratus</i> , Marathon, Key Vaca (type locality).....	6	101.7 (99.4-106)	96.8 (93.8-101.1)	63.7 (60-66.1)	20 (18.8-20.4)	14 (13.4-15)	37.9 (37.1-39)
<i>Procyon lotor incantus</i> , Big Pine Group of Keys (including type locality).....	8	109.7 (104.6-114)	103 (97.8-106.1)	69.1 (62.4-78)	21.5 (19.6-23.6)	14.9 (13.9-16.1)	39.3 (38.1-40.2)



1.

FIG. 1.—Mangrove cover of aerial roots on islet west of Chokoloskee Bay, Southwestern Florida, at half tide. At low tide the mud is bared and at high tide about half of the roots exposed here are covered. This is the typical haunt of *Procyon lotor marinus*.

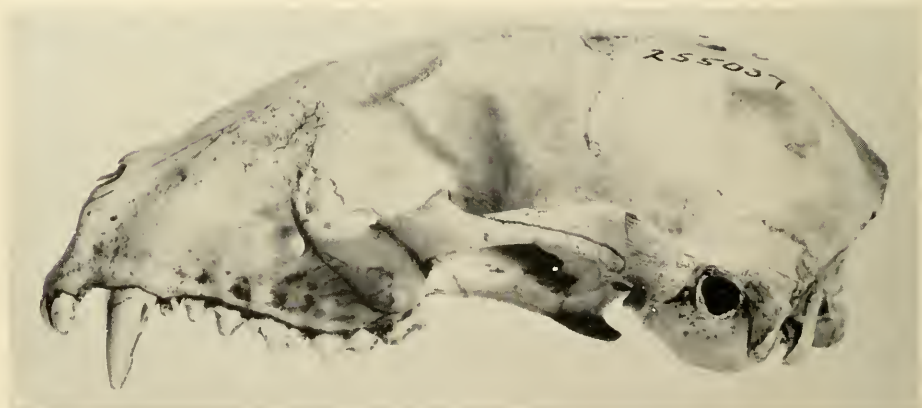


2.

FIG. 2.—The U-shaped pen made of mangrove roots stuck in mud with trap in position as set at opening for raccoons; the white piece of fish on stick at back is the bait. A setting on islet west of Chokoloskee Bay in March, 1930.



1.



2.

FIG. 1.—*Procyon lotor clucus*, ♂, typical skull, Polk County, Florida.

FIG. 2.—*Procyon lotor inexpectatus*, ♂, type skull, Upper Matecumbe Key, Florida.

Skulls natural size.



1.



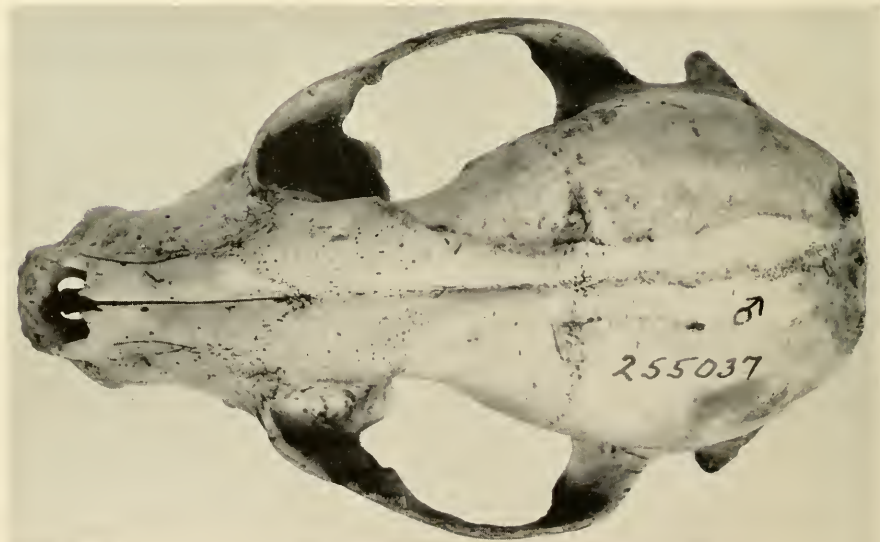
2.

