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No. 7.— *Vertebrates from the Corn Islands*

INTRODUCTION

BY JAMES LEE PETERS

THE Corn Islands have always been *insulae incognitae* to zoölogists, although it is difficult to imagine why, since they lie practically outside the hurricane belt and only a forty-mile sail from the nearest port on the Central American mainland. Nevertheless their distinct faunal possibilities have aroused much conjecture, and the authorities at the Museum of Comparative Zoölogy were not the only ones who for many years had contemplated sending a field party there.

Accompanied by Mr. Edward Bangs of Boston, I sailed from New Orleans 3 December, 1927 on the Cuyamel Fruit Company's S. S. *Rama*, Captain Pedersen, and after an uneventful passage dropped anchor in Great Bay, Great Corn Island, at three o'clock in the morning of 10 December. A ship's boat was lowered, into which we placed our baggage and then took our places, after which the boat under the second officer of the *Rama* and guided by a small dugout canoe paddled by two islanders who had come off to meet us, skirted the edge of a reef and nosed safely in on the sandy beach. I take this opportunity to express my appreciation of Captain Pedersen's seamanship in skillfully taking his vessel close in to a strange shore at night without lights to guide him, drop anchor, land his passengers and be on his way again in less than an hour.

The Corn Island group, if two islands may be said to comprise a group, lies in the western Caribbean Sea between latitude $12^{\circ} 7'$ and $12^{\circ} 18' N.$ and longitude $82^{\circ} 58'$ and $83^{\circ} 4' W.$ They are distant about forty miles in a E.N.E. direction from Bluefields, Nicaragua, and thirty miles from the nearest point on the mainland. That they are situated on the continental shelf is amply attested by the shallowness of the water between them and the mainland, a maximum depth of only eighteen fathoms being shown on the U. S. hydrographic office chart.

Great Corn Island is about two and one half miles long by two miles wide, roughly triangular with its base to the north and its apex to the southwest. Its northern shore is protected by a reef, while the other two sides are open. There are two bays with sandy beaches to the westward, likewise the southeast shore is one long indentation; the tip to the southward presents rocky cliffs to the sea.

The highest point on Great Corn Island is Mt. Pleasant, 370 feet,

in the northeast central part of the island; the next highest point, Quinn's bluff, is near the southern tip and attains an elevation of 100 feet. Except for the rocky southerly extremity, the shore line is low and sandy. Immediately behind the beach lies a series of narrow lagoons and swamps almost encircling the island, behind which the land rises slightly.

There is no heavy forest on Great Corn Island today and quite probably there never was any. The lagoons are bordered with a thin fringe of mangroves; the shore from a little above high water mark to the lagoons is planted with coconut palms, and large groves of these trees are likewise to be found throughout the island. Coconuts are the chief product of the island. Most of the inhabitants also have a small piece of cultivated land, where their staple provisions are raised. The rest of the area is grown up with scrubby woodland.

The population consists of about eight hundred English-speaking colored people, the principal settlement being on the north side, with scattered huts found at intervals along the rest of the shore line; very few people live inland.

Little Corn Island lies about seven miles N.N.E. from Great Corn; it is much smaller, being only about a mile and a half long and half a mile wide, the long axis running from northwest to southeast. The northeast coast is rocky and reef-bound, the southwest is largely sandy and clear. Little Corn attains a maximum elevation of 125 feet on a hill which comprises the northwest portion of the island. Much of the interior was evidently open grassy savannah, now much overgrown with guava bushes. As on Great Corn, some groves of coconuts have been planted, and on the windward side, near the middle, is a large grove of almond trees.

A number of families from the "Big Island" own land on the "Little Island" and there cultivate small patches of ground, or graze horses and cattle on the savannah; the permanent population, however, is very small, consisting of not over a dozen persons.

