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THE ORNITHOLOGICAL RESULTS OF THE MASON-SPINDEN EXPEDITION TO YUCATAN

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PART I.—INTRODUCTION; BIRDS OF THE MAINLAND OF EASTERN YUCATAN

In December, 1925, thanks to the friendly interest of Mr. George Palmer Putnam and Mr. Gregory Mason, The American Museum of Natural History was given the opportunity at a very nominal expense of being represented on the Mason-Spinden Expedition, organized primarily to search for unknown cities of the ancient Mayas. I was delegated to join the expedition, and five of us left New Orleans for Belize, British Honduras, on January 9, 1926. After several days spent in securing supplies, we sailed north on January 17 in a 60-foot schooner equipped with auxiliary engines, owned and commanded by Capt. George Gough. Never was there a more able seaman and efficient helper in every possible way, and his crew rendered willing and competent assistance at all times.

After a brief stop at Payo Obispo, the capital of the Territory of Quintana Roo, to get the necessary permits and clearance papers, we treaded our way through the maze of Keys off the coast of British Honduras and anchored for the night in the Caribbean off Ambergris Key, but inside the barrier reef. Our itinerary from there was as follows:

Jan. 20–22. Chinchorro Bank. See Part II (Novit. No. 236).

Jan. 23–27. Ascension Bay, Quintana Roo. A very large body of shallow water dotted with islands and surrounded by mangrove swamps, strongly suggesting the Florida Keys. The southwestern arm of the bay has never been mapped, and a light dory goes aground out of sight of the mainland. Several small mangrove islands at the mouth of the bay, known as Culebra Keys, were covered with breeding waterfowl at the time of our visit. At the head of the bay is a small settlement of chicile gatherers known as Vigia Chica. A crude little railroad runs from here to Santa Cruz de Bravo in the interior, the capital of the independent Maya Indians. For a mile back of the shore there are extensive fresh-water saw-grass savannahs. The bush for miles in the interior has been cut down, and the original avifauna greatly depleted. The northwest arm of the bay is largely free from soap flats, and has a hard sandy bottom and numerous sand-bars. This section marks, so far as known, the southern

limit of the winter wanderings of the Rosy Flamingo. A very narrow and shallow arm, navigable only for row-boats and dories, runs due north parallel to the coast for about twenty miles, where there is a tiny outlet to the sea known as Boca de Paila.

Jan. 28 and 29. At anchor off the beach at Boca de Paila. The outer beach was almost birdless, and was covered with palm and sea-grape scrub. Inside the beach was another vast shallow lagoon and impenetrable mangrove swamps.

Jan. 30–Feb. 2. In camp at Chunyaxche or Muyil in the interior in heavy forest; about 15 miles from the coast. The chicle camp is on the mainland on the edge of a large fresh-water lake. A tiny and apparently artificial canal runs from this lake to another even larger lake. This also has an outlet, winding for miles through extensive marshes, that look exactly like the Florida Everglades. There cannot be less than 100 square miles of these savannahs, which stretch to the edge of the lagoons of Boca de Paila and Ascencion Bay. The forest is absolutely primeval and stretches into the interior, unbroken except by a narrow mule trail. Birds were found here in as great variety as at any other point visited by the Expedition.

Feb. 3. At Boca de Paila.

Feb. 4. By sea to Cozumel Island, with an hour ashore at the great Maya city of Tulum.

Feb. 5–7. Cozumel Island.

Feb. 8. Across to mainland directly opposite. Several hours ashore at some ruins known as Xcaret in heavy forest.

Feb. 9 and 10. At Palmul, 5 miles farther south. A small chicle settlement with a trail across the interior to Valladolid. Heavy forest alternating with extensive "milpas" or truck patches. Birds in great variety; 58 species recorded on the 10th.

Feb. 11. At Chacalal, some ruins three miles farther south in primeval forest. No clearing, trail or house.

Feb. 12. Indian settlement of Acomal, three miles farther south. Very fine high forest back of extensive milpas.

Feb. 13. Sailed northwards, and had an hour ashore at Playa Carmen about half-way between Xcaret and Puerto Morelos, which is due northwest of Cozumel Island. On to Puerto Morelos which is just beyond the northern limit of the heavy forest.

Feb. 14–27. Cozumel Island. See Part II (Novit. No. —).

With such a schedule, it is obvious that collecting was intermittent, and skinning specimens at sea was often impossible, because of rough weather. Consequently with few exceptions, only those birds were shot which were needed for the Museum collection, or which I had never seen previously in life, the latter a very small percentage. Many common species were shot by Mason, McClurg, and the crew, furnishing definite records based on specimens examined in the hand, even though all of them could not be prepared. In this way out of 205 specimens preserved, only 78 species are represented, but six are undescribed and fourteen others are new to the Museum collection, reducing the desiderata list for the whole of Middle America by nearly ten per cent. An additional 65 species were examined in the flesh.

THE MAINLAND OF EASTERN YUCATAN

The only published report on the birds of Quintana Roo is that by Peters (The Auk, 1913, pp. 367-380). He was chiefly at Camp Mengel up the Rio Hondo below Payo Obispo, on the British Honduras border. The avifauna there is primarily that of the tropical Caribbean rain-forest, and he obtained very few of the special Yucatan birds. This forest, with a rainfall reaching 120 inches annually along the edge of the Cordillera, crosses the Yucatan Peninsula at its base, and reaches the coast once more in the States of Tabasco and Vera Cruz, where this fauna reaches its northern limit. As we proceed towards the tip of the Yucatan Peninsula the rainfall steadily decreases. It is 60-80 inches in the southern two-thirds, about 35 at Mérida, and less than 15 at Progreso. The forest, therefore, steadily decreases in density, height and luxuriance northwards, until it finally disappears altogether, being replaced by chapparal and markedly arid conditions. Along the east coast real forest disappears at Puerto Morelos, just northwest of Cozumel Island. South of this point all the way to the British Honduras boundary, the interior is occupied by an evergreen forest of moderate luxuriance, and the rainfall is reported to be between 60 and 80 inches per year.

It follows that the Caribbean tropical rain-forest avifauna diminishes very rapidly as we go northeastward. About half the species found in the interior of British Honduras cannot endure the relative aridity of the Yucatan Peninsula and are unknown there. Some of those that do occur have responded to the change in their environment and furnish us with part of the long list of subspecies peculiar to Yucatan. In a few cases of more plastic species, which have penetrated even into the arid extremity of the peninsula, there are two races. The Chachalaca, *Ortalis vetula*, is a good example, *intermedia* being characteristic of the forested lower half of the peninsula, *pallidiventris* of the arid northern third. The endemic species of Yucatan fall naturally into two similar groups, a few being especially characteristic of the arid northern third, and, like *Icterus auratus* or *Leptotila gaumeri*, entirely unknown in the heavy forest farther south. Most of the country which I explored might be described as a transition zone in which the Yucatan element predominated.

