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THE BIRDS OF ISLA ESCUDO
DE VERAGUAS, PANAMÁ

(WITH ONE PLATE)

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Isla Escudo de Veraguas lies in the southern Caribbean Sea at lat. $9^{\circ}06' N.$, long. $81^{\circ}34' W.$, distant a little more than 18 kilometers from Coco Plum Point on the base of the Valiente Peninsula, Province of Bocas del Toro. The island is roughly rectangular, with a projecting point at the southeast and a somewhat irregular shoreline on the western and northern sides. It is a little over 4 kilometers long by less than $1\frac{1}{2}$ wide, with the long axis running east and west. A sand beach extends along three-fourths of the southern side, around the flat, open southeastern point, and across the eastern side, past the mouth of a small stream, to end against a cliff, 12 meters high, of sandy, indurated clay. Similar bluffs separated by short stretches of beach mark the shoreline along the west and north. The northern side is broken by a small bay with a sand beach at its head. On the west the sea has cut back into the land, leaving several small islets, some of them barren except for grass and other low herbage, and some with a crown of brush and trees. Wave action is steadily eroding the low cliffs, forming small caves, and in some cases arches that pass through projecting points to the sea on the opposite side. The shallow bank surrounding the island indicates that this process has served to reduce it in size. The land back of the southern beach, elevated sufficiently above high-tide line to form a flat, is fringed with coconut palms on the sea side. Behind these extends low jungle in which scattered trees rise 15 to 20 meters tall. Toward the center the surface is lower and is swampy, with two or three trickles of fresh water, discolored by swamp peat, that drain to the sea. There is a small stand of mangroves at the mouth of the stream that enters the sea above the southeastern point.

Columbus during his fourth voyage sighted the island on October 17, 1502, when he came out of the Laguna de Chiriquí through Canal del Tigre (Tiger Channel) (Morison, 1942, vol. 2, p. 350). He gave it the name El Escudo as it appeared to resemble an escudo,

or shield. In the following years the island became a landmark for navigators along this stretch of coast, and is mentioned from time to time in ancient documents, the name being abbreviated often to Scudo, Scuda, or sometimes modified to Skoday (Anderson, 1911, p. 371). Presently it was designated Escudo de Veragua, and finally the latter part of the name became Veraguas. In the last voyage of Sir Francis Drake (Hakluyt, 1904, pp. 239-240) it is related that his ships came to Escudo on January 10, 1596, where they anchored on the southern side, remaining until January 23. The island was described as "not past two leagues long full of wood, and hath great store of fresh water . . . and that very good." Many of the men soon fell sick, and Drake himself contracted the illness that caused his death on January 28 when they were near Portobello. He was buried at sea off that harbor.

In occasional seventeenth-century accounts of buccaneers and other voyagers there is casual reference to Escudo de Veraguas as a place of shelter or a source of water. Dampier's observation (Dampier, 1697, p. 39) made in 1681 that "We past by *Scuda*, a small Island (where 'tis said *Sir Francis Drake's* Bowels were bury'd)" repeats a tale, apparently of common belief, that cannot concern this island since Drake's death and burial, off Portobello, came more than 200 kilometers to the east. Escudo was visited by Indians, since Dr. Matthew W. Stirling of the Smithsonian Institution informs me that in the town of Bocas del Toro he was shown artifacts found on the island, proof that aboriginal people had lived there, at least from time to time. But there may be confusion with some larger place in the report (Anderson, p. 272) that records a considerable Indian population, divided under two caciques or chiefs. The land area, with due allowance for a reasonable amount of erosion since these early times, is too small to have permitted permanent residence for many persons.

At present men come at intervals to gather the coconuts, or occasionally to fish, search for turtles, or to hunt the introduced wild pigs. There is no permanent human resident, and the wildlife, except for the pigs, is tame.

I was able to visit Escudo de Veraguas through the kind assistance of George Munch, manager of the Almirante Division of the Chiriquí Land Co., which has its headquarters at Almirante, Province of Bocas del Toro. We left Almirante on February 28, 1958, shortly before midnight, on the diesel launch *Talamanca*, entered the sea through the pass of Boca del Toro, and before dawn anchored in the lee on the southeastern end of the island. Accompanied by Ziska Hartmann

and Jorge Burke, I was ashore near the southeastern point shortly after 7 o'clock and during the forenoon worked through the southern, level section parallel to the beach nearly to the western end. As the sun rose higher the humidity and heat of the dense jungle, where no breeze could enter, became oppressive, so that it was pleasant at the end to walk back to our cayuco along the open beach.

At dawn the following morning the breeze blew from the mainland to the south, so that waves were breaking on the beach. We went off before 7:00 in a choppy sea, and finally landed near the mouth of the small stream. I crossed first into the ridge area at the northeast, but finding this difficult travel and unproductive I sought more level ground. Through this I crossed again toward the western end parallel to the northern shore. The sky was overcast, one shower of rain came, and at times it was difficult to see birds in the heavy jungle shadows.

Though there were no trails, the low jungle was open and easy to penetrate. Where the growth became dense the ground was covered heavily with vines. On the north and west the surface rose 10 to 25 meters in broken, steep-sided ridges, separated by little valleys. Here there was much undergrowth of the spiny pita (a plant of the pineapple family) which, with the steep, slippery slopes, and the swampy floors of the small valleys between, made it difficult to get about. The taller trees that grow along the crests of these ridges from the sea give a misleading appearance of true high forest.

On this final day we returned to the launch a little after 11:00 and, as the sea was rising, left for Almirante, returning through Crawl Cay Channel.

The only record of any earlier visit of a naturalist to the island is the skin of a white-crowned pigeon in the collections of the University of California at Los Angeles. From the end of February to early in April 1936, Dr. Loye Holmes Miller of the Department of Zoology of that Institution, on sabbatical leave, accompanied by a graduate student, Frank Richardson, as assistant, visited the Laguna de Chiriquí, living on a barge that served as a base for a Navy Hydrographic Office detail engaged in a survey of the area. Dr. Miller informs me that on March 2 Richardson accompanied a shore party of Navy personnel to Escudo and brought back a white-crowned pigeon. No other specimens were taken.

While Escudo de Veraguas lies well offshore, it is located on a bank where the sea is shallow. A narrow trench of 24 to 35 fathoms lies to the west and southwest, but elsewhere the depths are considerably less. Since it is estimated that sea levels dropped from 90 to 120 meters during the last period of extensive glaciation in Wisconsin

time during the Pleistocene, it is apparent that then the island was part of the mainland. A similar connection should have come during part or all of the three preceding periods of maximum glacial ice. Return of warmer temperatures in the interglacial periods, which melted the ice, again raised the water level, placing Escudo once more as an island, remote at sea. It is reasonable to suppose that the resident wren and the manakin, as well as the peculiar spiny rat of the island, were established there during one of the periods of land connection, since they are jungle creatures that do not range far from cover, nor are the birds of kinds that would be readily windblown by violent storms. Whether the characters of size and color that now mark them were theirs in whole or in part on their arrival, or whether these are distinctions that have developed during isolation, cannot be said, except that it seems probable that the peculiarity of greater size may have become intensified, since this condition is found regularly in populations that seem to have been restricted for long periods to small islands. The manner of development of the differences that mark the blue-gray tanager is not easily understood since in mainland regions these birds appear to roam far. It would appear that they may not cross fairly wide water barriers, since another insular form is found on Isla Coiba off the Pacific coast of Panamá (Wetmore, 1957, p. 94).