FIG. 1.—*Procyon lotor auspicatus*, ♂, type skull, Marathon, Key Vaca, Florida.
FIG. 2.—*Procyon lotor incantus*, ♂, type skull, Torch Key, Florida.

Skulls natural size. The subspecies reproduced in plates 2 and 3 follow in the geographic sequence of their occurrence from *P. l. clucus* of the mainland down the three groups of the Florida Keys.

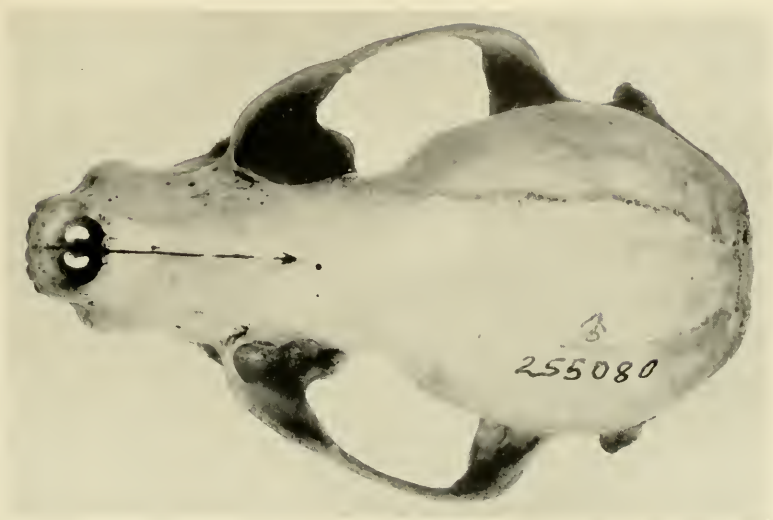


1.

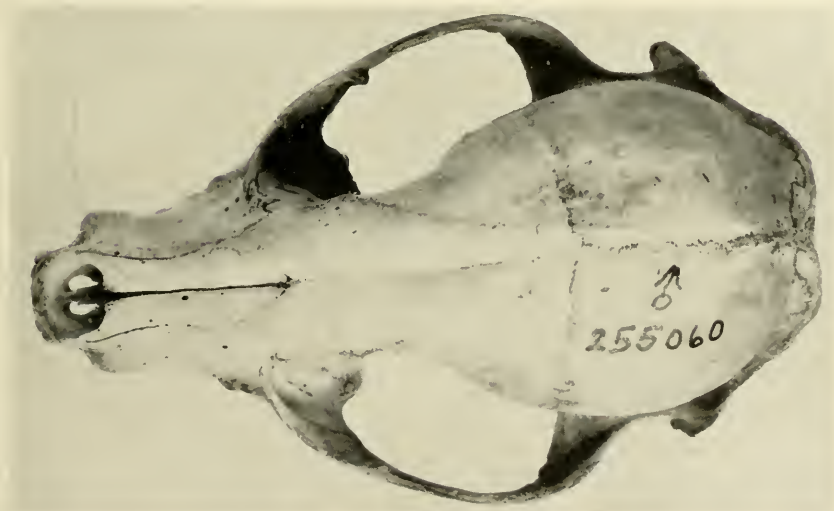


2.

FIG. 1.—*Procyon lotor elucus*, ♂, typical skull, Polk County, Florida.
FIG. 2.—*Procyon lotor inesperatus*, ♂, type skull, Upper Matecumbe Key, Florida.
Skulls natural size.



1.



2.

FIG. 1.—*Procyon lotor auspicatus*, ♂, type skull, Marathon, Key Vaca, Florida.
FIG. 2.—*Procyon lotor incautus*, ♂, type skull, Torch Key, Florida.

Skulls natural size. Subspecies reproduced in plates 4 and 5 follow in their geographic sequence as in plates 2 and 3.