With the foregoing explanation in mind, we can think of the Yucatan Peninsula as an island cut off from adjoining areas by a sea of heavy rain-forest. The great majority of the resident land-birds of Yucatan belong to genera or species with a relatively wide range in Mexico and northern Central America, but absent from areas of heavy rain-forest. Many of the numerous endemic subspecies are a product of this type of isolation,

though it is not as apparent as insulation. Thus *Dryobates scalaris parvus* and *Eucometis spodocephala pallida* are entirely cut off from their nearest relatives. Other endemic subspecies belong to even more widely ranging but plastic species, which, like *Rupornis magnirostris*, can be expected to respond to any pronounced climatic or ecological change.

The balance of the 347 species and subspecies known from the Yucatan Peninsula is composed of water-birds, migrants and winter visitants, and widely ranging tropical species like the Turkey Vulture, whose occurrence is of little zoögeographic interest. These are not listed below.

I.—Species Characteristic of Heavy Tropical Rain-Forest, Recorded from Yucatan

a.—More generally distributed in forested areas.

<i>Craz globicera</i>	<i>Celeus castaneus</i>
<i>Claravis pretiosa</i>	<i>Dendrocincla h. homochroa</i>
<i>Eupsittula astec</i>	<i>Platytriccus cancrorninus</i>
<i>Pampa p. pampa</i>	<i>Saltator a. atriceps</i>
<i>Dromococcyx phasianellus</i>	<i>Saltator grandis</i>
<i>Ramphastos p. piscivorus</i>	<i>Amblycercus holosericeus</i>

b.—Rare and local, mostly recorded only once, or only along the extreme eastern or southern limits of the area.

<i>Penelope purpurascens</i>	<i>Onychorhynchus mexicanus</i>
<i>Odontophorus guttatus</i>	<i>Todirostrum cinereum fixitimum</i>
<i>Columba speciosa</i>	<i>Craspedoprion brevirostris</i>
<i>Columba nigrirostris</i>	<i>Pipromorpha a. assimilis</i>
<i>Oreopeleia montana</i>	<i>Myiobius xanthopygius sulphureipygius</i>
<i>Geranospizias caerulescens niger</i>	<i>Pipra m. mentalis</i>
<i>Pionus senilis</i>	<i>Erator albitorques fraseri</i>
<i>Agyrtria candida</i>	<i>Pachysylvia decurtata</i>
<i>Trogonurus puella</i>	<i>Pachysylvia o. ochraceiceps</i>
<i>Chrysotrogon caligatus</i>	<i>Arremonops chloronotus</i>
<i>Chloronerpes rubiginosus yucatanensis</i>	<i>Cyanerpes cyaneus</i>
<i>Veniliornis oleaginus sanguinolentus</i>	<i>Euphonia hirundinacea.</i>
<i>Xenops genibarbis mexicanus</i>	<i>Icterus m. mesomelas</i>

c.—Other species represented in Yucatan by the endemic subspecies listed below.

<i>Aramides albiventris</i>	<i>Formicarius moniliger pallidus</i>
<i>Momotus lessoni exiguus</i>	<i>Dendrocincla anabatina typhla</i>
<i>Pteroglossus torq. erythrozonus</i>	<i>Platypsaris aglaia yucatanensis</i>
<i>Thamnophilus doliatus yucatanensis</i>	<i>Attila citreopygus gaumeri</i>
	<i>Phænicothraupis salvini peninsularis</i>

II.—Endemic Yucatan Species or Subspecies, Whose Closest Relatives in Other Parts of Mexico or Central America are not Characteristic of Heavy Rain-Forest

Those marked with an asterisk prefer scrub or more arid country.

- | | |
|---|---|
| <i>Crypturus cinnamomeus goldmani</i> | * <i>Petrochelidon fulva</i> subsp. |
| * <i>Ortalis vetula pallidiventris</i> | * <i>Polioptila albiventris</i> |
| <i>Ortalis vetula intermedia</i> | * <i>Heleodytes guttatus</i> |
| <i>Agriocharis ocellata</i> | <i>Pheugopedius maculipectus canobrunneus</i> |
| <i>Dactylortyx thoracicus</i> subsp. | <i>Thryothorus a. albinucha</i> |
| * <i>Zenaida zenaida yucatanensis</i> | <i>Nannorchilus leucogaster brachyurus</i> |
| * <i>Leptotila gaumeri</i> | <i>Mimus gilvus gracilis</i> |
| <i>Rallus pallidus</i> | <i>Vireosylva magister</i> |
| <i>Rupornis magnirostris conspecta</i> | <i>Cyclarhis flaviventris yucatanensis</i> |
| <i>Bubo virginianus mayensis</i> | <i>Granatellus sallæi boucardi</i> |
| <i>Otus hastatus thomsoni</i> | * <i>Astragalinus psaltria jouyi</i> |
| * <i>Amazona xantholara</i> | * <i>Arremonops verticalis</i> |
| <i>Nyctidromus albicollis yucatanensis</i> | <i>Cardinalis cardinalis yucatanicus</i> |
| <i>Nyctagregus yucatanicus</i> | <i>Piranga r. roseo-gularis</i> |
| <i>Chætura gaumeri</i> | * <i>Eucometis spodocephala pallida</i> |
| <i>Centurus d. dubius</i> | <i>Phænicothraupis rubica nelsoni</i> |
| <i>Centurus r. rubriventris</i> | <i>Icterus gularis yucatanensis</i> |
| * <i>Dryobates scalaris parvus</i> | <i>Icterus cucullatus igneus</i> |
| <i>Xiphorhynchus flavigaster yucatanensis</i> | <i>Icterus cucullatus masoni</i> |
| <i>Myiarchus yucatanensis</i> | * <i>Icterus auratus</i> |
| <i>Myiarchus lawrencei platyrhynchus</i> | <i>Psilorhinus mexicanus vociferus</i> |
| <i>Pachyrhamphus major itzensis</i> | <i>Cissilopha yucatanica</i> |

III.—Birds Generally Common in Yucatan, Found Elsewhere in Mexico or Central America, But Never in Heavy Rain-Forest

Those marked with an asterisk prefer scrub or more arid country.