Though there were few species of resident birds on Escudo de Veraguas, individuals were fairly numerous. The songs of the bay wren, joined occasionally by the raucous notes of a small flock of parrots, were regular bird notes of the jungle, aside from which there were only the subdued sounds of the wind in the higher treetops, and of the wash of waves against the shoreline. The smaller birds were encountered mainly in the more level areas, where at times they were detected with difficulty in the dim shadows that prevailed in the thickets when the sky was overcast. Occasionally I noted large spiny rats of the genus *Hoplomys*. One that I shot on the ground proves to be a form new to science.

ANNOTATED LIST

Family PELECANIDAE: Pelicans

PELECANUS OCCIDENTALIS Linnaeus: Brown Pelican, Alcatraz

Pelecanus occidentalis Linnaeus, *Systema naturae*, ed. 12, vol. 1, 1766, p. 215. (Jamaica.)

Several were fishing around the island on the morning of March 2.

Family SULIDAE: Boobies

SULA LEUCOGASTER LEUCOGASTER (Boddaert): Brown Booby, Piquero
Moreno

Pelecanus Leucogaster Boddaert, Table des planches enluminées, 1783, p. 57.
(Cayenne.)

Scattered groups rested on small islets off the western end of the island, selecting those that were rocky or covered with short herbage. They were nesting here, as I noted several large down-covered young. At sunset adults came in from the open sea, flying low above the water, singly or in groups of three or four. As our launch passed, a number, part of them fully grown young, came flying out from the islets to circle about with evident curiosity. There were no frigate-birds here, and so the boobies were free from molestation. I estimated that about 200 individuals were present.

Family CHARADRIIDAE: Plovers, Turnstones

CHARADRIUS SEMIPALMATUS Bonaparte: Semipalmated Plover, Chorlito
Semipalmado

Charadrius semipalmatus Bonaparte, Journ. Acad. Nat. Sci. Philadelphia, vol. 5,
August 1825, p. 98. (Coast of New Jersey.)

A flock of 14 ranged the beach at the southeastern end of the island.

Family SCOLOPACIDAE: Snipe, Woodcock, Sandpipers

ACTITIS MACULARIA (Linnaeus): Spotted Sandpiper, Playerito Coleador
Tringa macularia Linnaeus, Systema naturae, ed. 12, vol. 1, 1766, p. 249. (Penn-
sylvania.)

One seen on March 1.

NUMENIUS PHAEOPUS HUDSONICUS Latham: Whimbrel, Zarapito
Trinador

Numenius hudsonicus Latham, Index ornithologicus, vol. 2, 1790, p. 712. (Hud-
son Bay.)

One seen on the beach March 1.

Family COLUMBIDAE: Pigeons, Doves

COLUMBA LEUCOCEPHALA: White-crowned Pigeon, Paloma Cabeciblanca
Columba leucocephala Linnaeus, Systema naturae, ed. 10, vol. 1, 1758, p. 164.
(Bahama Islands.)

Two were seen March 1 in the top of a thickly leaved tree. A male in the collection of the University of California at Los Angeles was shot on March 3, 1936, by Frank Richardson, now of the Department

of Zoology of the University of Nevada, at the time student assistant with Dr. Loye Holmes Miller (see p. 3).

Family PSITTACIDAE: Parrots, Macaws

AMAZONA AUTUMNALIS SALVINI (Salvadori): Red-fronted Parrot, Loro Frentirrojo

Chrysotis salvini Salvadori, Catalogue of the birds in the British Museum, vol. 20, 1891, p. 271. (Lion Hill Station, Canal Zone, Panamá.)

Three pairs were seen in the early morning of March 1, and a female was collected. The same small group was observed the following day.

Family TROCHILIDAE: Hummingbirds

AMAZILIA TZACATL TZACATL (De la Llave): Rieffer's Hummingbird, Colibrí Colimorena

Trochilus Tzacatl, De la Llave, Registro Trimestre, vol. 2, No. 5, 1833, p. 48. (México.)

Several were observed among the lower shrubs back of the beaches.

Family ALCEDINIDAE: Kingfishers

MEGACERYLE TORQUATA TORQUATA (Linnaeus): Ringed Kingfisher, Martín Pescador Grande

Alcedo torquata Linnaeus, Systema naturae, ed. 12, vol. 1, 1766, p. 180. (México.)

One was recorded on March 2 near the mouth of the small stream at the southeastern end.

Family PIPRIDAE: Manakins

MANACUS VITELLINUS (Gould): Gould's Manakin, Matraco

Pipra vitellina Gould, in Hinds, R. B. (editor), Zoology of the Voyage of H.M.S. *Sulphur* under the command of Captain Sir Edward Belcher, R.N., F.R.G.S., etc., during the years 1836-42, vol. 1, pt. 3 (Birds, pt. 1), October 1843, p. 41, pl. 21. (Panama = Panama City, Panamá.)

The manakin (fig. 1) was fairly common, ranking next to the wren in abundance. The birds were found among the branches of the smaller trees, where they were quiet, moving about rather slowly, often remaining motionless for several minutes at a time. I regretted that there was no indication of display among the males, as their larger size should make the noises that accompany these activities definitely impressive.

The bird of Escudo de Veraguas was so different from the repre-

sentative of this species around Almirante Bay that I recognized it as an unknown race when the first specimen came to hand. It is described in the following paragraphs:

MANACUS VITELLINUS AMITINUS, subsp. nov.

Characters.—Similar to *Manacus vitellinus cerritus* Peters¹ but definitely larger; bill distinctly larger and heavier; tarsi and toes

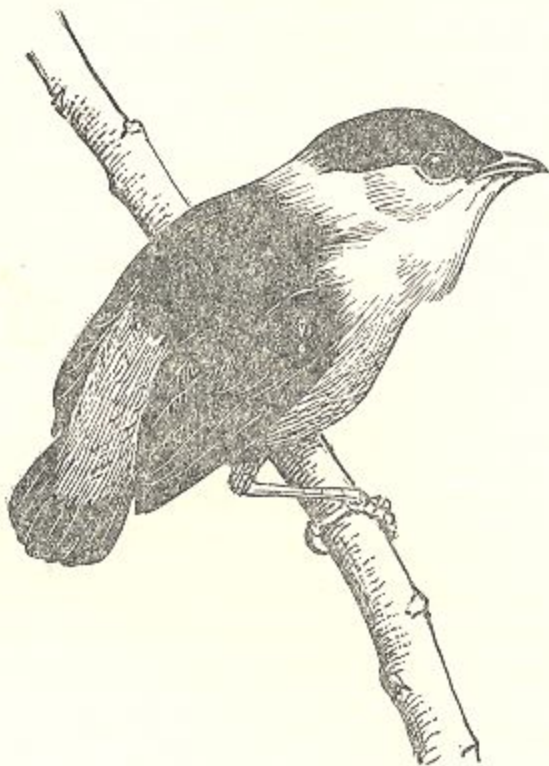


FIG. 1.—Gould's manakin, Matraco.

heavier; adult male with lower back, rump, and posterior ventral surface, including the sides and under wing coverts, darker green; female and immature male somewhat darker green throughout, with the abdomen less yellowish.