Bangs and I remained on Great Corn Island, where we found suitable accommodations at Mrs. Jane Jackson's until 22 December, when we made the trip to Little Corn in the motor sloop *Caledonia*, taking with us a cook and provisions. On Little Corn we lived in an empty fisherman's shack until 28 December when the *Caledonia* returned for us and brought us back to Great Corn where we remained until 3 January, 1928. On that day we boarded the auxiliary schooner *Linda S.* and sailed on her to Limon, Costa Rica, arriving there without incident on the following morning.

The fact that the Corn Islands possess not only no characteristic avifauna, but are almost devoid of birds as well, proved a great disappointment. The birds are nearly all wide-ranging sea birds, or North American migrants. We were repeatedly told by the inhabitants that we had made our visit at the wrong season of the year, that October was the "bird month," from which I infer that the islands are visited by large numbers of North American migrants at that time, most of which apparently pass farther south.

The breeding birds of the Corn Islands are the Ani (*Crotophaga ani*), the Mangrove Cuckoo (*Coccyzus minor minor*), the White-crowned Pigeon (*Columba leucocephala*), possibly a coot (*Fulica americana*) and several species of Herons. The most significant facts are seen in the general distribution of the first three species noted. The White-crowned Pigeon is essentially Caribbean in its distribution, occurring in southern Florida and the Florida Keys, the Bahamas, Greater Antilles, northern Lesser Antilles, Swan Island, Old Providence, St. Andrews, Cozumel Island, the Bay Islands, islands off the coast of British Honduras, but occurring on the Central American mainland only as an occasional straggler to Yucatan and Panama. *Coccyzus minor* occupies a similar range, but occurs somewhat more generally on the mainland from Matamoros to the Amazon valley, it moreover has a Pacific coast representative ranging from northern Mexico to Costa Rica. The wide-ranging Ani does not occur on the Central American mainland north of Panama but has been recorded from Cozumel, Holbox, and Ruatan Islands. (The specimen recorded from Comayagua, Honduras by Selater, P.Z.S. 1858, p. 359 should be reexamined). The occurrence of *Dendroica discolor*, while of interest, is not of great significance, since there are few migrant species that do not have occasional stragglers outside the usual wintering range of the species as a whole.

MAMMALS

BY GLOVER M. ALLEN

DIDELPHIIDAE

MARMOSA MEXICANA ZELEDONI Goldman

A series of fourteen specimens seems referable to this form which is now regarded by its describer as a subspecies of *M. mexicana*. It is distinctly smaller than *M. m. isthmica* and paler on the sides, which are buffy, yet well defined from the whitish of the belly. Probably this

little opossum was brought from the adjacent mainland by boats passing to and from the islands. It seems to be the only native Central American species except the bat.

MURIDAE

MUS MUSCULUS Linné

The House Mouse is represented in the collection by a single specimen which is very blackish, perhaps an individual variant, or perhaps one of the dark Mexican race, *jalapae*.

RATTUS RATTUS ALEXANDRINUS (L. Geoffroy)

One specimen of the introduced roof rat is like other Central American specimens, rather gray.

PHYLLOSTOMIDAE

MICRONYCTERIS MICROTIS Miller

Four specimens were secured, the only bat taken. They seem typical of this species, originally described from Bluefields, Nicaragua. The forearm measurement is 35 mm.

BIRDS

By JAMES L. PETERS

COLUMBA LEUCOCEPHALA Linné

"Pigeon"

The White-crowned Pigeon is a common resident on the Corn Islands. On Great Corn, Bangs and I found it pretty much all over the island, especially in the bushy interior, less frequent in the coconut plantations. On Little Corn there was less suitable cover for the bird, but it occurred rather numerous in some swampy woods on the windward side, and birds were also seen in flight over the pastures.

We saw two juvenals on Great Corn in the possession of some children who told us that they had taken them from a nest the previous October.

I can detect no differences that would serve to distinguish the resident White-crowned Pigeon of these islands from other points in its wide range.

FULICA AMERICANA AMERICANA Gmel.