- | | |
|--|--|
| * <i>Colinus nigrogularis</i> | <i>Trogon melanocephalus</i> |
| * <i>Columba flavirostris</i> | <i>Piaya cayana thermophila</i> |
| * <i>Melopelia asiatica</i> | * <i>Geococcyx affinis</i> |
| <i>Chæmepelia passerina pallescens</i> | <i>Synallaxis erythrorhox</i> |
| <i>Chæmepelia r. rufipennis</i> | <i>Oncostoma cinereigulare</i> |
| * <i>Leptotila f. fulviventris</i> | <i>Rhynchocyclus cinereiceps</i> |
| <i>Asturina p. plagiata</i> | <i>Myiopagis p. placens</i> |
| <i>Ciccaba v. virgata</i> | * <i>Camptostoma imberbe</i> |
| <i>Amazona albifrons nana</i> | * <i>Elainea flavogaster subpagana</i> |
| <i>Eumomota s. superciliosa</i> | * <i>Myiozetetes t. texensis</i> |
| <i>Antrostomus salvini</i> | * <i>Pyrocephalus rubineus mexicanus</i> |
| * <i>Chordeiles acutipennis micromeris</i> | <i>Myiochanes b. brachytarsus</i> |
| * <i>Amazilia r. rutilla</i> | <i>Myiarchus magister nelsoni</i> |
| <i>Anthracothonax p. prevosti</i> | <i>Megarhynchus pitangua mexicanus</i> |
| <i>Chlorostilbon c. caniveti</i> | * <i>Pitangus sulphuratus derbianus</i> |
| <i>Doricha eliza</i> | <i>Tityra semifasciata personata</i> |

<i>Planesticus grayi tamaulipensis</i>	* <i>Sporophila moreleti</i>
<i>Vireosylva f. flavoviridis</i>	<i>Cyanocompsa p. parellina</i>
<i>Vireo ochraceus</i>	* <i>Euphonia affinis</i> .
* <i>Chamaethlypis poliocephala palpebralis</i>	* <i>Callothrux robustus</i>
* <i>Volatinia jacarini atronitens</i>	<i>Dives dives</i>
* <i>Euethia olivacea intermedia</i>	* <i>Icterus gairaudi</i>
	<i>Xanthoura luxuosa guatemalensis</i>

These lists show graphically (1) that only 46 out of 347 species are typically rain-forest species, belonging to the Caribbean rain-forest fauna. When we consider that this fauna is the richest in species in Central America, we can appreciate the importance of the 150-inch rainfall curve in limiting their distribution. Nearly half the species that have become sufficiently established to be called common have responded to their altered environment as endemic subspecies, though the characters of most of them are slight.

(2) That the balance of the species recorded from Yucatan of more particular zoögeographic interest can be arranged in the following groups: (a) some belong to the arid tropical Central American fauna, which ranges down the drier Pacific side of the continent and crosses over to the Caribbean side at the Isthmus of Tehuantepec. The little Hummingbird, *Amazilis rutila*, is a typical example of this latter group; (b) of Mexican origin, such as *Dryobates scalaris parvus* or *Myiarchus magister nelsoni*. These two groups are obviously of more ancient origin than the rain-forest fauna, and are represented in the Yucatan Peninsula by numerous endemic species and subspecies. It is interesting to note that in Yucatan, just as elsewhere in Central America, the forested areas contain a far higher number of species, the scrub or arid areas a smaller number of species, individually far more numerous.

(3) Among the endemic species and subspecies are a few relict species of even more ancient origin than the last two groups, in all probability. Such are the very distinct genera and species like *Agriocharis ocellata* and *Piranga roseo-gularis*, to which Dr. Chapman long ago called attention. They have no representatives in other regions, appear too distinct to have originated in Yucatan, and have probably become extinct in the adjoining area. *Leptotila gaumeri*, *Zenaida zenaida yucatanensis*, and *Petrochelidon fulva* subspecies are apparently survivals of a former closer connection with the West Indies. Perhaps the occurrence of *Mimus gilvus* in northern Central America should be explained on the same grounds. A genus like *Granatellus*, found only in Brazil, Yucatan and southwest Mexico, and generally very rare, is also sus-

piciously a relict, maintaining a feeble foothold at isolated points along what may be the periphery of a former more extensive range. This group is discussed further in Part II (Novit. No. 236) in connection with Cozumel Island.

Annotated List of Birds Observed on the Mainland of Eastern Quintana Roo

1. *Crypturus cinnamomeus goldmani* Nelson. This Tinamou was heard calling at Chunyaxche and seen at Palmul.
2. *Crax globicera* (Linnæus). None was seen, but specimens killed by Indian hunters were examined at Chunyaxche and Palmul.
3. *Ortalis vetula intermedia* Peters. Fairly common at Chunyaxche, Palmul and Acomal, but very shy due to persistent hunting. The breeding season had not commenced, and the Chachalaca was entirely silent.
4. *Agriocharis ocellata* (Temminck). Fairly common throughout the territory visited, but particularly so at Acomal, the only place I saw it alive.
5. *Melopelia a. asiatica* (Linnæus). A large flock of White-winged Doves were hanging about the fields of Palmul.
6. *Chæmepelia passerina palleescens* (Baird). The little Ground Dove was common on the outer beaches and occasional around settlements.
7. *Claravis p. pretiosa* (Ferrari-Perez). This forest dove, with which I am very familiar in life, was seen only once at Palmul. The scarcity of Pigeons in the region was very surprising.
8. *Rallus pallidus* Nelson? A Clapper Rail, presumably this species, was heard calling on the Culebra Keys at dusk.
9. *Ionornis martinica* (Linnæus). The Purple Gallinule was seen in the marshes back of Vigia Chica.
10. *Sterna maxima* Boddaert. The Royal Tern was seen all along the coast, but never in any numbers.
11. *Sterna sandvicensis acusflavida* Cabot. A flock of 20 Cabot's Terns in Chetumal Bay Jan. 17.
12. *Sterna dougalli* Montagu. Roseate Terns were seen only in Chetumal Bay.
13. *Larus atricilla* Linnæus. Laughing Gulls were occasional all along the coast.
14. *Larus a. argentatus* Pontoppidan. The farthest south record for the Herring Gull is Progreso, Yucatan. Going south in the steamer one was following the ship off Contoy Island. An immature bird was consorting with Laughing Gulls off the docks at Belize. Another was seen in Chetumal Bay, and on Feb. 10 a very lonely individual hovered around the schooner off the coast at Palmul.
15. *Arenaria interpres* (Linnæus).
16. *Squatarola squatarola* (Linnæus).
17. *Ozyechus v. vociferus* (Linnæus).
18. *Charadrius semipalmatus* Bonaparte.
19. *Totanus melanoleucus* (Gmelin).
20. *Totanus flavipes* (Gmelin).
21. *Actitis macularia* (Linnæus).

22. *Helodromas solitarius* (Wilson).

23. *Ereunetes pusillus* (Linnæus). Very few flocks of "Peep" were seen. One was collected to get a definite record of the species.

24. *Calidris alba* (Pallas).

25. *Pisobia minutilla* (Vieillot). With the exception of the Spotted Sandpiper, which was generally distributed, shore-birds were remarkably scarce. The straight sandy beaches of the outer coast were not attractive to them, and there were practically no mud-flats in the bays which were not covered with mangroves.