Description.—Type, U.S.N.M. No. 468919, male adult, from Isla Escudo de Veraguas, Prov. Bocas del Toro, Panamá, March 2, 1958, collected by Alexander Wetmore (orig. No. 22241). Entire crown

¹ *Manacus cerritus* Peters, Proc. New England Zool. Club, vol. 10, September 22, 1927, p. 9. (Almirante, Bocas del Toro, Panamá.)

to nape, including the lores, wings (except inner lesser coverts), upper back, and tail black; sides of head, throat and neck, including hind-neck, bright apricot yellow, becoming lemon chrome as the yellow collar meets the black of the back; lesser wing coverts, except the outermost, lemon chrome; lower back, rump, and upper tail coverts yellowish oil green; breast, sides, flanks, abdomen, and under tail coverts between warbler green and olive-green; an indefinite light wash of lemon yellow on center of breast and abdomen; outer under wing coverts Roman green, inner ones yellowish citrine; under surface of inner webs of primaries and secondaries, except toward the tips, dull white. Bill dull black; tarsus and toes fuscous; claws dark neutral gray (from dried skin).

Measurements.—Males (3 specimens), wing 59.3-61.4 (60.6), tail 39.2-42.0 (40.2), culmen from base 14.0-14.8 (14.5), tarsus 23.8-24.5 (24.1) mm.

Females (2 specimens), wing 59.5-60.0 (59.7), tail 38.2-38.3 (38.3), culmen from base 14.7-14.7 (14.7), tarsus 21.0-21.5 (21.2) mm.

Type, male, wing 59.3, tail 39.4, culmen from base 14.6, tarsus 23.8 mm.

Range.—Isla Escudo de Veraguas, at sea off the base of Peninsula Valiente, Bocas del Toro, Panamá.

Remarks.—The greater size of this handsome bird as compared with mainland forms is evident on comparing the measurements with those listed in succeeding paragraphs. In bulk the island birds appear nearly one-third greater. In drawing the description comparison has been made with *cerritus* since the shades of yellow on head and neck of these two are more nearly in agreement. In terms of present distribution *Manacus v. vitellinus* is assumed to be the form of the mainland opposite Isla Escudo, since it is the one recorded at Cricamola on the shores of Laguna de Chiriquí, opposite Peninsula Valiente. *Manacus v. cerritus* is known to range south only to the southern shores of Almirante Bay so that if the water barrier is disregarded, *cerritus* and *amitinus* are separated by an intervening population of typical *vitellinus*.

The name is taken from the Latin *amitinus*, a cousin.

To determine clearly the affinities of the manakin from Escudo a survey has been made of the related members of the genus *Manacus* found in Panamá, particularly *Manacus vitellinus*, of which an excellent series is at hand from the entire range including Colombia. It became evident immediately that *cerritus*, described by James L. Peters as a distinct species, was in fact a geographic race of *M. vitellinus*, as the supposed specific characters break down when the entire area

occupied by this bird is given review. It may be noted also that the display of males of *cerritus*, as I saw it in January and February 1958, was similar to that of typical *vitellinus*.

Following is a summary of the subspecies of *vitellinus* based on this examination, with the races arranged in geographic sequence from west to east.

MANACUS VITELLINUS CERRITUS Peters

Manacus cerritus J. L. Peters, Proc. New England Zool. Club, vol. 10, September 22, 1927, p. 9. (Almirante, Bocas del Toro, Panamá.)

Characters.—Similar in color pattern, and in colors in general, to *Manacus v. vitellinus*. Male, with throat, sides of head, and band across hind neck and upper back more yellow, less orange, varying in some to completely bright yellow; lower breast, abdomen, sides, flanks, and under tail coverts more greenish yellow; rump and upper tail coverts brighter green; female, and male in immature plumage, darker green throughout.

Measurements.—Males (9 specimens), wing 51.8-54.2 (53.3), tail 31.2-35.8 (34.2), culmen from base 11.1-12.3 (11.7), tarsus 20.0-22.6 (21.5) mm.

Females (3 specimens), wing 54.0-55.7 (54.9), tail 33.1-34.4 (33.9), culmen from base 11.8-12.5 (12.0), tarsus 20.2-21.4 (20.9) mm.

MANACUS VITELLINUS AMITINUS Wetmore

Characters.—Generally similar to *M. v. cerritus*, but decidedly larger; darker green.

Range.—Isla Escudo de Veraguas, Province of Bocas del Toro, Panamá.

Full details of differences, and of measurements, are given in the description above.

MANACUS VITELLINUS VITELLINUS (Gould)

Pipra vitellina Gould, in Hinds, R. B. (editor), Zoology of the Voyage of H.M.S. *Sulphur*, under the command of Captain Sir Edward Belcher, R.N., F.R.G.S., etc., during the years 1836-42, vol. 1, pt. 3 (Birds, pt. 1), October 1843, p. 41, pl. 21. ("Panama"=Panama City, Panamá.)

Characters.—Similar to *M. v. cerritus*, but male decidedly orange on foreneck, throat, sides of head, and band across base of neck; posterior under surface more greenish; rump and upper tail coverts gray-green.

Measurements.—Males (47 specimens), wing 50.4-55.7 (52.3), tail

25.8-31.5 (28.3), culmen from base 11.0-13.0 (11.8), tarsus 20.4-22.4 (21.4) mm.

Females (46 specimens), wing 50.7-54.9 (53.2), tail 27.3-31.7 (29.3), culmen from base 11.1-12.7 (12.0), tarsus 18.3-20.7 (19.4) mm.

Range.—On the Pacific slope from the foothills of eastern Veraguas (Santa Fé) eastward through the western part of the Province of Panamá (La Campana, Chorrera), throughout the Canal Zone, and eastern Panamá, to extreme eastern Darién (Jaqué, Río Jaqué, Cana); on the Caribbean slope from central Bocas del Toro (Cricamola), through northern Veraguas (Guaval on Río Calovevora), northern Coclé (El Uracillo), the Province of Colón (Chilar, Portobello) and the Comarca de San Blas (Mandinga, Permé, Obaldía); entering Colombia on the western side of the lower Río Atrato (Unguía, Chocó) and along the shores of the Gulf of Urabá at Acandí, Chocó, on the western side, and Necoclí, Antioquia, on the east.

This is the first published report of this race for Colombia. Specimens from Acandí and Unguía, both near the Panamanian boundary, are like typical examples from Panamá. A series of 7 males from Necoclí on the eastern shore of the mouth of the Gulf of Urabá averages faintly paler, more yellowish green below, and very faintly more yellowish orange on the head. They thus show an approach toward the paler *milleri* of the Sinú Valley to the east, but are to be placed with *vitellinus*.