"Moor-hen"

A flock of twenty to twenty-five Coot frequented a narrow lagoon on the westerly side of Great Corn Island. When undisturbed they fed and swam placidly in the centre of the pond, but were quick to take alarm, and when startled swam or pattered into the dense growth of bushes growing out into the water, and there remained until apparently all was safe again. A female was taken 12 December, three females 16 December and a male 29 December. Coot were not found on Little Corn Island, no doubt due to the absence of suitable locations.

The five specimens collected exhibit certain average differences that might make it necessary to separate the Coot from the Corn Islands from the North American birds, were it certain that the former was actually a resident insular form and not a winter visitor from North America. I believe that a separation under the circumstance would be inadvisable, especially since two of the birds are obviously immature, and the other three have not fully developed the character of the frontal shield, usually associated with birds fully adult.

THALASSEUS MAXIMUS MAXIMUS (Bodd.)

"Crickum"

A small flock of Royal Terns was observed daily, perched on some rocks jutting from the north side of Great Corn Island. A male was secured 21 December. No terns were seen on Little Corn Island.

It is now necessary to employ trinomials for this bird by reason of the recognition of the race occurring on the west coast of Africa from the Straits of Gibraltar south to Angola, *Sterna maxima albidorsalis* Hart. (Vog. Pal. Faun. 2, heft 9, 1914, p. 1698).

LARUS ATRICILLA subsp.

Two Laughing Gulls were seen from the deck of the *Caledonia* 22 December, while crossing from Great Corn to Little Corn Island. In the absence of specimens it is, of course, impossible to determine whether these birds were typical *atricilla* Linn., the breeding form of the Caribbean region, or whether they were migrants of the larger race inhabiting North America, *megalopterus* Bruch.

ARENARIA INTERPRES MORINELLA Linn.

Turnstones were noted several times on the windward side of Little Corn Island, between 22 and 28 December. On one occasion a compact flock of about a dozen individuals was seen.

SQUATAROLA SQUATAROLA (Linn.)

Two Black-bellied Plover were seen on Great Corn Island between 10 and 22 December, both birds always found on a wide sandy beach on the western side. After our return from Little Corn Island we found that one of them had left, but the other was seen at the same spot each time that we passed by.

OXYECHUS VOCIFERUS VOCIFERUS (Linn.)

Four Killdeer were seen daily about the house where Bangs and I stayed on Great Corn Island. A female secured 12 December on the sandy beach on the westerly side is typical of the North American form. On Little Corn Island several examples were seen at the eastern tip in small open grassy spots surrounded with guava bushes and beach grape.

CHARADRIUS SEMIPALMATUS Bonap.

A flock of four Ring-necks haunted a small stretch of beach near the boat landing on Great Corn Island throughout the entire length of our stay. An immature female was taken there 12 December.

EREUNETES MAURI Cab.

A single small Sandpiper, killed on the sandy beach on the west side of Great Corn Island 12 December, proves to be a female of this species in winter plumage.

ACTITIS MACULARIA (Linn.)

Spotted Sandpipers were not uncommon on Great Corn Island. Single individuals were seen at intervals all along the shore and on the open borders of muddy pools. The species also occurred rather commonly on Little Corn Island, where it was observed along the beaches.

CAPELLA GALLINAGO DELICATA (Ord.)

In a small wet grassy spot, just back of a beach on Great Corn Island, a Snipe was seen on several occasions, and one day shortly before

our departure three were started from the wide muddy shores of a small lagoon.

ARDEA HERODIAS HERODIAS Linn.

"Crane"

We found Great Blue Herons only on the larger island; there were probably not over half a dozen individuals present.

CASMERODIUS ALBUS EGRETTE (Gmel.)

On the morning of 14 December we started an American Egret at the border of a grassy swamp and the upland just to the eastward of Broad Bay, Great Corn Island.

FLORIDA CAERULEA Linn.

"Gaulding; White Gaulding"

Little Blue Herons were found rather commonly on both Great Corn and Little Corn Islands. No specimens were secured.

I am unable to appreciate the difference claimed by Wetmore (Scientific Survey of Porto Rico and the Virgin Islands, 9, p. 294, pt. 3, 1927) between Little Blue Herons from the United States and the West Indies, nor between specimens from these localities and central America and southern Mexico. In making my comparisons I have used only clean, well-made skins of adults in comparable plumages.