26. *Aramus vociferus* subspecies. The Limpkin was abundant in the great savannahs back of Chunyaxche. The wailing and crying of multitudes all night long was a sound never to be forgotten.

27. *Guara alba* (Linnæus). Occasional small flocks of White Ibis were found in the mangroves throughout the bay section of the coast. They were not breeding.

28. *Ajaia ajaja* (Linnæus). Twenty-five pairs of Roseate Spoonbills were nesting on the Culebra Keys. The nests were placed higher in the mangroves than those of any other species, and the Spoonbill was the only bird that was really shy. Eleven pairs were nesting in a hammock in the savannahs back of Boca de Paila.

29. *Mycteria americana* Linnæus. The Wood Ibis was scarce. Less than ten individuals in all were seen in the bay district.

30. *Ardea herodias* subspecies. While no specimens were collected it was quite obvious in the field that two subspecies were present. Immature birds, probably the typical race from North America, were occasional throughout the bay district. Twenty-five pairs were breeding on the Culebra Keys, and adults in full breeding plumage were approached to within 20 feet on their nests. These were large, very white below, with dark necks and olive legs, characters strongly suggesting *wardi*, and making *lessoni* out of the question. There are practically no definite breeding records of the Great Blue Heron in Mexico or Central America.

31. *Ardea occidentalis* Audubon. I agree with Mr. Bangs that this species is probably nothing but a white phase of the Great Blue Heron. I saw only one in Ascension Bay, but the bird is well known to the plume hunters. One man in particular, who knew all the herons, and was perfectly aware of the two color phases of the Reddish Egret and the Little Blue Heron, scouted the idea of *A. occidentalis* being a distinct species. He had often found a white bird paired with a blue one, but had never seen a pair of the whites together. He pointed out that the white phase of the other two species was also greatly in the minority locally, in which he was entirely correct.

32. *Herodias egretta* (Gmelin). The Egret was positively common in the everglade savannahs between Boca de Paila and Chunyaxche. None was seen in Ascension Bay, but a veteran plume hunter took me to a key in the southwest arm, where large numbers bred in the end of February.

33. *Egretta candidissima candidissima* (Gmelin). A flock of 15 Snowy Egrets was seen in the lagoons back of Boca de Paila. They were said to nest commonly in Ascension Bay in late February with their bigger cousins.

34. *Dichromanassa rufescens colorata*, new subspecies

SUBSPECIFIC CHARACTERS.—Similar to typical *Dichromanassa rufescens* (Gmelin) of Florida and southern Texas, but slightly larger with a proportionately shorter bill; adults in full breeding plumage with head and neck averaging paler, and browner, less chestnut or vinaceous; breeding plumes strongly tinged with vinaceous instead of uniform slaty blue, the feathers more or less vinaceous at their bases.

TYPE.—No. 254,564, Amer. Mus. Nat. Hist.; breeding ♀; Culebra Key, Ascension Bay, eastern Quintana Roo, Mexico; Jan. 23, 1926; Ludlow Griscom.

SPECIMENS EXAMINED

Dichromanassa r. rufescens.—22 ♂, 10 ♀, from Florida, southern Texas and Lower California. All specimens listed in full breeding plumage, gray phase.

Dichromanassa rufescens colorata.—Quintana Roo, Mexico, 1 ♂, 1 ♀; 2 ♂, 1 ♀ examined in the flesh besides.

As soon as I landed on Culebra Key and found fifty pairs of Reddish Egrets nesting, I was struck with the paler and duller coloration of the head and neck of most of the individuals on the island, quite different from the bird as I knew it in southern Texas. Five specimens in all were collected, but there was time to preserve only the two extremes in coloration. The series from the United States examined shows considerable variation in the color of the head and neck. In the first place females average distinctly paler and duller than males. This series varies from "chocolate" to dark "vinaceous brown," the majority of the specimens nearer the latter shade. The Yucatan race varies from pale sorghum brown to chocolate, the majority of the specimens nearer the former shade. The vinaceous edgings to the wing feathers in the new form must not be confused with the dull brown edgings of immaturity. These are later lost, and the bird becomes plain gray, before the breeding plumes are developed. In size the United States bird decreases southward. Several Lower California specimens¹ are 15 mm. below the minimum for southern Texas, and a breeding male from "Mexico" has a wing of only 300 mm. So far as I am aware, the Reddish Egret has never been found breeding south of the Tamiahua Lagoon in northern Vera Cruz. Colonies might exist, however, along the north coast of Yucatan near Cape Catoche, where there are lagoons and bays.

The colony found on Culebra Key was absurdly tame, as this species is not molested by local plume-hunters. About half the birds were still

¹Since this was written Mr. A. J. van Rossem (Condor, Vol. XXVIII, Sept. 1926, p. 246) has described a subspecies *dickeyi* from Lower California, based on three breeding males from San Luis Island in the Gulf, compared with four males from Texas. The new form is stated to have the head and neck "much darker," between cameo-brown and chocolate of Ridgway, and the wing is obviously longer. My seven Lower California specimens come from La Paz, San José Island, and Magdalena Bay. They average a little smaller than Texas specimens, and do not differ in the least in color. Several males from Texas before me have the head and neck even darker than chocolate, and darker than the darkest of the Lower California Birds.

building their nests, and the others were sitting on eggs. These could be approached within 20 feet. When one was shot, the others would flop away, and in a minute or two would return, giving me ample leisure to select another specimen with well-developed plumes. No nest was more than seven feet above the water. The note was a nasal, croaking "wonk." There were only four white birds on the island. These were in every case paired with a gray one. Two Reddish Egrets were seen at Boca de Paila, and several were in the north lagoon of Cozumel Island, but they were not breeding.

TABLE OF MEASUREMENTS

	Wing	Culmen
♂, Southern Texas.....	322-334	99-106
♂, Lower California.....	310, 318, 334	98-100
♂, "Mexico".....	300	92
♂, Yucatan.....	342	103
♀, Southern Texas.....	294-303	90-97
♀, Yucatan.....	311	93

35. *Hydranassa tricolor ruficollis* (Gosse).

36. *Florida caerulea* (Linnæus). Both species common around Ascension Bay, and abundant about Boca de Paila.

37. *Butorides virescens* (Linnæus). A few were noted in the Bay district.

38. *Nyctanassa violacea* (Linnæus). The commonest Heron in the Bay district. It was breeding at Boca de Paila and absurdly tame.

39. *Botaurus lentiginosus* (Montague). One observed in the marshes near Chunyaxche. While never recorded previously from Yucatan, it reaches Guatemala in winter.