Gould published the description of this manakin twice, first in the Zoology of the Voyage of H.M.S. *Sulphur*, where it appeared in October 1843 as indicated above. The bird was displayed with 8 other new species from this voyage at a meeting of the Zoological Society in London in July 1843, but publication in the Proceedings did not come until December. In the first publication, in October, Gould states that "The specimen here figured was procured by Mr. Hinds at Panama, and is the only one I have seen." The introduction to the Voyage of the *Sulphur* indicates that the vessel made surveys along the entire Pacific coast of the Republic, but it appears clear that the locality "Panama" refers to the vicinity of Panama City, which is the only place mentioned that lies within the range of *vitellinus*. This is accepted, therefore, as the restricted type locality.

MANACUS VITELLINUS VIRIDIVENTRIS Griscom

Manacus vitellinus viridiventris Griscom, Bull. Mus. Comp. Zool., vol. 69, April 1929, p. 179. (Jiménez, near Buenaventura, Valle, Colombia.)

Characters.—Similar to *M. v. vitellinus*, but male with lower breast, abdomen, sides, flanks, under tail coverts, rump, and upper tail coverts

definitely darker green; yellow of anterior part of body, including the neck band, somewhat less orange, more yellow; female darker green, in this resembling female *M. v. cerritus*, from which it differs in being somewhat less yellowish on the abdomen, and duller green above.

Measurements.—Males (14 specimens), wing 50.6-53.7 (52.2), tail 26.3-30.6 (28.7), culmen from base 10.8-12.5 (11.6), tarsus 20.4-22.7 (21.5) mm.

Females (6 specimens), wing 53.0-54.3 (53.5), tail 28.1-30.1 (29.5), culmen from base 11.6-12.4 (11.9), tarsus 19.1-20.0 (19.6) mm.

Range.—Western Colombia, from northern Chocó (Río Juradó, Río Jurubidá, Nuquí) and northwestern Antioquia (Villa Artiaga, Dabeiba) south through western Caldas (Santa Cecilia) and Valle (Puerto Muchimbo, Jiménez), including the upper Cauca Valley (Riofrío, Cali).

This race has been supposed to range into extreme eastern Darién at Cana but specimens from that locality agree best with typical *vitellinus*.

MANACUS VITELLINUS MILLERI Chapman

Manacus vitellinus milleri Chapman, Bull. Amer. Mus. Nat. Hist., vol. 34, Dec. 30, 1915, p. 645. (Puerto Valdivia, Antioquia, Colombia.)

Characters.—Much paler than *M. v. vitellinus*; male with head (except for the black crown) and band across hindneck bright, light yellow, without orange; rest of lower surface much paler, being grayish green with a wash of yellow; rump and upper tail coverts paler; female, definitely paler below, being whitish on abdomen, and duller, grayer green above.

Measurements.—Males (11 specimens), wing 49.7-52.9 (51.6), tail 26.8-30.4 (28.6), culmen from base 10.8-12.2 (11.5), tarsus 20.6-22.3 (21.3) mm.

Females (6 specimens), wing 52.5-54.5 (53.7), tail 28.8-30.8 (29.6), culmen from base 11.0-12.0 (11.6), tarsus 19.0-20.0 (19.4) mm.

Range.—Northwestern Colombia, from the valley of Río Sinú (Nazaret, Socarré) in western Bolívar, south to the middle Cauca Valley in northern Antioquia (Tarazá, Puerto Valdivia); recorded from Remedios in east central Antioquia at the head of Río Ité, a tributary of the lower middle Río Magdalena.

In the series at hand this race is typical on the middle Río Cauca in northern Antioquia. In some specimens from the lower Río Sinú, taken at Nazaret, Tierra Alta, Socarré, and Quebrada Salvajín, most of the males have the head somewhat more orange, and the breast

and abdomen somewhat darker, varying in the direction of *vitellinus*. They are thus somewhat intermediate, but are definitely near *milleri*.

It has been suggested that *Manacus aurantiacus* (Salvin) found on the Pacific slope of western Panamá would eventually prove to be conspecific with *M. vitellinus*, but my studies to date do not bear out this supposition. Brighter color, particularly in the male, and smaller size mark *aurantiacus* uniformly throughout its range from southwestern Costa Rica through Chiriquí, southern Veraguas, and both sides of the Azuero Peninsula in Veraguas, Herrera, and Los Santos. *Manacus vitellinus vitellinus* from near Santa Fé, Veraguas, and La Campana and Chorrera in the western section of the Province of Panamá, where intergradation, if present, should occur, show no variation from the normal pattern of that race. From present information the two groups appear to be separated by a savanna area in which neither is found. The two appear so completely distinct that there is no basis for uniting them.

Aldrich (1937, p. 95) separated the population of the western side of the Azuero Peninsula as *Manacus aurantiacus flaviventris*, as a series from that area appeared brighter colored than those available at the time from western Chiriquí and southwestern Costa Rica. During the course of my own field investigations I have accumulated a considerable series from Veraguas and eastern Chiriquí, and have examined additional material from western Chiriquí and Costa Rica. A study of this extensive material indicates that the supposed differences do not hold. Males in fresh plumage from both areas are strongly orange, but as the season progresses there is fading, particularly in the dry months when sun is more intense.

The following measurements may be useful for comparison with those of the races of *Manacus vitellinus*.

Males (25 specimens), wing 44.8-47.8 (46.3), tail 26.0-30.2 (28.7), culmen from base 11.2-12.2 (11.7), tarsus 19.5-20.6 (20.1) mm.

Females (21 specimens), wing 47.8-50.0 (48.7), tail 29.0-30.9 (30.3), culmen from base 11.3-12.3 (11.8), tarsus 18.2-20.5 (19.1) mm.

Family TYRANNIDAE: Tyrant Flycatchers

TYRANNUS MELANCHOLICUS CHLORONOTUS Berlepsch: Tropical Kingbird, Pechi-amarillo Grande

Tyrannus chloronotus Berlepsch, Ornith., vol. 14, 1907, p. 474. (Temax, Yucatán.)

A female was collected and several others seen along a stretch of sandy beach, where they rested on the open ends of branches, or on the tops of low shrubs.

Family HIRUNDINIDAE: Swallows

PROGNE SUBIS (Linnaeus): Purple Martin, Golondrina Turquina

Hirundo Subis Linnaeus, *Systema naturae*, ed. 10, vol. 1, 1758, p. 192. (Hudson Bay.)

On the return journey on March 2 I noted an occasional purple martin flying northward, low over the water, near the mainland coast from the vicinity of Plantain Cay to Chiriquí Point. These swallows are known as migrants through México and Central America, but little is reported regarding them in Panamá. The only published record that has come to my attention is by Zimmer (1955, pp. 4, 5) of an immature male of the southwestern subspecies, *Progne subis hesperia* Brewster, taken at Cocoplum, Bocas del Toro, October 27, 1927.

At Almirante on February 18, 1958, during a forenoon of nearly constant rain, a band of 8 purple martins came to rest in dead branches of a tall avocado tree beside our house. At intervals others arrived until finally between 35 and 40 were present, resting in close formation. When the rain ceased and the sky became lighter two hours later they disappeared. From then until March 6, I recorded purple martins in northward flight, singly or in scattered, straggling groups, across Almirante Bay, along its shoreline, or over the outer beach near Boca del Drago. Occasionally a few came to rest in the tree beside the house. It appears that there is a regular flight in migration along the Caribbean coast.