HYDRANASSA TRICOLOR RUFICOLLIS (Gosse)

"Gaulding"

We found Louisiana Herons only on Great Corn Island; several were noted feeding along the borders of the lagoon where the coot occurred, others were seen in a swamp near our stopping place.

Two females were taken 13 December; both are in the red-necked immature plumage, both agree in color and measurements with birds of the same sex and corresponding plumage taken in the United States, southern Mexico and Central America.

NYCTANASSA VIOLACEA VIOLACEA (Linn.)

"Carpenter"

A few Yellow-crowned Night Herons were seen on Great Corn Island, where two immature examples were obtained 17 December.

BUTORIDES VIRESCENS MACULATUS (Bodd.)

"Mary Punkin Seed"

This species was surprisingly uncommon; it occurred only on Great Corn, where but three individuals were seen during the entire period of our stay. We saw one adult on several occasions but the bird was so shy that it could not be approached. Bangs shot an immature female 21 December. This specimen is unquestionably referable to the race inhabiting the West Indies and the east coast of Central America; the wing measures but 161 mm., the culmen 53 mm.

NYROCA AFFINIS (Eyton)

"Wild Duck." "Teal"

A few lesser scaups winter on the lagoons of Great Corn Island. A total of seven individuals were seen, of which a female was collected 13 December.

PHALACROCORAX OLIVACEUS OLIVACEUS (Humb.)

"Die-clapper"

Probably a total of not over five cormorants were seen on Great Corn Island, and but a single example on Little Corn. On the larger island one bird was usually seen perched on a little group of rocks just off the northern side; another fished in Great Bay, sometimes perching on the fronds of the coconut palms growing close to the water's edge; others were seen on the "coot lagoon," where an immature male was collected 13 December.

This specimen is without doubt referable to the typical form, although the wing is between the minima for *P. o. olivaceus* and the maxima for *P. o. mexicanus*. The culmen is longer than that of any examples of *olivaceus* that I have handled, in fact its length of 65 mm. suggests *P. a. floridanus*, but the latter possibility may be disregarded, since the character of the feathering on the lower edge of the gular sac is that of *olivaceus* and not *auritus*.

SULA LEUCOGASTER LEUCOGASTER (Bodd.)

"Booby"

At Great Corn Island, Brown Boobies were seen a few times flying a short distance off shore. On Little Corn about twenty birds, most of

them adults, came to roost nightly in some coconut palms whose tops overhung the water at the eastern tip of the island. An adult female was shot here 25 December.

FREGATA MAGNIFICENS ROTHSCILDI Math.

"Man-of-War bird"

The occurrence of this species as a Corn Islands bird is on a par with that of the foregoing species. Frigate birds were seen occasionally off the shores of the larger island and were found roosting for the night at the eastern end of the little island. An immature male was killed there 24 December; the following evening eight adults came in to roost, but before settling for the night flew about, inflating their red throat sacs.

The bird collected measures as follows: wing 603 mm.; tail 412 mm.; culmen 110 mm.

PELECANUS OCCIDENTALIS OCCIDENTALIS Linn.

"Pelican"

Pelicans were found commonly in the waters surrounding both of the islands. At Great Bay, the principal landing place on Great Corn, several could be found any time during the day, fishing within a few feet of the shore; these birds were absolutely fearless and paid no attention to passing canoes or to men working close at hand on the shore. On a small islet off the eastern tip of Little Corn, Pelicans came in to roost, and there were always a number present throughout the day.

FALCO COLUMBARIUS COLUMBARIUS Linn.

"Fowl Hawk"

From accounts of the natives, hawks are numerous on the islands during the month of October, apparently North American species following the migration southward. On 14 December, I shot an old adult female from a tree in a clearing on Great Corn Island; another example was seen in flight near the settlement a few days later.

FALCO SPARVERIUS SPARVERIUS Linn.