40. *Tigrisoma cabanisi* Heine.—This beautiful Tiger Bittern was positively common in the marshes back of Boca de Paila. Contrary to statements in general works, its habits are not at all Bittern-like. I found two nests. These were in mangroves about 6 feet above the water, and differed radically from all other Heron nests I have seen in being very large, bulky and well made. One nest, which was carefully examined, was over three feet in diameter. It contained three pure white eggs. The female was very loath to leave, and both birds constantly uttered a loud, sonorous, nasal croak, which was rapidly repeated as their alarm increased. I was interested to observe that one of these breeding females was an immature bird.

41. *Cochlearius zeledoni zeledoni* Ridgway. Six pairs of Boat-billed Herons were found nesting on Culebra Key. The nests, exactly like the flimsy structure of the Night Heron in appearance, were placed high up in the heart of the densest and darkest clumps of mangrove in the center of the island. The alarm note was remarkable, a sonorous WONK-WAH, WAH, WAH, the last three notes given in the same interval of time as the first, which sounded for all the world like a musical snore. The birds did not sally forth from their hiding places to feed, until about 15 minutes before sunset.

I was impressed at once with two points about these birds in the field. The first was their paleness compared with specimens from Panama, which I had often handled.

The second was the fact that the sexes were easily separable in life by color differences. A study of these points in Museum series shows that Sharpe and other writers, who regarded the adults as alike, must have been led astray by improperly sexed or unsexed specimens. Once this point is established a series shows that eastern Panama specimens are much darker than typical Mexican specimens, and represent a very distinct undescribed race. I find that Mr. Ridgway in his original description commented on the fact that a specimen from Veraguas (the southernmost seen by him) was "the darkest of the whole lot." It will be recalled that the South American *C. cochlearius* is a paler bird than the Mexican *C. zeledoni*. The characters of the two races are given in full below.

a.—*Cochlearius zeledoni zeledoni* Ridgway

Type locality, Mazatlan, Sinaloa, Mexico.

ADULT MALE.—Clear lavender gray above; mantle abruptly jet black; neck and throat "light pinkish cinnamon"; nuchal crest much longer and more pointed.

ADULT FEMALE.—Varying above from "light quaker drab" to "light drab"; mantle deep chestnut to blackish chestnut; foreneck "cinnamon drab," gradually passing into deep chestnut of mantle; nuchal crest usually shorter and less pointed.

IMMATURE.—Resembling female, but even darker above, nearest deep brownish drab; foreneck never lighter than brownish drab.

RANGE.—Southern Mexico south to Nicaragua and Costa Rica. Specimens from northwestern Costa Rica are slightly intermediate.

b.—*Cochlearius zeledoni panamensis*, new subspecies

SUBSPECIFIC CHARACTERS.—Adult male differing from typical *Cochlearius zeledoni* in being darker, "light grayish olive" above; foreneck more olive, less cinnamon; sides of neck light grayish olive, passing through brownish drab into fawn color of throat and breast. Adult female much darker; nearest "deep quaker drab" above; foreneck "quaker drab"; sides of neck "cinnamon drab"; passing into the fawn colored chest and throat. Immature nearest "bone brown" above or "dark chestnut brown."

TYPE.—No. 153,503, Amer. Mus. Nat. Hist.; ♀ ad.; Corozal, Canal Zone, Panama; Dec. 2, 1915; Thomas Hallinan.

SPECIMENS EXAMINED

Cochlearius zeledoni zeledoni.—Southern Mexico, 4 ♂ ad.; 3 ♀ ad.; 1 ♀ imm.; 1 juv. Nicaragua, 1 ♀ imm. Costa Rica, 2 ♂ ad., 2 ♀ imm.

Cochlearius zeledoni panamensis.—Veraguas, 1 ♂ imm. Canal Zone, 1 ♂ ad.; 2 ♀, ad., 2 ♂ subadult; 1 ♂ im.

42. *Phaenicopterus ruber* (Linnæus). The invariable testimony of natives along the whole coast was to the effect that large numbers of Flamingoes bred near the mouth of the Rio Lagartos along the north coast just west of Cape Catoche. During the winter season they wander about to other favorable feeding grounds. When we arrived at Vigia Chica at the head of Ascension Bay, the leading plume-hunter told me that there always were a few in the sandy northwest arm, and that this was as far

south as they ever got on the coast. The next day I found a flock of eight there. Greater numbers are reported in the narrow northern arm leading north to Boca de Paila, the southern third of which contains suitable feeding grounds. Dr. Gann, the archæologist, reports large flocks there. Between Boca de Paila and Cape Catoche, there is no suitable ground on the mainland for the Flamingo, according to the natives, but I found them in abundance in the north lagoon of Cozumel Island.

43. *Marila affinis* (Eyton). Ducks were very scarce in all the country visited. A large flock of Lesser Scaup were in Chetumal Bay off Payo Obispo. A flock of ten were seen in Ascension Bay, and there were a few in the fresh-water lakes near Chunyaxche.

44. *Marila collaris* (Donovan). A pair of Ring-necked Ducks were with Lesser Scaup at Chunyaxche. While reaching Guatemala in winter, it has never been recorded from Yucatan. Mason made a brave effort to collect one on the open lake, with no facilities whatever. The shot spattered all around the bird, but it flew away apparently unscathed.

45. *Fregata aquila* (Linnæus). Common all along the coast. There were at least a thousand pairs in the bushes at the southern end of Contoy Island, as we sailed by in the steamer.

46. *Pelecanus occidentalis* Linnæus. Common all along the coast.

47. *Sula leucogastra* (Boddaert). Occasional at sea and in the larger bays. Specimens collected showed no signs of breeding.

48. *Phalacrocorax vigua mexicanus* (Brandt). Abundant throughout the bay district. At least 1000 pairs were nesting on Culebra Key. The nests were thickly clustered on the outside of the mangroves, from ten to thirty feet above the water, and the whitewash on the trees was visible for nearly half a mile. The nests contained from two to three young apiece, and the majority were two-thirds grown. Exploring the colony was a rather ticklish business, as the general atmosphere of excitement and alarm caused the young to disgorge their last meal of fish, usually in a liquid condition. The splashing of the dinners, the thrashing about of leaves and branches, the squeaking, whistling "whee" of the young, the staccato growls of the adults, and the whirring of wings formed an uproar which I shall not soon forget. Fifteen miles farther north in the lagoons back of Boca de Paila the Cormorants were not breeding, graphically illustrating the irregularity of the nesting season in the tropics.

49. *Anhinga anhinga* (Linnæus). A few in Ascension Bay.

50. *Catharista urubu* (Vieillot).

51. *Cathartes aura* subspecies. Both Vultures were common.

52. *Circus hudsonius* (Linnæus). The Marsh Hawk was seen in Ascension Bay and the savannahs of Chunyaxche.

53. *Asturina plagiata plagiata* (Lichtenstein). A single Mexican Goshawk was seen and shot in a clearing in the forest at Palmul. Another at Acomal.