The female of a pair taken on February 18, in its darker color on the under surface and in wing length of 148 mm., represents typical *Progne subis subis*. The male, with the wing 149.7 mm., agrees in size with that race.

Family TROGLODYTIDAE: Wrens

THRYOTHORUS NIGRICAPILLUS Sclater: Bay Wren, Cucarachero Castaño Cabecinegro

Thryothorus nigricapillus Sclater, *Proc. Zool. Soc. London*, pt. 28, May 1860, p. 84. (Nanegal, 4,000 feet elevation, Ecuador.)

This wren (fig. 2) was the most common land bird on the island, found in pairs scattered through the undergrowth. Though they were encountered most often in low tangles, where creepers were matted and cover was dense, they ranged also out into more open areas, and at times worked up through branches and creepers into the tops of the taller trees. They were quite tame, often appearing within 6 feet or so. On our second day ashore the sky was overcast and it was often difficult to see these birds in the darkly shadowed coverts. We were usually notified of the presence of a pair by the series of repeated

notes that made up the clear song. This resembled closely that of *Thryothorus nigricapillus costaricensis* as heard at Almirante, but seemed to be higher in tone and somewhat less varied in repertoire.

One pair worked busily at a nearly completed nest located near the tip of a leafy branch about 6 feet from the ground in heavy undergrowth. This was a ball, nearly round, of palm and other slender

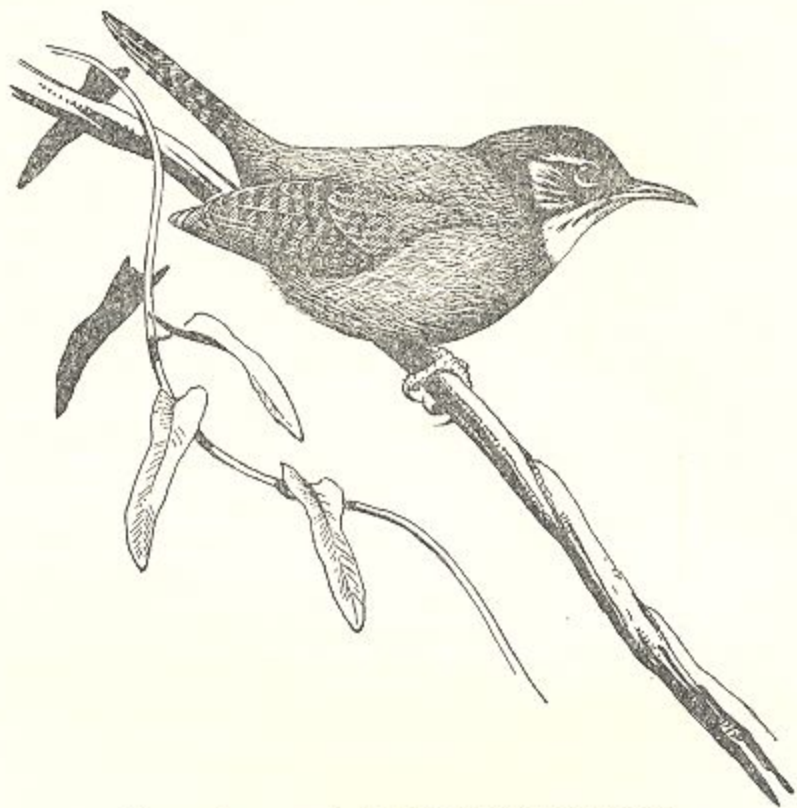


FIG. 2.—Bay wren, Cucarachero Castaño Cabecinegro.

fibers, with the ends projecting all around as a rough fringe. The entrance was in one side.

The larger size and paler color of this island population in comparison with the birds of the adjacent mainland were easily evident in the field. A description of this previously unknown race follows.

THRYOTHORUS NIGRICAPILLUS ODICUS subsp. nov.

Characters.—Similar to *Thryothorus nigricapillus costaricensis* (Sharpe)² but larger, with longer, heavier bill; in color paler brown.

² *Thryophilus costaricensis* Sharpe, Catalogue of the birds in the British Museum, vol. 6, 1881, p. 217. (Valley of the Río San Carlos, Alajuela, Costa Rica.)

Description.—Type, U.S.N.M. No. 469015, male adult, from Isla Escudo de Veraguas, Bocas del Toro, Panamá, taken March 1, 1958, by Alexander Wetmore (original No. 22230). Throat, upper fore-neck, malar region, loreal area, a line on the margin of upper and lower eyelids surrounding the eye, a superciliary line extending back from the center of the eye, and the auricular region white, with some mixture of black on loreal area and along upper eyelid; crown, hind-neck, side of neck, side of head, except as noted above, and a line separating the white malar area from the throat, deep black; back, rump, and upper tail coverts auburn, the tail coverts with short central bars of black along the shaft; wing coverts auburn, with irregular shaft lines and subterminal bars of dusky neutral gray; tertials and outer webs of secondaries auburn, barred heavily with dusky neutral gray; outer webs of innermost primaries auburn, changing on the outer ones to hazel, the brighter color finally reduced to a narrow edging on the ninth and tenth; concealed webs of remiges fuscous-black; rectrices dusky neutral gray, barred narrowly with hazel; breast and center of abdomen ochraceous-tawny; sides and flanks hazel; under tail coverts ochraceous-tawny, barred heavily with black; axillars ochraceous-tawny; under wing coverts ochraceous-buff, mixed with white; edge of wing white. Maxilla dusky neutral gray; mandible pale smoke gray, becoming smoke gray at the base; tarsus and toes fuscous-black (from dried skin).

Measurements.—Males (5 specimens), wing, 75.2-79.2 (77.0), tail 58.6-62.3 (60.2), culmen from base 21.8-24.2 (23.2), tarsus, 28.4-31.8 (29.7) mm.

Females (6 specimens), wing 70.2-72.8 (71.6), tail 54.5-58.8 (56.8), culmen from base 21.0-22.3 (21.5), tarsus 26.2-28.7 (27.2) mm.

Type, male, wing 75.2, tail 58.8, culmen from base 24.0, tarsus 29.1 mm.

Range.—Isla Escudo de Veraguas, at sea off the base of the Valiente Peninsula, Bocas del Toro, Panamá.

Remarks.—The actual difference in measurements will be indicated by consulting the summary of a series of *Thryothorus nigricapillus costaricensis*, the nearest relative, both physically and geographically, that is given in the review of the species that follows.

The name of the new race is from the Latin *odicus*, musical, appropriate because of the pleasing song.

The complete and definite dissimilarity in the lower surfaces found in this group of wrens between the chestnut-breasted, white-throated groups of the Caribbean slope of Nicaragua, Costa Rica, and Bocas

del Toro, and the forms with the anterior under surface barred closely with black and white that range from eastern Darién through western Colombia to Ecuador, long led to their separation under two specific names. The series of specimens now available justifies their union under the specific name *nigricapillus*, though it may be supposed that the two terminal groups must have been separated for a long period to have become so completely different. In *costaricensis*, the darkest of the Central American races, and the one farthest removed from those of South America, remote common ancestry with the other is indicated in the rather indistinct black bars found on the breast and sides in the juvenile plumage. This marking may persist in the following plumage, especially on the abdomen, but many are plain chestnut on the posterior lower surface except for the bars on the lower tail coverts that are common to many of the numerous species of the genus *Thryothorus*. Proceeding eastward along the Caribbean coast of Panamá from the valley of the Río Calovevora, on the boundary between the provinces of Bocas del Toro and Veraguas, the wrens of the species under discussion become paler brown, with sides and flanks barred with black, except for occasional plain individuals. This group—the race *castaneus*—is found through the lowland Caribbean drainage of the Canal Zone.