"Fowl Hawk"

Like the Pigeon Hawk, Sparrow Hawks also visit the Corn Islands during migration. We did not find the bird on the smaller island, but

secured two on the larger — a female 21 December and a male 30 December. Both birds agree in size and color with specimens from northeastern United States.

PANDION HALIAETUS CAROLINENSIS (Gmel.)?

An Osprey was seen on three occasions circling over the water inside the reef off the northern side of Great Corn Island.

MEGACERYLE ALCYON ALCYON (Linn.)

"Kingfisherman"

The Kingfisher appears to be a fairly common visitor to the islands, a few being seen along the shores of both Great and Little Corn.

COCCYZUS MINOR MINOR (Gmel.)?

"Rainbird"

Mangrove cuckoos are easily the most numerous of the few resident land birds on the Corn Islands. Twelve specimens were collected; seven on Great Corn, five on Little Corn.

The determination of this series has been beset with many difficulties, chief of which is the actual identity of *Cuculus minor* Gmel. (Syst. nat., 1, pt. 1, 1788, p. 411). The chief basis of Gmelin's name is the Coucou des Palétuviers de Cayenne, figured in Daubenton's Planches enluminées, plate S13. There seem to be no specimens from the northern coast of South America in the museums of this country, and I have been obliged to do as Ridgway did, that is to regard the birds of the eastern coast of Mexico and Central America as representing the typical form, although it is highly probable that they do not.

For comparison there have been available Daubenton's plate; a single unsexed specimen from Yucatan, two males from British Honduras for the loan of which I am indebted to the authorities of the Carnegie Museum, and a female from Costa Rica. There are also before me three Mangrove cuckoos from Swan Island; a single male *abbotti* from St. Andrews, and a good series of the various West Indian races except *rileyi*, of which I have but one.

The races of *Cuculus minor* fall into two categories, pale forms and more deeply colored forms, and each of these in turn divides into larger races and smaller ones. There is, however, considerable range both in size and color among individuals belonging to the same subspecies, so to appreciate differential characters a large series is necessary.

Central American examples appear to belong to a small, rather deeply colored form. Daubenton's plate is also taken from a deeply colored bird, and if Gmelin's dimension of "12 pollices largus" is correct, it belongs to the small group also.

The Corn Island birds are all taken between the tenth and twenty-sixth of December, so the series shows little color variation. The general tone of the underparts is matched in two mainland examples; the measurements average larger, but this discrepancy I believe would tend to disappear were a larger series from the mainland to be examined. For these reasons I believe a separation is not warranted, until the constancy of the unusual characters can be proven. In any event they are in no way referable to the large pale *abbotti* of Old Providence and St. Andrews.

Three birds from Swan Island likewise present certain difficulties, but the skins are not seasonably comparable, so I refer them, provisionally at least, to *minor*; one of them was identified by Mr. Ridgway as *rileyi* (?)

In my opinion *nesiotes* from Jamaica is extremely close to *minor* (as understood here) differing chiefly in *averaging* less deeply colored below with a greater tendency toward the development of gray on the side of the chest and in having a shorter, relatively stouter bill.

CROTOPHAGA ANI Linn.

"Blackbird" "Cowbird"

Anis were found on both islands, but were by no means common. On Great Corn they occurred in small bands ranging up to five or six birds; on Little Corn a flock of four was seen in a clearing near the centre of the island. We found Anis rather wary here when compared with the tameness usually shown by this species in the West Indies.

Two females were taken on the larger island 19 and 30 December, and a third female on the smaller island 25 December.

MNIOTILTA VARIA (Linn.)

One was shot 24 December on Little Corn Island at the wooded borders of a small lagoon.

DENDROICA CORONATA (Linn.)

"Ricebird"

The Myrtle Warbler winters abundantly all over the Corn Islands.

DENDROICA DISCOLOR (Vieill.)

An immature female Prairie Warbler was shot on Great Corn Island 2 January, 1928. This species ordinarily winters in the West Indies so far as I can ascertain it has never been recorded from the Central American mainland, though it is known in winter from Cozumel and Swan Island.