54. *Rupornis magnirostris conspecta* Ridgway. The only common Hawk. Two specimens preserved.

55. *Urubitinga ridgwayi* Gurney. A fine adult was shot at Palmul by Captain Gough. A pair at Playa Carmen.

56. *Urubitinga anthracina* (Lichtenstein). Found only on Culebra Key.

57. *Herpetotheres cachinnans chapmani* Bangs and Penard. The only specimen collected is typically this subspecies in its large size and pale coloration below. The Laughing Falcon was fairly common in pairs in all forested areas visited.

58. *Falco albigularis* Daudin. A pair of these pretty little Falcons were nesting in a hole in a large dead tree in a clearing back of Acomal.

59. *Pandion haliaëtus ridgwayi* Maynard. This subspecies rested for years in oblivion until it was resurrected by Swann (1922, 'Synopsis Accipitres,' 2d Ed., p. 232). It was described as the breeding bird of the Bahamas, where it is supposed to be endemic, and now almost extinct. It is strikingly distinct from the North American *carolinensis* in having a pure white head, neck and underparts, with at most one or two dark specks on the crown, and slight streaks on the chest. More than fifty years ago the Osprey was recorded by Salvin as undoubtedly nesting on the Keys of British Honduras. On Jan. 17, on the way to Payo Obispo, we landed on Hick's Key and found a breeding pair with eggs in the nest. The pure white head made the female sitting on the nest appear like a Bald Eagle at a distance, and I do not hesitate to say that any one with trained powers of observation could distinguish the two races in life without difficulty. Another nest was found in the northwest arm of Ascension Bay. There were two pairs breeding in the lagoon back of Boca de Paila. One nest containing three downy young was investigated by Mr. Ogden T. McClurg, who took photographs and collected the female for me, while I was at Chunyaxche. This specimen has three dark feathers on the crown, but the underparts are pure white. It seems safe to say for the present, at least, that *ridgwayi* is not confined to the Bahamas, but occurs on the coast of Yucatan and British Honduras as well, and is perhaps the tropical resident race rather than a local one.

60. *Pandion haliaëtus carolinensis* (Gmelin). On at least two occasions adults which could only have been this subspecies were seen at close range along the coast.

61. *Glaucidium brasilianum ridgwayi* (Sharpe). A pair found at Chunyaxche, of which one was collected.

62. *Eupsittula astec astec* (Souancé). This little Parrakeet was found at nearly every point back of the coast visited.

63. *Amazona albifrons nana* Miller. Found only at Chunyaxche. One shot.

64. *Ceryle alcyon* (Linnæus). Common.

65. *Momotus lessoni exiguus* Ridgway. Common in heavy forest.

66. *Eumomota superciliosa superciliosa* (Sandbach). Found only north of Acomal, where extensive clearings in the forest had grown up with thick scrub.

67. *Nyctidromus albicollis yucatanensis* Nelson. Very few Parauques were heard calling, as they were not breeding. The bird is common and well known to the natives.

68. *Chætura gaumeri* Lawrence. This little Swift was common in flocks in the forest. Its small size compared to our Chimney Swift is obvious, but it is not distinguishable in life from the more southern *C. richmondi*. The notes are higher pitched and more "babyish" in sound than those of *C. pelagica*. It was most exceptional to see any except in the early morning and just before sunset.

69. *Pampa pampa pampa* (Lesson). Found only at Chunyaxche and Palmul, and uncommon.

70. *Amazilis y. yucatanensis* (Cabot). Found only in the forest clearings at Palmul and Acomal.

71. *Amazilis rutila rutila* (Delattre). Abundant along the outer beaches and breeding. The males were constant singers, with head thrown back and bill pointed upwards. The song closely resembled the feeble effort of the Blackpoll Warbler (*Dendroica striata*), a series of three or four strident hisses.

72. *Chlorostilbon caniveti caniveti* (Lesson). Uncommon.
73. *Trogon melanocephalus* Gould. Uncommon.
74. *Piaya cayana thermophila* (Sclater). The Squirrel Cuckoo was about as common as I have found it in other parts of Central America.
75. *Dromococcyx phasianellus* (Spix). This very rare species was flushed from the ground and shot in a dense thorny thicket at Chunyaxche. The bird perched motionless about four feet above the ground, continually uttering a low frog-like croak.
76. *Crotophaga sulcirostris* Swainson. Scarce, as was to be expected in a forested and unsettled region.
77. *Ramphastos p. piscivorus* Linnæus. One bird only at Playa Carmen.
78. *Pteroglossus torquatus erythronus* Ridgway. One of a pair collected out of the top of a tall dead tree in the forest at Palmul.
79. *Centurus d. dubius* (Cabot). Abundant throughout.
80. *Celeus castaneus* (Wagler). A pair shot at Chunyaxche.
81. *Ceophlæus lineatus similis* (Lesson). Uncommon.
82. *Phlæocestes g. guatemalensis* (Hartlaub). Uncommon.
83. *Dryobates scalaris parvus* (Cabot). One at Chunyaxche and another at Xcaret. This far south, the forest is too heavy for its requirements.
84. *Sphyrapicus v. varius* (Linnæus). One shot by Mason just north of Ascension Bay.
85. *Thamnophilus doliatus yucatanensis* Ridgway. Fairly common in clearings and forest borders.
86. *Synallaxis erythrothorax* Sclater. Only two individuals recorded. One collected.
87. *Xiphorhynchus flavigaster yucatanensis* Ridgway. Two at Chunyaxche and one at Palmul.
88. *Sittasomus sylvioides sylvioides* Lafresnaye. One at Palmul.
89. *Dendrocincla homochroa homochroa* (Sclater). The only member of this suborder which was fairly common in the forest.
90. *Oncostoma cinereigulare* (Sclater). Recorded only at Palmul and Chunyaxche. The bent bill of this little Flycatcher is an unmistakable field mark. One was shot.
91. *Platytriccus cancrorninus* (Sclater and Salvin). One specimen at Chacalal.
92. *Rhynchocyclus cinereiceps*. One at Palmul.
93. *Pipromorpha assimilis assimilis* (Sclater). One at Palmul; new to the Yucatan peninsula.
94. *Myiopagis placens placens* (Sclater). Recorded once at Chunyaxche.
95. *Elainea flavogastra subpagana* Sclater. Uncommon, as was to be expected in so forested a region. Found only in extensive clearings at Tulum, Acomal and Playa Carmen, where its familiar screeching calls could not be overlooked.
96. *Elainea flavogastra remota* Berlepsch. A pair or two in the dense mangroves on Culebra Key. For discussion of the race, see Part II (Novit. No. 236).
97. *Myiozetetes similis texensis* (Giraud). Another open country Flycatcher, which was naturally uncommon in so forested and unsettled a district.
98. *Myiochanes brachytarsus brachytarsus* (Sclater). Common at Chunyaxche and one at Palmul.
99. *Empidonax virescens* (Vieillot). One shot at Palmul.
100. *Empidonax minimus* (Baird). Fairly common.