Continuing eastward there is an abrupt change near Portobello and in the foothills of the Cerro Azul in which the plain white of the throat extends down on the upper breast, the brown on the sides becomes paler, and there are strongly marked black bars on sides, lower breast, and abdomen in most individuals. This style—the race *reditus*—crosses to the Pacific slope along the base of the Cerro Azul, and at Chimán has reached the coastal lowlands. On the Caribbean slope it continues almost to the Colombian boundary in the Comarca de San Blas, and on the Pacific side to about the western boundary of Darién near the Golfo de San Miguel. There is then rather abrupt transition to birds with lower surface heavily barred—the race *schottii*. Markings on the white throat are faint or absent, and the brown is restricted to the flanks and under tail coverts. In the valley of the Atrato the barring reaches its maximum and here the throat in most specimens is heavily marked. The plainer throat persists to the eastward in Colombia along the Río Sinú, and on the middle and upper Río Cauca. In southwestern Colombia, beginning in the Department of Cauca, the throat bars begin to lighten still more and to disappear, and farther south, in Nariño, the upper breast also becomes less heavily marked. This style leads over to typical *nigricapillus* of Ecuador, in which throat and upper breast are white, without bars, and

the flanks and under tail coverts are lighter brown. In all the changes that have been described these wrens have remained uniformly chestnut above, with black crowns.

One possible explanation of this interesting gradient might be that the plain, chestnut-breasted forms had become established fairly early in the Central American area where they have continued with modification toward the elimination of barring. In the South American area, on the other hand, the barring became intensified. Through a subsequent spread of range in the latter population, the two groups have been brought in contact, with resultant hybridization that has caused the mixing that has been described.

The races recognized as *reditus* and *castaneus* represent two stages in this process. It would appear that the *schottii* group has been the one in active expansion because of the extensive range that it now occupies. It is interesting that the chestnut-breasted group is not found farther north in Central America, though there would appear to be no ecological barrier to prevent this.

Hellmayr (1934, p. 180) includes another group, *Thryothorus semibadius* Salvin, found in tropical lowlands of the Pacific slope from southwestern Costa Rica to western Chiriquí, also as a race of *nigricapillus*, but this does not seem justified. The bird in question is more finely barred, with 3 narrow dark bars on the individual feathers of the breast, and the crown chestnut, concolor with the back; also it is smaller. In the *schottii-nigricapillus* group, which *semibadius* resembles superficially, the black bars are heavier, there are 2 bars on the individual feathers of the breast, the crown and upper hindneck are deep black, and the size is larger. There is no indication whatever of hybridization between *semibadius* and the adjacent *Thryothorus n. costaricensis*. While juveniles of the *costaricensis-nigricapillus* group show spots or a slight wash of brown on the pileum and hindneck, the crown cap remains plainly defined. *Thryothorus semibadius* would appear to be an older offshoot of the ancestral stock that has produced the forms with barred breast, and from its limited range one that may be on its way to extinction.

The following summary, based on extensive series throughout the entire range of these birds, outlines findings as to their relationships and distribution. It should be noted that museum series of skins almost invariably include immature individuals that are not fully grown, especially in the development of the wings. These are easily detected and have been omitted in the measurements that are given under the different forms.

THRYOTHORUS SEMIBADIUS Salvin: Salvin's Wren, Cucarachero
Castaño Cabecimoreno

Thryothorus semibadius Salvin, Proc. Zool. Soc. London, November 1870, p. 181.
(Bugaba, Chiriquí.)

Characters.—Crown and hindneck chestnut, concolor with the back; under surface white, barred, except for the throat, narrowly with black, the breast feathers having three black bars; size smaller.

Measurements.—Males (8 specimens), wing 61.4-65.5 (63.3), tail 42.0-49.2 (46.3), culmen from base 18.7-21.0 (19.9), tarsus 23.4-24.0 (23.7) mm.

Females (4 specimens), wing 61.2-64.7 (63.2), tail 43.7-47.4 (45.8), culmen from base 19.9-20.8 (20.3), tarsus 23.1-24.5 (23.8) mm.

Range.—Tropical zone of the Pacific slope from southwestern Costa Rica in the valley of the Río Pirris to western Panamá in the Comarca del Barú (Puerto Armuelles), and the lowlands of extreme western Chiriquí (Divalá, Bugaba).

THRYOTHORUS NIGRICAPILLUS Sclater: Bay Wren, Cucarachero
Castaño Cabecinegro

Thryothorus nigricapillus Sclater, Proc. Zool. Soc. London, pt. 28, May 1860,
p. 84. (Nanegal, 4,000 feet elevation, Ecuador.)

Characters.—Crown and hindneck deep black, in sharp contrast to the chestnut of the remainder of the upper surface; under surface chestnut, auburn, chestnut-brown, clay color, or white, barred more or less with black; in the races that are white below, with 2 black bars on each breast feather; size larger.

THRYOTHORUS NIGRICAPILLUS COSTARICENSIS (Sharpe)

Thryophilus costaricensis Sharpe, Catalogue of the birds in the British Museum,
vol. 6, 1881, p. 217. (Valley of the Río San Carlos, Alajuela, Costa Rica.)

Characters.—Throat and upper foreneck white, rest of lower surface auburn to hazel; sides in some specimens with a few bars of black, which usually are indistinct.

Measurements.—Males (17 specimens), wing 66.5-72.0 (69.3), tail 51.0-56.8 (54.3), culmen from base 20.4-22.7 (21.3), tarsus 24.5-27.8 (25.9) mm.

Females (9 specimens), wing 62.5-67.2 (64.6), tail 47.8-54.0 (50.2), culmen from base 19.4-21.7 (20.5), tarsus 23.2-25.6 (24.5) mm.

Range.—Caribbean slope from southeastern Nicaragua (Los Sábalos, Río Escondido, San Juan del Norte) through eastern Costa Rica (Río Frío, Guayabo, Bonilla, Jiménez, Reventazón) to central Bocas

del Toro, Panamá. Specimens from Cricamola at the eastern end of the Laguna de Chiriquí are intermediate toward *castaneus*.

Sharpe described this bird from a single specimen that he said was collected by Adolphe Boucard in Costa Rica, without giving a more definite locality. Boucard (1878, p. 51) in an account of his collections made in Costa Rica listed this wren as *Thryophilus castaneus* Lawrence, with the statement "Several specimens, from San Carlos; killed in February." In his itinerary he says that this locality was in the Valley of the Río San Carlos, a tributary of the Río San Juan on the Atlantic slope. I have therefore designated this area as the type locality.

THRYOTHORUS NIGRICAPILLUS ODICUS Wetmore

Characters.—Similar to *T. n. costaricensis* but larger, with longer, heavier bill; paler brown.