SEIURUS AUROCAPILLUS (Linn.)

Two Ovenbirds were seen on Little Corn Island 24 December, and one male secured.

SEIURUS NOVEBORACENSIS (Gmel.)

This species was noted on three occasions in mangrove thickets or wet woods just back of the beaches on Little Corn Island. Whenever I have met with water thrushes in their winter home I have always found them exceedingly wild and restless, and these birds were no exception.

GEOTHLYPIS TRICHAS BRACHIDACTYLA (Swains.)

A female Northern Yellow-throat was taken 15 December at the edge of a swamp close by our boarding place on Great Corn Island.

WILSONIA CITRINA (Bodd.)

On 24 December I saw and satisfactorily identified an adult male Hooded Warbler in a wooded swamp near the windward shore of Little Corn Island; the bird was part of a small gathering of migrant Northern American Warblers consisting of a Black and White Warbler, a Water Thrush and a few Myrtle Warblers.

Several times on Great Corn I heard the call note of a warbler coming from a swamp, but was unable to squeak the bird into view; after hearing the call of the Hooded Warbler seen on the small island, however, I have little doubt that the same species was present on the larger island.

REPTILES AND AMPHIBIANS

By T. BARBOUR AND A. LOVERIDGE

CONSTRUCTOR CONSTRUCTOR IMPERATOR (Daudin)

Boa imperator Daudin, 1803, Hist. nat. rept., 5, p. 150.

A single specimen (M.C.Z. 26,951) measuring 1,208 (1,080 + 128) mm. and with a scale count of sc. 80; v. 246; a. 1; c. 55; l. 20. Five

rows of the subcaudals in the middle region of the tail are divided. There are 18 scales across the forehead from eye to eye and 17 in a ring around the eye. The color is somewhat paler, and the cross-bars on the anterior part of the body less distinct than in average *C. c. imperator* from the mainland, but not so pale, nor so reddish, as in the types of *C. c. sabogae* (Barbour) from Saboga Island.

TRETANORHINUS NIGROLUTEUS Cope

Tretanorhinus nigroluteus Cope, 1861, Proc. acad. nat. sci. Phila., p. 298.

This snake (M.C.Z. 26,952), measuring 737 (565+172) mm., agrees in all its scale characters with typical mainland examples, of which a score from Honduras, Nicaragua and Panama are available for comparison. Its scale count is sc. 21; v. 142; a. 2; c. 63. Owing to the rostral having divided to give off an extra labial on the right side, there are 9 labials with the 5th entering the orbit; the left side has the normal 8 labials with the 4th entering the orbit. The posterior chin shields are separated from each other anteriorly (as in *variabilis*) but this is also the case with Canal Zone specimens, so little importance may be attached to this character. It has two loreals, the mainland snakes having one or two. It differs in being more melanistic than the continental examples for it is uniformly black above and reddish pink below, with two parallel dusky lines along the ventrals.

DRYMOBIUS MARGARITIFERUS (Schlegel)

Herpetodryas margaritiferus Schlegel, 1837, Essai physion. serp., 2, p. 184.

The example (M.C.Z. 26,953) of this snake, collected by Peters, measures over 700 mm. but has lost the tip of its tail. It is quite typical, having sc. 17; v. 142; a. 2; c. 7; l. 9, the 4th, 5th and 6th labials entering the orbit.

OXYBELIS ACUMINATUS (Wied)

Coluber acuminatus Wied, 1822, Abbild. nat. Brasil (no page number) and 1824, Isis, pt. 6, p. 667.

Seven specimens (M.C.Z. 26,954-26,960) of the Pike-headed Snake are represented in the collection. All are of large size, the biggest measuring 1,790 (1,170+620) mm. They possess a scale formula well within the range of typical specimens, viz. sc. 17; v. 186-200; a. 2; c. 149-179 (two snakes with mutilated tails are omitted from this count); l. 9, the 4th, 5th and 6th entering the orbit.