101. *Myiarchus* species. I was astonished at the scarcity of this genus, when five species could have occurred. Only two individuals seen and both lost.

102. *Megarhynchus pitangua mexicanus* (Lafresnaye). Fairly common in forest clearings.

103. *Pitangus sulphuratus derbianus* (Kaup). Slightly more numerous than the last.

104. *Tyrannus melancholicus chloronotus* Berlepsch. Ubiquitous.

105. *Attila brasiliensis gaurneri* (Salvin and Godman). Fairly common at Chunyaxche. One at Acomal.

106. *Pachyrhampus major itzensis* Nelson. An adult male collected at Chunyaxche.

107. *Platypsaris aglaizæ yucatanensis* Ridgway. An adult male at Vigia Chica, and a female at Xcaret.

108. *Tityra semifasciata personata* Jardine and Selby. A pair seen at Chunyaxche.

109. *Stelgidopteryx serripennis* (Audubon). Abundant, especially about settlements and Maya ruins. Two were collected.

110. *Iridoprocne albilinea* (Lawrence). Common, especially in the vicinity of water.

111. *Iridoprocne bicolor* (Vieillot). Present in vast numbers in the swampy lagoons about Belize and in the savannahs near Chunyaxche. Not previously recorded either from British Honduras or Yucatan.

112. *Pheugopedius maculipectus cano-brunneus* Ridgway. Common in the forest.

113. *Thryothorus albinuchus albinuchus* (Cabot). Uncommon in the localities visited. The song is indistinguishable from that of the Carolina Wren.

114. *Nannorchilus leucogaster brachyurus* (Lawrence). Common in the forest.

115. *Melanoptila glabrirostris* Sclater. Rare and exceedingly shy along the outer beaches north of Ascension Bay.

116. *Galeoscoptes carolinensis* (Linnæus). A common winter visitant.

117. *Mimus gilvus gracilis* (Cabanis). Ubiquitous.

118. *Hylocichla mustelina* (Gmelin). One at Palmul.

119. *Planesticus grayi tamaulipensis* (Nelson). Rare; one at Palmul and another at Playa Carmen.

120. *Vireosylva magister* Lawrence. This Vireo has one of the most remarkably limited habitat requirements of any bird I know. It was common along the coast opposite Cozumel Island, and occupied a strip bounded by the beginning of a real forest back of the beach on one side and at most a mile inland on the other. In habits it is just like the Red-eyed Vireo, but the song is far richer and less disconnected, superior even to that of *V. flavoviridis*, in my opinion. The series collected shows great variation in the dusky or grayish obscuration of the olive green, and eliminates the color characters of the race *cinerea*. In size they are no smaller than that of the two topotypes from Belize. It is far more likely that the bird of Ruatan Island is distinct.

121. *Lanivireo flavifrons* (Vieillot). Two seen at Chunyaxche.

122. *Lanivireo solitarius solitarius* (Wilson). One seen at Chunyaxche. Not previously recorded from Yucatan, but its occurrence was to be expected.

123. *Vireo n. noveboracensis* (Gmelin). Abundant winter visitant. A few were in song.

124. *Vireo ochraceus* Salvin. Found only in thickets at Palmul and Xcaret, where it was very common.

125. *Pachysylvia ochraceiceps ochraceiceps* (Sclater). A rain-forest species not previously reported from Yucatan. I recognized a pair with a mixed flock of birds moving through the forest at Palmul. One was shot and wing-broken, but it reached a tiny hole in the limestone rock, just as my hand was about to close on it, and escaped. I have had field experience with this species previously both in Nicaragua and Panama.

126. *Cyclarhis flaviventris yucatanensis* Ridgway. One at Palmul.

127. *Mniotilta varia* (Linnæus). Common winter visitant.

128. *Compsothlypis americana* subspecies. Recorded on several occasions.

129. *Dendroica æstiva* subspecies. A single bird seen in the forest back of Acomal.

130. *Dendroica bryanti bryanti* Ridgway. Abundant in all the mangrove swamps.

131. *Dendroica maculosa* (Gmelin). Common winter visitant in the forest.

132. *Dendroica coronata* (Linnæus). Common along the outer beaches and occasional in clearings inland.

133. *Dendroica virens* (Gmelin). Common winter visitant.

134. *Dendroica dominica albilora* Ridgway. One at Xcaret.

135. *Dendroica p. palmarum* (Gmelin). Three on the beach at Vigia Chica.

136. *Seiurus aurocapillus* (Linnæus). One at Chunyaxche.

137. *Seiurus noveboracensis* subspecies. Recorded on several occasions.

138. *Geothlypis trichas brachydactyla* (Swainson). Common.

139. *Chamæthlypis poliocephala palpebralis* Ridgway. Common in the marshes back of Vigia Chica and the savannahs near Chunyaxche.

140. *Icteria virens virens* (Linnæus). One at Chunyaxche.

141. *Granatellus sallæi boucardi* Ridgway. An adult male of this rare species collected at Acomal in a dense thicket.

142. *Wilsonia mitrata* (Gmelin). Not only was the Hooded Warbler an abundant winter visitant in the forest, but it was more numerous in individuals than any resident species of the same habitat.

143. *Setophaga ruticilla* (Linnæus). Common.

144. *Passerculus sandwichensis alaudinus* (Bonaparte). A flock found on a beach near the southwest arm of Ascension Bay, and one collected. This sparrow is previously unrecorded in Yucatan, or anywhere in the *tierra caliente* of Mexico.

145. *Arremonops verticalis* Ridgway. Not uncommon in the darker parts of the forest, but shy and secretive and easily overlooked.

146. *Volatinia jacarini atronitens* Todd. Seen once only in a large clearing at Palmul with other Finches.

147. *Euthetheia olivacea pusilla* (Swainson). Several with the last at Palmul.

148. *Sporophila moreletii* (Bonaparte). Occasional in clearings.

149. *Passerina ciris* (Linnæus). At Palmul with other Finches and also at Playa Carmen.

150. *Cyanocompsa parellina parellina* (Bonaparte). Occasional in forest openings. Only one adult male seen.

151. *Cardinalis cardinalis yucatanicus* Ridgway. Common. The specimens collected show no approach to *C. c. flammiger* Peters, described from Xcopen in Quintana Roo, near the British Honduras border. An adult male in the American Museum from Corozal, British Honduras, a few miles from Xcopen, shows very clearly the characters ascribed to this race.

152. *Saltator atriceps atriceps* Lesson. A flock in the forest at Palmul. Yucatan specimens do not differ from a series from Mexico and Central America, and I cannot recognize *raptor* (Cabot).