Measurements.—Given above.

Range.—Confined to Isla Escudo de Veraguas, off the base of the Valiente Peninsula, Bocas del Toro, Panamá.

THRYOTHORUS NIGRICAPILLUS CASTANEUS Lawrence

Thryothorus castaneus Lawrence, Ann. Lyc. Nat. Hist. New York, vol. 7, June 1861, p. 321. ("Atlantic slope near the Panama Railroad"—Lion Hill, Canal Zone.)

Characters.—Similar to *T. n. costaricensis*, but paler brown on ventral surface, with the white of the throat extending farther down on the foreneck, in some reaching the upper breast; more definitely barred with black on sides and flanks, in some specimens with the bars extending across the lower breast and abdomen.

Measurements.—Males (14 specimens), wing 66.2-70.7 (68.9), tail 49.4-53.7 (51.7), culmen from base 20.3-22.0 (21.0), tarsus 24.9-27.5 (25.8) mm.

Females (17 specimens), wing 63.1-67.0 (64.8), tail 46.3-53.4 (49.2), culmen from base 19.3-21.9 (20.2), tarsus 23.4-25.7 (24.7) mm.

Range.—Caribbean slope from the valley of the Río Calovevora in eastern Bocas del Toro, through northern Veraguas, northern Coclé (extending inland on the northern slope in the higher foothills to the headwaters of the Río Coclé del Norte and the Río Indio), and western Colón (Chilar, Río Indio, Colón, Marajal), to the Canal Zone (Gatún, Lion Hill, Barro Colorado Island, Frijoles).

Back of El Valle, Coclé, I found these birds at 2,000 feet elevation along the upper course of the Río Mata Ahogada, ranging on its

higher branches to 2,500 feet. The divide here between this stream, which flows into the Pacific, and the Río Indio of the Caribbean side is low so that rainfall in the heads of the valleys is sufficient to maintain the type of green-leaved undergrowth that these wrens frequent across for a short distance on the Pacific side. The birds here do not range below 2,000 feet elevation where the scrub growth changes to the semiarid type characteristic of the Pacific lowlands of this area. This is the only point known to me at which the race *castaneus* crosses to the Pacific slope. Records of Salvin (1867, p. 134) and of Salvin and Godman (1880, p. 88) for Santiago de Veraguas are not supported by specimens in the Salvin and Godman collections now in the British Museum (Natural History) and are certainly in error.

The type specimen of *castaneus*, described by Lawrence, came to him in a collection made by James McLeannan and John R. Galbraith during the winter of 1860-1861. The collectors were located at Lion Hill, but it must be borne in mind that it is certain they covered a considerable area along the line of the railroad in the course of their work. In the present instance Lawrence (1861, pp. 315-316) states that their specimens were taken "on the Atlantic side of the isthmus" except for half a dozen species that he lists, which do not include the bird here under consideration. Though the type specimen of *castaneus* is labeled only "Panama" with the initials of the collectors, the designation "Lion Hill" found in current literature may be accepted as the restricted type locality.

THRYOTHORUS NIGRICAPILLUS REDITUS Griscom

Thryophilus nigricapillus reditus Griscom, Bull. Mus. Comp. Zoöl., vol. 72, January 1932, p. 358. (Permé, Comarca de San Blas.)

Characters.—Similar to *T. n. castaneus* but with white of breast more extensive; sides, abdomen, and under tail coverts paler, duller brown; more heavily and extensively barred with black.

Measurements.—Males (15 specimens), wing 67.0-70.5 (68.9), tail 47.5-54.3 (52.0), culmen from base 19.3-21.9 (20.9), tarsus 24.0-26.5 (25.5) mm.

Females (11 specimens), wing 63.2-67.7 (65.4), tail 45.0-51.4 (48.5), culmen from base 19.0-21.5 (20.1), tarsus 23.1-26.3 (24.7) mm.

Range.—From eastern Colón (Portobello) eastward on the Caribbean slope through the Comarca de San Blas (Mandinga, Permé, Puerto Obaldía), crossing through the western Cerro Azul to the head of the Río Pacora on the Pacific slope, ranging eastward in the Province of Panamá along the Pacific side of the Serranía de Majé

(Quebrada Cauchero, on the base of Cerro Chucantí), reaching tide-water at Chimán, and on the Río Majé (Charco del Toro).

This race constitutes the definite intergrade between the western group with bright brown breast and little or no barring, and the eastern and southern population with completely barred breast. Transition between *castaneus* and *reditus* on the west is fairly abrupt, an intermediate condition being evident in one specimen from near Frijoles in the Chagres drainage. Birds from near Colón are definitely *castaneus*, while those from near Portobello, 30 kilometers to the east, are *reditus*. At the eastern end the type locality at Permé is barely within the range, since skins from Puerto Obaldía, about 15 kilometers farther east, are intermediate toward *schottii*, which is the race found on the coast at Acandí, Chocó, Colombia, 25 kilometers beyond Puerto Obaldía.

THRYOTHORUS NIGRICAPILLUS SCHOTTII (Baird)

Thryophilus schottii Baird, Review of American birds in the Museum of the Smithsonian Institution, vol. 1, August 1864, p. 123 (in Key); September 1864, p. 133. (Río Truandó, Chocó, Colombia.)

Thryophilus nigricapillus connectens Chapman, Bull. Amer. Mus. Nat. Hist., vol. 31, July 23, 1912, p. 157. (Cocal, 5,000 feet elevation, Cauca, Colombia.)

Characters.—White of throat and foreneck extending down over breast, sides, and center of upper abdomen; lower surface heavily barred with black, in typical form the bars covering the throat, but in intermediate stage the throat partly or wholly plain.

Measurements.—Males (16 specimens), wing 64.0-66.9 (67.3), tail 44.6-51.6 (48.2), culmen from base 19.5-21.5 (20.4), tarsus 24.4-26.8 (25.4) mm.

Females (10 specimens), wing 59.9-65.6 (63.0), tail 43.0-47.8 (45.6), culmen from base 19.0-20.8 (19.6), tarsus 23.0-25.0 (24.1) mm.

Range.—Darién, eastern Panamá, from the lower Río Sambú (Jesusito), and the lower Río Tuira (Cituro, on Río Cupe) inland to 600 meters elevation near Cana, and south to the valley of the Río Jaqué; continuing in Colombia throughout Chocó (from the Pacific coast across to Acandí on the Gulf of Urabá), and western Antioquia in the Atrato valley (Villa Artiaga), and western Valle (Buenaventura and San José), to western Cauca (Cocal); east into southern Bolívar in the upper Sinú Valley (Socarré, Quebrada Salvajín), and northern Antioquia in the lower Cauca Valley (El Pescado), and the valley of the Río Nechí (Regeneración, El Real,

Hacienda Belén), crossing to the Río Magdalena drainage on the Quebrada Enanea (Volador).