153. *Saltator grandis* (Lichtenstein). A flock at Chunyaxche.

154. *Piranga rubra rubra* (Linnæus). A young male in the mixed red and green plumage shot at Palmul.

155. *Piranga roseo-gularis roseo-gularis* Cabot. A very common species of forest borders. Dr. Chapman has already commented on how unlike the short, rich, warbled song is to that of other members of the genus.

156. *Eucometis spodocephala pallida* Berlepsch. A very little known bird in Yucatan. It was abundant in the fields around Playa Carmen. It travelled in flocks that kept up a continual squeaking but noisy chatter which, in connection with their size and bright colors, made it impossible to overlook them. I was surprised, therefore, at not having found the bird at the nearby localities visited.

157. *Phenicothraupis rubica nelsoni* Ridgway. A pair collected at Chacalal.

158. *Phenicothraupis salvini rooensis*, new subspecies

SUBSPECIFIC CHARACTERS.—Nearest typical *salvini* Berlepsch of Guatemala, but adult male with throat more crimson, less vermilion, more contrasted with the color of the underparts, which are rosier, less grayish vermilion; above very slightly more rosy, less brick red, and crown-patch more crimson, less scarlet. Adult female lighter umber brown above; occiput tinged more or less strongly with ochraceous tawny; throat darker, light ochraceous tawny; underparts paler, more buffy or ochraceous brown.

TYPE.—No. 254,749, Amer. Mus. Nat. Hist.; ♂ ad.; Jan. 31, 1926; Chunyaxche, Quintana Roo, Mexico; Ludlow Griscom.

SPECIMENS EXAMINED

Phenicothraupis salvini salvini.—Southern Mexico, 2 ♂, 2 ♀; Guatemala, 5 ♂, 5 ♀. None of the Mexican specimens seems quite typical.

Phenicothraupis salvini rooensis.—British Honduras, 1 ♂, 1 ♀; Quintana Roo: Chunyaxche, 2 ♂ ad.; Palmul, 1 ♂ imm.; Vigia Chica, 1 ♀. The British Honduras specimens are slightly intermediate.

Phenicothraupis salvini peninsularis.—Northern Yucatan, 3 ♂, 1 ♀.

While geographically intermediate between *salvini* and *peninsularis*, the new race in most characters suggests *littoralis* (Nelson) of the coast district of eastern Mexico, which is darker than true *salvini*. The adult male of *rooensis* is intermediate in color between *salvini* and *littoralis*. The very distinct female, however, stands apart by itself. While slightly paler than *salvini* in general color, and thus approaching *peninsularis*,

the darker throat and ochraceous tawny occiput suggest *littoralis*. It still remains to be determined definitely whether *peninsularis* Ridgway is separable from *insularis* Salvin from Meco Island off the north coast of Yucatan.

This new Ant Tanager was one of the commonest birds in the forest, travelling about in the underbrush in small bands. It was as readily "squeaked up" as the Wrens, and had a great variety of harsh, scolding notes, seeming strongly to resent the presence of an intruder. It probably replaces *peninsularis* in the more heavily forested lower half of the Yucatan peninsula.

159. *Amblycercus h. holosericeus* (Lichtenstein). Seen only at Vigia Chica.

160. *Megaquiscalus major macrourus* (Swainson). Common on Culebra Key, but scarce on the mainland, where it was noted only along the coast north of Tulum.

161. *Dives dives* (Lichtenstein). A large flock lived around the chiclero camp at Chunyaxche, and woke us with their musical, bubbling notes every morning at day-break.

162. *Icterus gularis yucatanensis* Berlepsch. Fairly common, but not observed in the heavier forest at Chunyaxche and Palmul. The single adult male collected is as small as a large series of *yucatanensis*, but is less intense orange, in this respect slightly approaching typical *gularis*.

163. *Icterus cucullatus masoni*, new subspecies

SUBSPECIFIC CHARACTERS.—Adult male, similar to typical *Icterus cucullatus* Swainson, of the southern and western parts of the Mexican plateau, but slightly less orange, intermediate in this respect between *cucullatus* and *sennetti*; differing more radically from *igneus* Ridgway, the geographically adjoining race in Yucatan, in being even paler proportionately, smaller, and with more extensive white edgings on the wings, especially the primaries. Immature male radically different from the corresponding stage of *cucullatus*, consequently more closely resembling *igneus*, differing in exactly the same three respects as the adult male. Adult female very different from typical *cucullatus*, more closely resembling *igneus* but smaller, more extensive lighter edgings on the primaries, and slightly deeper yellow both above and below.

TYPE.—No. 59,876; ♂ ad. in winter plumage; Manatee, British Honduras; Feb. 26, 1889; D. C. Ingraham.

SPECIMENS EXAMINED

Icterus cucullatus cucullatus.—21 ♂ ad., 14 ♂ im., 11 ♀, from throughout the range in Mexico.

Icterus cucullatus igneus.—Northern Yucatan, 5 ♂ ad., 3 ♂ imm., 1 ♀.

Icterus cucullatus masoni.—Quintana Roo; Palmul, 1 imm. ♂; Chunyaxche, 1 ♂ ad.; Vigia Chica, 1 ♀. British Honduras; Manatee, 1 ♂ ad., also 1 ♂ ad. from the Lawrence Collection labelled "Honduras," but undoubtedly British Honduras was meant; it is labelled "*igneus*?" by Mr. Ridgway.

Salvin shot a Hooded Oriole near Belize in 1857, since which time I am not aware that it has ever been recorded south of northern Yucatan. The subspecific identity of this southern bird has never been determined, and it is not surprising that it should prove distinct, occupying, as it does, a more forested and rainier region than its nearest ally *igneus*. Among the few land birds encountered during a late afternoon walk on Ambergris Key was a flock of this species, one of which Mason collected, although it could not be skinned at sea the next morning, because of the violent motion of the schooner. Mason's Hooded Oriole was an abundant bird in the palm jungle of the outer beaches along the coast, and was present in smaller numbers in forest clearings elsewhere. The males were beginning to sing towards the end of my visit.

164. *Agelaius phœniceus richmondi* Nelson. Common in the fresh-water savannahs of Vigia Chica and Chunyaxche.

165. *Psilorhinus mexicanus vociferus* (Cabot). Very common in the forest in small flocks. The bill and legs were sometimes black, sometimes bright yellow. The most usual note was a whistled scream exactly like that of the North American Red-shouldered Hawk (*Buteo lineatus*).

166. *Xanthoura luxuosa guatemalensis* (Bonaparte). Recorded only at Chunyaxche, where it was shy and quiet, in marked contrast to the bold and noisy impudence of most Central American Jays.

167. *Cissilopha yucatanica* (Dubois). Common everywhere in the forest.