Remarks.—The typical form of this race, with the throat and fore-neck distinctly barred with black, is found mainly in the Chocó. In southwestern Colombia, through western Cauca, the throat barring disappears, and in Nariño the breast appears whiter as the barring on this area is reduced. The birds of this region are intergrades of unstable character between *schottii* and *nigricapillus*. The influence of the *reditus* style of markings produces similar intergrades on the opposite side of the range, beginning in northern Chocó at Acandí on the Gulf of Urabá, and extending across to the upper Sinú Valley and the lower Nechí. Specimens from this area are identical in appearance with those of western Cauca which Chapman named *connectens*. Under these circumstances there is no basis for recognition of such a race, as the supposed characters, unstable at best, are duplicated on the opposite side of the population of typical *schottii*. The birds described are allocated as intermediates to *schottii*, except for those of Nariño which are placed best with typical *nigricapillus*.

THRYOTHORUS NIGRICAPILLUS NIGRICAPILLUS Sclater

Thryothorus nigricapillus Sclater, Proc. Zool. Soc. London, pt. 28, May 1860, p. 84. (Nanegal, 4,000 feet elevation, Ecuador.)

Characters.—Similar to *T. n. schottii*, but averaging lighter brown on back, flanks, and under tail coverts; throat, foreneck, and center of upper breast immaculate, with the barring reduced on the sides.

Measurements.—Males (13 specimens), wing 62.6-67.1 (65.1), tail 44.2-50.8 (48.1), culmen from base 19.1-20.9 (20.1), tarsus 24.0-25.5 (24.6) mm.

Females (6 specimens), wing 63.9-66.8 (65.5), tail 46.6-50.7 (48.7), culmen from base 19.2-21.6 (20.0), tarsus 23.0-25.3 (24.2) mm.

Range.—From western Nariño (intermediate) in Colombia south through the tropical zone of western Ecuador, nearly to the boundary with Perú.

Remarks.—As indicated under *schottii*, specimens from Nariño are intermediate.

Family MIMIDAE: Mockingbirds, Thrashers

DUMETELLA CAROLINENSIS (Linnaeus): Catbird, Pájaro Gato

Muscicapa carolinensis Linnaeus, Systema naturae, ed. 12, vol. 1, 1766, p. 328. (Virginia.)

Three were noted, and one female was collected.

Family PARULIDAE: Wood Warblers

DENDROICA PETECHIA ERITHACHORIDES Baird: Golden Warbler,
Canario Manglero

Dendroica erithachorides (= *erithachorides*, typographical error, corrected in index) Baird, Report of explorations and surveys . . . for a railroad from the Mississippi River to the Pacific Ocean, vol. 9, pt. 2, Birds, 1858, pp. 283, 976. (Cartagena, Colombia.)

These warblers (fig. 3) were found scattered through the taller trees where they were fairly common, though each of the four taken appeared to be alone. It should be noted that on Escudo they were not restricted to the limited growths of mangroves found near the sea, as is the case on the mainland, but ranged throughout the forest growth, as appears to be the regular habit of this warbler when found on small islands. On the present island they ranked third in abundance among the smaller land birds. The four taken include three adult males which are similar to a small series from the shores of Almirante Bay on the nearby mainland. A female that had just begun the molt from the gray juvenile dress to the yellow adult plumage had the skull fully ossified, indication that this character as a criterion of age is not reliable in tropical areas, where the life cycle of an individual bird is not necessarily arranged on a calendar year basis.

The series from Escudo and from Almirante Bay agree fully with type material of this race, which is interesting since specimens from Limón, Costa Rica, about 100 kilometers to the north, are *Dendroica p. bryanti*.

Family THRAUPIDAE: Tanagers

THRAUPIS VIRENS (Linnaeus): Blue-gray Tanager, Azulejo

Loxia virens Linnaeus, Systema naturae, ed. 12, vol. 1, 1766, p. 303. (Surinam.)

Blue-gray tanagers were fairly common in the taller trees, a number being seen and three collected. It has been unexpected to find that they are so different from the widely distributed race of the mainland that they merit description as an additional subspecies.

THRAUPIS VIRENS CAESITIA subsp. nov.

Characters.—Similar to *Thraupis virens diaconus* (Lesson)² but darker, particularly below; central lower surface nearly uniform in shade from throat to under tail coverts; sides definitely darker; bill longer and heavier.

² *Tanagra (Aglaia) diaconus* Lesson, Rev. Zool., June 1842, p. 175. (Realejo, Nicaragua.)



FIG. 3.—Golden warbler, Canario Manglero.

Description.—Type, U.S.N.M. No. 469168, female, Isla Escudo de Veraguas, Bocas del Toro, Panamá, March 2, 1958, collected by Alexander Wetmore (original No. 22248). Crown mineral gray, with a faint wash of gnaphalium green, which is stronger on hindneck; back and scapulars dull greenish glaucous-blue, changing to light glaucous-blue on rump; upper tail coverts bluish gray-green, washed with greenish glaucous-blue at tips; shoulder patch formed by lesser and middle coverts, grayish violaceous blue; primaries and secondaries dusky neutral gray, with outer webs, except for the tips of the primaries, dull Venetian blue; outer webs of scapulars dark goblin blue; central rectrices and outer webs of others dark goblin blue, with inner webs of all but the central pair dark neutral gray; median under surface between court gray and gnaphalium green, with center of abdomen faintly whitish; sides gnaphalium green; edge of wing glaucous-blue; under wing coverts light gull gray to white. Bill dull black, except for a wash of hair brown toward base of gonys; tarsus, and toes dusky neutral gray (from dried skin).

Measurements.—Females (3 specimens), wing 87.5-90.1 (88.4), tail 60.1-62.8 (62.3), culmen from base 16.4-18.0 (17.1), tarsus 20.4-20.7 (20.6) mm.

Type, female, wing 90.1, tail 62.8, culmen from base 18.0, tarsus 20.4 mm.

Range.—Isla Escudo de Veraguas, at sea off the base of the Valiente Peninsula, Bocas del Toro, Panamá.

Remarks.—The fact that this widely distributed tanager was represented by a distinct form on this small island was not detected until I began examination of specimens in the preparation of the present report. The three specimens, all females, were taken merely as a matter of routine during my visit. Comparison has been made with a series of recently collected skins, consisting of 15 females of *Thraupis virens diaconus*, and 21 of *T. v. cana*. In none of these is there duplication of the characters on which the race *caesitia* is based. Attention was first drawn to the island form by the large bill, this measuring 13.8 to 15.7 (14.6) mm. in the 15 *diaconus*, and 13.7 to 15.7 (14.7) mm. in the 21 *cana*.

Hellmayr (1936, p. 214) expressed doubt as to the validity of the race *diaconus*, and recently Blake (1958, p. 566) has combined this form with *cana*. In comparing an extensive series taken throughout the range of the two subspecies in question I find, however, that while the two are similar in general, *diaconus* is darker on the back, and slightly duller blue on the rump, in addition to averaging somewhat

darker in color below. These characters hold in birds of Central America south through the Isthmus of Panamá, with intergradation in extreme northwestern Colombia. In making comparison it is necessary to separate adult from immature birds, since the distinctions listed are masked when this is not done. I believe the confusion regarding the two races has been due to lack of understanding of this fact.

The name given to the new race, in connection with its darker coloration, is from the Latin *caesitius*, meaning bluish.

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1. Western end of Isla Escudo de Veraguas, from the south.



2. Southern shore of eastern end of Isla Escudo de Veraguas.